

SMART SERIES ENGINEERING MCQS

1. The pole shoes of DC machines are fastened to the pole core by
- | | |
|-----------------|-----------------------|
| A. Welding | B. Soldering |
| C. Steel clumps | D. Countersunk screws |

Ans. D

2. Which of the following are considered as disadvantage(s) of Gauss-Seidel method over Newton's method in load flow programs?
- A. More iteration
 - B. More memory requirement and less accuracy
 - C. Less iterations but more memory
 - D. More accuracy and more memory

Ans. A

3. The quantity " R_m " which relates dependent voltage to controlling current is called
- A. Trans Conductance B. Maximum Resistance
C. Trans Resistance D. Limiting Resistance

Ans. C

4. For which purpose bundled conductors are employed to a power system
- A. Appearance of the transmission line
 - B. Mechanical stability of line
 - C. Decrease system stability
 - D. Increase the short circuit current

Ans. D

5. Radio frequency chokes are air cored to
- | | |
|------------------------|----------------------------------|
| A. Keep frequency low | B. Keep inductive reactance low |
| C. Keep frequency high | D. Keep inductive reactance high |

Ans. B

6. Fundamental property used in single node pair circuit analyzer is thatacross all elements is same.

- A. Current
- C. Resistance

- B. Voltage
- D. Inductance

Ans. B

7. Landfill gas is actually ----- used in thermal power plants.

- A. Methane
- B. Ethane
- C. Black liquor
- D. Ethane

Ans. A

8. The average fossil fuel plant converts about is _____ % of the power going in to the power going out.

- A. 33
- B. 40
- C. 25
- D. 50

Ans. Both A and B

9. If field resistance of a dc shunt generator is increased beyond its critical value, the generator.

- A. output voltage will exceed its nameplate rating
- B. will not build up
- C. may burn out if loaded to its nameplate rating
- D. power output may exceed its nameplate rating

Ans. B

10. A semiconductor device is connected in a series circuit with a battery and a resistance. If the polarity of battery is reversed, the current drops almost to zero. The device may be

- A. P-type semiconductor
- B. N-type semiconductor
- C. P-N junction
- D. An intrinsic semiconductor

Ans. C

11. What is the probability of a number "2" when a dice is thrown?

- A. $2/6$
- B. $1/3$
- C. $1/6$
- D. $1/4$

Ans. C

12. If the input capacitor of a power supply is shorted, it will result in

- A. Excessive hum
- B. Reduced voltage output
- C. No voltage output
- D. Low voltage output

Ans. C

13. Admittance is the reciprocal of
A. Capacitive reactance B. Inductive reactance
C. Reactive power D. Impedance
Ans. D
14. ----- is a by-product of paper industry, which is used by many industries as a primary source of electricity.
A. Landfill gas B. Sludge waste
C. Black Liquor D. Wood waste
Ans. C
15. Which of the following ideas means deciding at runtime what strategy to summon?
A. Dynamic typing B. Dynamic hiding
C. Dynamic loading D. Dynamic blinding
Ans. D
16. If the firing angle in an SCR rectifier is decreased, output will be
A. Maximum B. Increased
C. Decreased D. Unaffected
Ans. B
17. The ----- time signal is described for all values of time.
A. Discrete B. Continuous
C. Random D. Digital
Ans. B
18. Which of the following conditions relate line resistance 'R' and line reactance 'X' for maximum steady state power transmission on a transmission line?
A. $X=R$ B. $R=\sqrt{3}X$
C. $X=\sqrt{3}R$ D. $X=R/\sqrt{2}$
Ans. C
19. These are ----- types of dependent sources, depending on the controlling variable and output of the source.
A. Two B. Three
C. Four D. Five
Ans. C

Multiple Choice Questions

20. Discrete device field effect transistor is classified on the basis of their
- A. Resistive state
 - B. Conducting state
 - C. Voltaic state
 - D. Control gate construction

Ans. D

21. At very sunny places this source(s) of energy can be found
- A. Jet fuel
 - B. Geothermal
 - C. Solar
 - D. Both B & C

Ans. C

22. Main purpose of modulation process is to
- A. Distort the original signal
 - B. Add extra noise to the signal
 - C. Reduce the mutual interference
 - D. Time shift in frequency
 - E. Increase signal to noise ratio

Ans. D

23. Which line is obtained by the method of least square?
- A. Straight line
 - B. Second degree equation line
 - C. Polynomial equation line
 - D. Best fit line

Ans. D

24. A transformer transforms
- A. Voltage
 - B. Power
 - C. Frequency
 - D. Current

Ans. Both A and D

*According to NTS the answer is voltage and current however in actual it the power which transformer transforms.

25. Conjunction $x \wedge y$ behaves on digits 0 and 1 exactly as -----does for ordinary algebra.
- A. Addition
 - B. Subtraction
 - C. Multiplication
 - D. Division

Ans. C

26. Power in an AC circuit is found by
A. $VI \sin \phi$ B. $VI \tan \phi$
C. $VI \cos \phi$ D. VI
Ans. C
27. Modulation index in amplitude modulation
A. Is defined as the measure of extent of amplitude variation about an un-modulated carrier.
B. Does not impact power dissipation
C. Is independent of integral multiple of amplitude
D. None of these
Ans. A
28. Fourier series are infinite series of elementary trigonometric functions i.e. sine and
A. Cosine B. Sec
C. Cosec D. Tan
Ans. A
29. SCR (Silicon controlled rectifier) goes into saturation, when gate-cathode junction is
A. Forward biased B. Reverse biased
C. In steady state D. Polarized
Ans. A
30. Drop out to cut off ratio for most relays is of the order of
A. 0.2 to 0.3 B. 0.3 to 0.4
C. 0.4 to 0.6 D. 0.6 to 1.0
Ans. D
31. A copper oxide ----- allows current to flow through a meter in only one direction.
A. Diac B. Transistor
C. Rectifier D. Voltmeter
Ans. C
32. DC generators have ----- on rotating shafts that convert AC into DC.
A. Diodes B. Commutator
C. Compressor D. Rotor
Ans. B

Multiple Choice Questions

33. There are two types of overload protection; instantaneous over current and -----.
- A. Variable over current
 - B. Time over current
 - C. Constant over current
 - D. Delay feedback current
- Ans. B**
34. Single sideband techniques are mostly employed for
- A. Conservation of transmitted power
 - B. Conservation of transmitted bandwidth
 - C. Conservation of transmitted power and bandwidth
 - D. Improving the performance of frequency modulation
- Ans. C**
35. For the same peak value of voltage which waveform will have the least RMS value?
- A. Sine wave
 - B. Square wave
 - C. Triangular wave
 - D. Full wave rectified sine wave
- Ans. C**
36. Which of the following sources have highest power generation capacity?
- A. Oil
 - B. Biogas
 - C. Nuclear
 - D. Natural Gas
- Ans. C**
37. Usually high tension cables can be used for electric power transmission but the voltage should not exceed
- A. 11kv
 - B. 22kv
 - C. 32kv
 - D. 110kv
- Ans. A**
38. The line integral of the electric field around a closed loop is equal to the negative of the rate of change of magnetic flux through the area enclosed by the loop. This statement is known as
- A. Ampere's law
 - B. Faraday's law of induction
 - C. Gauss' law of magnetism
 - D. Maxwell's equation
- Ans. B**

39. The partial derivatives " f_{xy} " and " f_{yx} " are called ----- derivatives.
- A. Dependent partial
 - B. Independent partial
 - C. Mixed partial
 - D. Universal partial

Ans. C

40. Green function method is a useful technique for solving.
- A. Ordinary differential equation
 - B. Partial differential equation
 - C. 1st order ODEs
 - D. 2nd order ODEs

Ans. B

41. The sum of all potential differences in a complete loop through the circuit should be
- A. Equal to zero
 - B. Equal to individual voltages
 - C. Equal to individual currents
 - D. Equal to individual resistances

Ans. A

42. Unguided propagation involves
- A. Propagation through computer LANs
 - B. Propagation through telephone channels
 - C. Propagation through optical fiber
 - D. Propagation through coaxial cable
 - E. Free space propagation

Ans. E

43. Preferring a ----- consists of using OHM's law to take an existing voltage source in series with a resistance and replace it with a current source in parallel with same resistance.
- A. Voltage transformation
 - B. Current transformation
 - C. Source transformation
 - D. Resistance transformation

Ans. C

44. Dynamic resistance of diode.
- A. Remains constant with time
 - B. Cannot be calculated for a diode
 - C. Doesn't depend on voltage and current change across diode
 - D. Changes as a function of applied voltage

Ans. D

Multiple Choice Questions

44. The TRIAC is a ----- device with control terminal
A. Uni-directional B. Bi-directional
C. Tri-directional D. Two terminal
Ans. B
45. If all conductive objects are bonded to same earth grounding system, the risk of electric shock is
A. Maximized B. Minimized
C. Zero D. Neglected
Ans. B
46. In open loop control system, input is ----- output.
A. Dependent of B. Independent of
C. Equal to D. Exponent of
Ans. B
47. If A is a square matrix with 3 x 3 order having $\det(A)=21$, then what will be the $\det(2A)$? Whereas \det is determinant.
A. 168 B. 42
C. 21 D. 126
Ans. A
48. Error in a computer program is called
A. Virus B. Crash
C. Bug D. Worm
Ans. C
49. A system is -----, if the natural response neither decays nor grows, but remains constant or oscillates.
A. Asymptotically stable B. Marginally stable
C. Fully stable D. Absolute stable
Ans. B
50. N-type material is formed by doping pure silicon with
A. Trivalent impurity B. Tetravalent impurity
C. Pentavalent impurity D. Divalent impurity
Ans. C

Multiple Choice Questions

51. The main criterion for selection of the size of power distribution using a radial distribution system is
- A. Voltage drop
 - B. Corona loss
 - C. Temperature rise
 - D. Capital cost

Ans. A

52. Self-induction of a solenoid is
- A. Directly proportional to the current flowing through the coil.
 - B. Inversely proportional to its area of cross-section
 - C. Directly proportional to its length
 - D. Directly proportional to its area of cross-section

Ans. D

53. Transmission lines mostly use high voltage ----- alternating current.
- A. Single phase
 - B. Two phase
 - C. Three phase
 - D. Neutral phase

Ans. C

54. In a DC generator, brushes on the commutator are shifted from geometrical neutral position to
- A. Obtain highest generator voltage
 - B. Avoid sparking
 - C. Obtain highest generator efficiency
 - D. Produce spark

Ans. B

55. The electric dipole moment per unit volume of the dielectric is called
- A. Dipole density
 - B. Polarization of dielectric
 - C. Electric displacement vector
 - D. Polarization density

Ans. B

56. The negative maximum of cosine wave occurs at
- A. 270°
 - B. 180°
 - C. 90°
 - D. 0°

Ans. B

57. For current amplification in BJT, we mostly use
- A. Common base configuration
 - B. Common emitter configuration

Multiple Choice Questions

- C. Both common base and common emitter configuration
- D. Common collector configuration
- E. Both common collector and common emitter configuration

Ans. D

58. If we have two points "A" and "B" on node and the voltage is represented by V_{ab} , then ----- is taken as reference.

- A. Node A
- B. Node B
- C. Origin point
- D. Both

Ans. A

59. Stepper motor is a/an ----- motor which divides full rotation into large number of steps.

- A. Direct current
- B. Alternating current
- C. Powerless
- D. Small

Ans. A

60. A state during which nothing happens is known as

- A. LDA
- B. Nop
- C. MAR
- D. Op Code

Ans. B

61. A relay used for protection of motors against overload is

- A. Impedance relay
- B. Electromagnetic attraction type
- C. Thermal relay
- D. Buchholz's relay

Ans. C

62. Which of the following relays is used on transformers?

- A. MHO Relay
- B. Merz Price Relay
- C. Buchholz's relay
- D. None

Ans. C

63. Solid Grounding is used for Voltages

- A. Above 220 kV
- B. Above 11 kV
- C. Below 660V
- D. Below 115V

Ans. C

64. An ideal voltage source has ---- internal resistance.

- A. Zero
- B. Infinity

C. High

D. Low

Ans. A

65. An ideal current source has ----- internal resistance.

A. Zero

B. Infinite

C. High

D. Low

Ans. B

66. A moving iron ammeter coil has few turns of thick wire in order to have

A. Low resistance

B. High sensitivity

C. Effective damping

D. Large scale

Ans. A

67. Electric lines of force about a negative charge are

A. Circular and anticlockwise

B. Circular and clockwise

C. Radially inward

D. Radially outward

Ans. C

68. A digital signal is

A. Discrete

B. Discrete in time

C. Discrete in amplitude

D. Discrete in neither time nor amplitude

E. Discrete in both amplitude and time

Ans. E

69. ----- is defined as the measure of instrument by which it is error free.

A. Accuracy

B. Precision

C. Resolution

D. None of above

Ans. A

70. A diode that has a negative resistance characteristics is the

A. Schottkey diode

B. Tunnel diode

C. Hot carrier diode

D. Laser diode

E. Zener diode

Ans. B

71. Which type of engine uses maximum air fuel ratio?

A. Petrol engine

B. Gas engine

C. Diesel engine

D. Gas turbine

Multiple Choice Questions

E. Hydro turbine

Ans. D

72. Which Instrument has same calibration for AC & DC values?
A. Induction type
B. Hot wire type
C. Moving coil type
D. Moving iron type

Ans. B

73. The EM field and current are concentrated close to the surface of the conductor. The phenomenon is called
A. Skin effect
B. Faraday effect
C. EM concentration effect
D. Ohms effect

Ans. A

74. Light is produced in electric discharge lamps by
A. Ionization in vapor or gas
B. Heating effect
C. Magnetic effect
D. Carbon electrodes

Ans. A

75. _____ diode acts as a voltage controlled variable capacitor.
A. Varactor
B. Zener
C. Avalanche
D. Light emitting

Ans. A

76. By which a meter after checking with no current returns to its previous state
A. Controlling torque
B. Damping torque
C. Deflecting torque
D. None of the above

Ans. A

77. By connecting a shunt of higher value in ammeter what will happen
A. Current sensitivity increases
B. Current sensitivity decreases
C. Damping increases
D. Controlling torque decreases

Ans. B

78. Current chopping occurs in _____ circuit breaker.
A. Air blast
B. Vacuum filled
C. Oil filled
D. SF6

Ans. A

Multiple Choice Questions

79. For the signal $\cos(\pi/4)$ the fundamental period is
- A. 2
 - B. 4
 - C. 8
 - D. 10

Ans. C

80. In Z-Transform, the ROC must be centered at
- A. Origin
 - B. $Z=1$
 - C. Poles
 - D. Zeros

Ans. A

81. For a single phase rotary converter, when the power factor is unity, the AC line to DC current ratio will be
- A. 1.4
 - B. 1.0
 - C. 0.707
 - D. 0.5

Ans. A

82. A rectifier is a _____
- A. Bilateral device
 - B. Linear device
 - C. Nonlinear device
 - D. Passive device

Ans. C

83. A permanent magnet coil meter has which features
- A. Low power consumption
 - B. No hysteresis loss
 - C. Reduced eddy current
 - D. Reduced damping
 - E. All

Ans. E

84. Electric energy is stored by
- A. Nickel cadmium battery
 - B. Lead acid battery
 - C. Dry cell battery
 - D. None

Ans. B

85. What is handoff?
- A. Call activation
 - B. Call termination
 - C. Shifting call from one cell to another
 - D. All

Ans. C

Multiple Choice Questions

86. When electric field is parallel to the plane of incidence, the electromagnetic wave is said to be
- A. Linearly polarized
 - B. Circularly polarized
 - C. Elliptically polarized
 - D. Hyperbolically polarized
- Ans. D**

87. Moving coil ammeter can measure
- A. AC current
 - B. DC current
 - C. Eddy current
 - D. Stray current
- Ans. B**

88. Due to velocity saturation, MOSFET enters in saturation region
- A. Before pinch off
 - B. After pinch off
 - C. At pinch off
 - D. at Q point
 - E. After Q point
- Ans. A**

89. Which of the following is not bilateral?
- A. Resistor
 - B. Diode
 - C. Capacitor
 - D. Inductor
- Ans. B**

90. Which of the following contact point metals has the highest melting point?
- A. Silver
 - B. Tungsten
 - C. Gold
 - D. Copper
- Ans. B**

91. In a rotary converter
- A. Armature currents are DC only
 - B. Armature currents are AC only
 - C. Partly AC & partly DC
 - D. All
- Ans. C**

92. Which bulb operates on lowest power?
- A. Night bulb
 - B. Neon bulb
 - C. GLS bulb
 - D. Torch lamp
- Ans. D**

93. Which instrument cannot be used for DC measurements?
- A. Moving iron attraction type
 - B. Moving coil permanent magnet type
 - C. Hot wire type
 - D. Induction type

Ans. D

94. Which type of system is referred by pneumatic system?
- A. Pressure
 - B. Hydraulic
 - C. Fluid
 - D. None of these

Ans. A

95. The voltage above 230kV is called
- A. Extra high voltage
 - B. Ultra high voltage
 - C. High voltage
 - D. None

Ans. A

96. Lower voltages like 66kv and 33kv are considered to be
- A. Sub transmission voltage
 - B. Distribution voltage
 - C. Generation voltage
 - D. None

Ans. A

97. Every pre-amplifier in amplifier circuit contain _____ to achieve linearity.
- A. Class A
 - B. Class B
 - C. Class AB
 - D. Class C

Ans. A

98. DIAC is a semiconductor device which act as a
- A. 2 terminal unidirectional switch
 - B. 2 terminal bidirectional switch
 - C. 3 terminal bidirectional switch
 - D. 4 terminal multi directional switch

Ans. B

99. What is reciprocal of power factor?
- A. Gain
 - B. Q factor
 - C. Reactive power
 - D. Real power

Ans. B

100. What is the percentage of symmetrical faults in power system?
A. 5% B. 10%
C. 15% D. 20%

Ans. A

100. Transmission lines are considered to be ____ kV and above.
A. 110kv B. 140kv
C. 130kv D. 150kv

Ans. A

101. The product of V-rms and I-rms is called _____ power.
A. Apparent power B. Real power
C. Virtual power D. Reactive power

Ans. A

102. State variable analysis is used for the modelling of ____ type of systems.
A. Linear B. Non-linear
C. Time variant D. Time invariant
E. All of above

Ans. E

103. Aero derivative turbines do not have.....
A. Stator B. Compressor
C. Fuel intake system D. Fan

Ans. D

104. Commercial digital/analog convertor modules are available with precision ranging from 6 bit to ____.
A. 10 B. 12
C. 32 D. 18

Ans. D

105. In superposition theorem, all voltage sources are replaced by _____.
A. Open circuit
B. Closed circuit
C. Short circuit
D. Open circuit with parallel branch

Ans. C

Multiple Choice Questions

106. The principle ofcan be used to analyze fault in power system network.
A. Thevenin
B. Norton
C. Jordon
D. Superposition
Ans. D
107. In submarine power system, power is transmitted through----- cables.
A. High voltage direct current
B. Low voltage direct current
C. Under current
D. Under ampere
Ans. A
108. RC snubber circuit is used to limit the rate of..... in off state.
A. Rise of current in SCR
B. Rise of voltage in SCR
C. Conduction period
D. All of above
Ans. B
109. Which system is used for dc to dc high voltage gain?
A. Solar cell energy conversion system
B. Battery backup system
C. Fuel cell energy conversion system
D. High intensity discharge lamp ballasts for automobile headlamps
E. All of the above
Ans. E
110. UJT has same characteristics like
A. CE
B. BJT
C. FET
D. Diodes
Ans. C
111. Rechargeable batteries or Pbs batteries are of ----- type.
A. Primary batteries
B. Secondary batteries
C. Electrochemical batteries
D. None
Ans. B
112. How is load modeled in load flow analysis?
A. Constant power
B. Constant impedance
C. Constant load
D. Variable load
Ans. A

Multiple Choice Questions

113. Superposition theorem is applicable to
- A. Linear system
 - B. Linear time variant
 - C. Linear time invariant
 - D. Linear and non-linear
 - E. Linear, non-linear and time variant

Ans. A

114. Four wires are available in ----system.
- A. Star
 - B. Delta
 - C. Interconnected
 - D. Both A and B

Ans. A

115. Active devices
- A. Supply energy
 - B. Absorb energy
 - C. Convert energy from one form to another
 - D. Supply and absorb energy
 - E. Supply energy and convert one form to another

Ans. E

116. Over Current protection for motor is provided by
- A. Kit kat fuses
 - B. Overcurrent relay
 - C. Cartridge fuses
 - D. None

Ans. B

117. Inductance can be measured by
- A. Wien's bridge
 - B. Shearing bridge
 - C. Anderson bridge
 - D. Maxwell bridge

Ans. D

118. For a fixed number of poles and armature conductors, ---- winding will give high emf.

- A. Lap winding
- B. Wave winding
- C. Copper winding
- D. Both A & B

Ans. B

119. Maxwell loop current method of solving electrical network uses
- A. Branch currents
 - B. Kirchhoff's voltage law
 - C. is confined to single loop circuit
 - D. is a network reduction method

Ans. B

120. Which of the following is not a type of transformer?
A. Resonant transformer B. Laminated core transformer
C. single instrument transformer D. Ferrite core transformer
E. Cast iron transformer
Ans. E
121. Which of the prime movers is least efficient?
A. Gas turbine B. Petrol engine
C. Diesel engine D. Steam engine
Ans. D
122. When electromagnetic waves collide with hurdles their frequencies
A. Increase B. Decrease
C. Remains same D. Bounce back
Ans. C
123. In 3-phase 4-wire system, how many voltages are available?
A. Two B. Three
C. Four D. Nine
Ans. A
124. ----- meter is used a null detector in Wheatstone bridge.
A. Ammeter B. Voltmeter
C. Galvanometer D. Wattmeter
Ans. C
125. If " R_t " is the resistance of a coil of copper at $T^\circ\text{C}$ and R_T is the resistance at $T^\circ\text{C}$ and also the resistance temperature coefficient of copper per degree centigrade at 0°C is $1/234.45$, then R_t/R_T
A. $(1+t) / (1+T)$
B. $(1+ 234.45t) / (1+234.45 T)$
C. $(234.45 + t) / (234.45 + T)$
D. $(234.45 + t^2) / (234.45 + T^2)$
Ans. C
126. The wavelength of an electromagnetic wave after reflection at an angle on a surface
A. Increases in the actual direction of propagation
B. Decreases in the actual direction of propagation

Multiple Choice Questions

- C. Remains the same as the wavelength perpendicular to the surface
- D. Remains the same as in free space

Ans. A

127. $\Delta \times H = J + D$ is

- A. Maxwell equation
- B. Continuity
- C. Laplace equation
- D. Poisson equation

Ans. A

128. The channel of a JFET is between the

- A. Gate and drain
- B. Drain and source
- C. Gate and source
- D. Input and output

Ans. B

129. LTI system can be completely characterized by

- A. Impulse response
- B. Step input
- C. Output
- D. Step response

Ans. A

130. If a signal having different frequency and different sampling frequency are time division multiplexes then it is called

- A. Pulse stuffing
- B. Synchronous multiplexing
- C. Asynchronous multiplexing
- D. FDMA

Ans. A

131. We build control systems for _____.

- A. Remote control
- B. Convenience of input form
- C. Power amplification
- D. Compensation for disturbance
- E. All of the above

Ans. E

131. Natural frequency of a system gives

- A. Nature of transient
- B. Overshoot
- C. Oscillation
- D. Speed of response

Ans. D

*as per NTS key answer is speed of response however actual answer is oscillations

132. Hay bridge is used for the measurement of
A. Inductance B. Resistance
C. Capacitance D. None of these
Ans. A
133. ----- bridge is used for the measurement of resistance.
A. Shearing bridge B. Hay bridge
C. Wheatstone bridge D. Maxwell bridge
Ans. C
134. In an LTI system, if all the poles and zeros are inside the unit circle then
A. Its inverse does not exist
B. The system is causal and stable
C. The inverse of system is causal and stable
D. Both system and its inverse are causal and stable
Ans. D
135. Under-damped systems have
A. Damping ratio > 1 B. $0 < \text{damping ratio} < 1$
C. Damping ratio $= 1$ D. Damping ratio $= 0$
Ans. B
136. An alternator is operating on unity PF load, then
A. Armature reaction will be cross magnetizing
B. Armature reaction will be de-magnetizing
C. Armature reaction will be magnetizing
D. None of the above
Ans. A
137. ROC converges if poles and zeros lies inside
A. Origin B. $Z=1$
C. Poles D. Zeros
Ans. B
138. ----- is the fastest possible response without the overshoot.
A. Under damped B. Over damped
C. Critically damped D. General response
Ans. C

- _____

Multiple Choice Questions

146. Which of the following converts thermal energy to kinetic energy?
A. Thermocouple B. Fuel cell
C. Rocket D. Storage battery
Ans. C
147. For constant voltage transmission, voltage drop is compensated by installing
A. Synchronous motors B. Capacitors
C. Inductors D. All of above
Ans. A
148. Which of the following voltage is usually not the generating voltage?
A. 6.66kv B. 9.9kv
C. 11kv D. 13kv
Ans. B
149. Boosters are basically
A. Inductors B. Capacitors
C. Transformers D. Synchronous motors
Ans. C
150. Difference between D-mosfet and JFET is the absence of
A. P-N junction B. Drain
C. Gate D. Source
Ans. A
151. FET is beneficial due to
A. Low noise B. Small size
C. High power gain D. All
Ans. D
152. Vce voltage (voltage between collector and emitter) of a transistor is very important in checking whether transistor is
A. Working in saturation B. Working in cut off
C. Defective D. All
Ans. D
153. FIR filter can be designed to achieve
A. Linear phase B. Inverting phase
C. Non-inverting phase D. Both A & B
Ans. A

Multiple Choice Questions

154. In 8051, the contents of the instruction register are split into
A. 2 nibbles
B. 3 nibbles
C. 4 nibbles
D. 5 nibbles
Ans. A
155. One of the properties of FIR filters is that is not required for FIR filters.
A. Input
B. Transfer function
C. Feedback
D. Output
Ans. C
156. Optical power cable depends on associated with optical fiber receiver.
A. Quantum
B. Dark current
C. Thermal
D. All
Ans. D
157. The parameter h_{fe} of a transistor corresponds to
A. β_{dc}
B. β_{ac}
C. $R_{e'}$
D. $R_{c'}$
Ans. B
158. Oscillator whose frequency can be changed by a DC control voltage is
A. Triangular wave oscillator
B. Wien-bridge oscillator
C. Crystal oscillator
D. Voltage controlled oscillator
Ans. D
159. DC operating point of an amplifier specified by voltage and current value is called
A. Gain
B. Q point
C. Load line
D. None of above
Ans. B
160. In RLC circuits, at low frequency; Z is larger due to
A. X_c is larger
B. X_L is larger
C. X_c is smaller
D. None
Ans. A

Multiple Choice Questions

161. _____ is the part of instruction which tells the computer which operation to perform next.

- A. OP code
- B. On code
- C. RAM
- D. ROM

Ans. A

162. In 8085is the part of a control unit.

- A. ROM
- B. RAM
- C. Instruction registers
- D. OP code

Ans. C

163. JFET has main drawback of

- A. Having low input impedance
- B. Noise distortion
- C. Having small gain-bandwidth product
- D. None

Ans. C

164. In order to have a lower cost of electrical energy generation

- A. The load factor and diversity factor should be low
- B. The load factor and diversity factor should be high
- C. The load factor should be low and diversity factor should be high
- D. The load factor should be high and diversity factor should be low

Ans. B

165. When the current in the light bulb drops by 2%, its power decreases by

- A. 4%
- B. 2%
- C. 8%
- D. 16%

Ans. A

166. What is common mode rejection ratio CMRR?

- A. It is ratio of differential mode gain to common mode gain
- B. It is the ratio of common mode gain to differential mode gain
- C. It is the product of common mode gain and differential mode gain
- D. None of these

Ans. A

167. Resolution of ADC is defined as the no of bits in

- A. Output
- B. Input
- C. I/O
- D. None

Ans. A

25

Multiple Choice Questions

168. The most common method for measurement of low resistance is

- A. Wheatstone bridge method
- B. Potentiometer method
- C. Voltmeter-ammeter method
- D. Kelvin bridge method

Ans. D

169. The shunt winding of a motor has a resistance of 85 ohm at 22°C. When the motor runs at full load, its resistance increases to 100 ohms. The resistance temperature coefficient of winding per 0°C is 0.004. The rise in temperature of the winding will be nearly

- A. 20°C
- B. 50°C
- C. 70°C
- D. 100°C

Ans. C

170. If the height of transmission tower is increased, which of the following parameters are likely to change?

- A. Capacitance
- B. Inductance
- C. Resistance
- D. No change

Ans. A

171. If ROC (Region of convergence) does not include unit circle then

- A. Fourier transform converges
- B. Z-transform converges
- C. Harley transform converges
- D. Chirplet transform converges

Ans. B

172. In MSI (Medium Scale Integration) technique, the number of transistors on the single IC package can be fabricated are

- A. Less than 10
- B. 10 to 100
- C. 100 to 1000
- D. 1000 to 10000

Ans. B

173. In LSI (Large Scale Integration) technique, the number of transistors which can be fabricated on the single IC are

- A. 10 to 100
- B. 1000 to 10000
- C. 100 to 1000
- D. Greater than 10000

Ans. C

*SSI small scale integration 0 to 10 transistors

Multiple Choice Questions

174. TTL (Transistor - Transistor Logic) of chip integration uses
A. Bipolar junction transistor B. Field effect
C. Complementary symmetry metal oxide
D. None

Ans. A

175. For getting the sampled signal without any distortion, according to Nyquist criteria, the minimum sampling period must be
A. Double the max period
B. Equal to the max period
C. Greater than the max period
D. Half the max period

Ans. D

176. How is thyristor turned off?
A. By forced commutation B. Reverse gating
C. Forward biasing D. None

Ans. A

177. For a silicon diode, the value of the forward bias voltage is
A. 0.1 B. 0.3 C. 0.7
D. Depends on the concentration of majority carriers

Ans. C

178. In high frequency applications we use
A. Pulse transformer B. Air core transformers
C. Ferrite core transformers D. None

Ans. B

179. If there are less than 4 electrons in the valence shell, then the element is generally a
A. Conductor B. Semiconductor
C. Insulator D. None of these

Ans. A

180. Which is not a type of substation?
A. Line B. Collector
C. Converter D. Switching

Ans. A

Multiple Choice Questions

181. What is the basic principle behind motor operation?
A. Electromagnetism B. Electrostatic induction
C. Magnetism D. None
Ans. A
182. Most squirrel cage rotors are made by die casting of ----- conductor bars.
A. Copper B. Aluminum
C. Zinc D. Silver
Ans. B
183. The ----- of measurement is a measure of change in the instrument output, which occurs when the quantity being measured changes by a given amount.
A. Sensitivity B. Threshold
C. Accuracy D. None
Ans. A
184. ----- transforms voltage from high to low and reverse and perform any of several other important functions.
A. Substation B. Grid
C. Switchyard D. None
Ans. A
185. The input for a distribution substation is typically at least ----- transmission lines or sub-transmission lines.
A. Two B. three
C. Four D. None
Ans. A
186. When a small resistance or impedance is accidentally or intentionally inserted between two points of different potential, it is called
A. Short circuit
B. Open circuit
C. Close circuit
D. None
Ans. A
187. Hollow conductors are used in transmission line to
A. To reduce corona

Multiple Choice Questions

- B. To reduce weight of the copper
- C. Improve stability
- D. Increase power transmission capacity

Ans. A

188. Shunt reactors are connected with transmission lines for
- A. Limiting fault current
 - B. Limiting fault voltage
 - C. Absorbing reactive power
 - D. Absorbing high voltage surges

Ans. C

189. In a DC machine, what is the angle between rotor and stator fields
- A. 45°
 - B. 90°
 - C. 120°
 - D. 180°

Ans. B

190. Which of the following motor has the highest torque?
- A. DC series motor
 - B. AC series motor
 - C. Induction motor
 - D. Synchronous motor

Ans. A

191. Motor that should not be used with load removed is
- A. Series motor
 - B. Shunt motor
 - C. Both
 - D. None

Ans. A

192. The process of conversion of AC into DC is called -----.
- A. Magnification
 - B. Amplification
 - C. Purification
 - D. Rectification

Ans. D

193. The region of operation of transistors is ---- if emitter junction is forward biased and collector junction is reverse biased.

- A. Active
- B. Saturation
- C. Cutoff
- D. Inverted

Ans. A

194. When no signal input, a bipolar transistor would have least I_c when
- A. Emitter base junction is reverse biased
 - B. Emitter grounded
 - C. Emitter base junction forward biased
 - D. Emitter base current high

Ans. A

Multiple Choice Questions

195. An N-type and P-type semiconductor can be obtained by doping silicon with
- A. Sodium and magnesium respectively
 - B. Phosphorus and boron respectively
 - C. Indium and sodium respectively
 - D. Boron and arsenic respectively

Ans. B

196. The form factor in reference to alternating current waveform represents the ratio of
- A. The average value to RMS value
 - B. The peak value to RMS value
 - C. The RMS value to average value
 - D. The RMS value to peak value

Ans. C

197. Power factor of magnetizing component of a transformer is
- A. Zero
 - B. Unity
 - C. 0.8 lagging
 - D. Always leading

Ans. A

198. If the horizontal and vertical components of Earth's magnetic field are equal then angle of dip is

- A. 45°
- B. 60°
- C. 90°
- D. 30°

Ans. A

199. The ----- field lasts as long as current is flowing through the conductor.
- A. Gravitational
 - B. Electric
 - C. Magnetic
 - D. Kinetic

Ans. C

200. Waves which do not require material medium for their propagation are called

- A. Electromagnetic
- B. Electrostatic
- C. Electrical
- D. Mechanical

Ans. A

201. SCR is a device having ----- layers and ----- junctions.
- A. Four, three
 - B. Three, four
 - C. Three, two
 - D. Four, two

Ans. A

202. The AC motors used in servo applications is a
- A. Single phase induction motor
 - B. Two phase induction motor
 - C. Three phase induction motor
 - D. Synchronous motor

Ans. B

203. Transfer of ASCII codes from a microprocessor to a printer must be done on handshake basis because
- A. open collector buffers are used on a signal & data lines
 - B. Microprocessor can send characters much faster than printer can print them
 - C. Sometimes parallel printer in a system don't have BIOS procedure
 - D. Both A and C

Ans. B

204. Which is not a type of key switch?
- A. Mechanical key switch
 - B. Capacitive key switch
 - C. Hall effect key switch
 - D. Maxwell's key switch

Ans. D

205. Specifying the kind of input, processing and output required for a program occur when
- A. Defining the problem
 - B. Planning the problem
 - C. Flowcharting the problem
 - D. Coding the problem

Ans. A

206. In bus topology, what is 'backbone'?
- A. Hub
 - B. TAP
 - C. Log cable
 - D. Backup server

Ans. C

207. Which statement is not true about VHDL (VHSIC hardware description language)?
- A. VHDL is an IEEE standard language
 - B. VHDL is strongly typed language

- C. VHDL is case sensitive
- D. VHDL is developed as a part of very high speed integrated circuit (VHSIC)

Ans. C

208. The main drawback of a feedback system is
- A. Inaccuracy
 - B. Inefficiency
 - C. Instability
 - D. Insensitivity

Ans. C

209. Transient response of system is basically due to
- A. Coupling
 - B. Forces
 - C. Friction
 - D. Stored energy

Ans. D

210. If current and voltage are out of phase by 90° then power is
- A. Zero
 - B. Minimum
 - C. Maximum
 - D. $\sqrt{3} VI$

Ans. A

211. The instantaneous value of sinusoidal AC current at 45° is called
- A. Peak to peak value
 - B. RMS value
 - C. Peak value
 - D. Average value

Ans. B

212. Which wave has the least value of form factor?
- A. Square wave
 - B. Triangle wave
 - C. Sine wave
 - D. Rectangle wave

Ans. A

213. The unit of inductive susceptance is
- A. Siemens
 - B. mH
 - C. Henry
 - D. Ohm

Ans. A

214. When sole purpose of AC is to give heat then selection of conductor is based on
- A. Peak value of current
 - B. Average value of current
 - C. RMS value of current
 - D. None

Ans. C

215. The power factor of DC supply voltage is always
A. Unity B. Zero
C. Infinite D. None
Ans. A
216. Potential barriers are measured in
A. Volts B. Amps
C. Ohms D. Coulombs
Ans. A
217. Transistor means transfer of
A. Transfer of resistance B. Transfer of capacitance
C. Transfer of inductance D. None
Ans. A
218. Depletion region carries
A. Positive charge B. Negative charge
C. No charge D. None of above
Ans. C
219. Which is not an integrating instrument?
A. Ampere hour meter B. Watt hour meter
C. Voltmeter D. Odometer
Ans. C
220. The memory unit using only gates is
A. RAM B. ROM
C. Core D. Disc
Ans. A
221. Ladder network used in digital to analog converter is
A. R-C ladder B. R-2R ladder
C. R-L ladder D. R-2L ladder
Ans. B
222. No of digits in octal system is
A. 2 B. 8
C. 16 D. 18
Ans. B

223. Which of the following binary numbers is equal to decimal number 10?

- Ans. D**

- Ans. B**

- Ans. A**

- Ans. B**

- Ans. C**

- D. Real axis

Ans. C

- Ans. B**

Multiple Choice Questions

230. If a system is critically damped and the gain is increased then the system becomes
- A. Over damped
 - B. Under damped
 - C. Oscillatory
 - D. Remains critically damped

Ans. B

231. Which cannot be treated as an amplifier in control system?
- A. DC generator
 - B. DC motor
 - C. Metadyne
 - D. Amplidyne

Ans. B

233. In PCM system, quantization noise depends upon
- A. Number of quantization levels only
 - B. Sampling rate
 - C. Index number
 - D. Both B and C

Ans. A

234. Coupling used in Stoneman transmission bridge is
- A. Resistive
 - B. Capacitive
 - C. Inductive
 - D. Combination of all

Ans. B

235. One can provide two or more voice circuits on same carrier by using
- A. DSB-SC
 - B. SSB with pilot carrier
 - C. ISB systems
 - D. SSB-BC system

Ans. C

236. Frequency frogging is used in carrier system to
- A. Conserve frequencies
 - B. Reduce distortion
 - C. Reduce crosstalk
 - D. Destroy frequencies

Ans. C

237. Video transmission in TV broadcast is usually on
- A. FM
 - B. PM
 - C. AM
 - D. SM

Ans. C

238. In FM power has the modulation index that
- A. Increases
 - B. Decreases

Multiple Choice Questions

C. Remains constant

D. Become zero

Ans. C

239. A single flip flop can be constructed by using which digital gate

A. NAND

B. OR

C. NOR

D. AND

Ans. A

240. Duration of pulse response is finite for

A. FIR filters

B. IIR filters

C. Electronic

D. None

Ans. A

241. For N-channel MOSFET ----- terminal acts as a control electrode.

A. Gate

B. Source

C. Drain

D. All

Ans. A

242. Graphical difference between nFET and pFET is

A. Inversion bubble at the gate

B. Inversion bubble at the source

C. Inversion bubble at the drain

D. All

Ans. A

243. Functionality of PLC contains

A. Sequential control relay

B. Process control relay

C. Distributed control relay

D. All of above

Ans. D

244. Injection laser is a ----- device.

A. Breakdown

B. Avalanche

C. Threshold

D. None of above

Ans. B

245. Quality factor (Q-factor) of tuned circuit is referred to as which property

A. Selectivity

B. Sensitivity

C. Fidelity

D. Connectivity

Ans. A

Multiple Choice Questions

246. If scale of voltmeter is uniform its type is
A. Hotwire
B. Induction
C. Moving coil permanent magnet type
D. Moving coil dynamometer

Ans. C

247. Voltage applied across parallel RLC circuit is 100V, what is the resonant frequency when inductance is 0.1H, capacitance is 0.1 μ F and resistance is 100ohms
A. 1.259 KHz
B. 1.359 KHz
C. 1.539 KHz
D. 1.739 KHz

Ans. C

248. The flag register in 8051 microcontroller is
A. Program status word
B. Memory register
C. Bit status
D. Location of data

Ans. A

249. An oscillator converts which type of input to AC waveform signal
A. AC power input
B. DC power input
C. Both AC and DC power inputs
D. None of above

Ans. B

250. Consistency of an instrument is related with
A. Precision
B. Accuracy
C. Validity
D. Reliability

Ans. D

251. When an electric current passes through a bucket full of water, lot of bubbling is observed. This suggests that the type of supply is
A. A.C
B. D.C
C. Can be any of these
D. None

Ans. B

252. What happens to the resistance of carbon filament lamp as the applied voltage is increased
A. Increases
B. Decreases
C. Remains same
D. None of above

Ans. B

Multiple Choice Questions

253. A 6 KHz sinusoidal voltage is applied to a series RC circuit. The frequency of voltage across the resistor is
- A. 0 Hz
 - B. 12 kHz
 - C. 6 kHz
 - D. 18 kHz

Ans. C

254. When the frequency of source voltage decreases, the impedance of a parallel RC circuit

- A. Increases
- B. Decreases
- C. Does not change
- D. Decreases to zero

Ans. A

255. In a complex plane, the number $4 + j3$ is located in

- A. First quadrant
- B. Second quadrant
- C. Third quadrant
- D. Fourth quadrant

Ans. A

256. For a large value of V_{DS} FET behaves as

- A. Voltage controlled current source
- B. Current controlled voltage source
- C. Variable resistance
- D. None of above

Ans. A

257. Removing bypass capacitor across the emitter leg resistor in a CE amplifier causes

- A. Increase in voltage gain
- B. Short circuit
- C. Decrease in voltage gain
- D. Exponential rise in current

Ans. C

258. When a step input is given to an op-amp integrator, the output will be

- A. Integral function
- B. Differential function
- C. Exponential function
- D. A ramp function

Ans. D

259. Hysteresis is desirable in Schmitt-trigger because

- A. It protects the circuit
- B. It constantly magnetizes and de-magnetizes it

Multiple Choice Questions

C. Devices in the circuit should be allowed time for saturation and desaturation

D. None

Ans. C

260. In a full wave rectifier without filter, the ripple factor is

A. 0.75

B. 0.65

C. 0.482

D. 3.14

Ans. C

261. Minimum number of flip flops required to construct a mod 75 counter is

A. 7

B. 9

C. 4

D. 1

Ans. A

262. In a clamping circuit, the peak to peak voltage of the waveform being clamped is

A. Independent of the input voltage

B. Not affected by the clamping

C. Depends on the input voltage

D. All of above

Ans. B

263. A zener diode has a sharp breakdown

A. At low reverse voltage

B. In Forward biased state

C. In Reverse biased state

D. Never breaks down

Ans. A

264. N channel FETs are superior to P channel because

A. Of greater concentrations of impurity

B. Mobility of electrons is greater than holes

C. Low breakdown voltage

D. Higher stability

Ans. B

265. Negative feedback in an amplifier

A. Increases the voltage gain

B. Reduces the voltage gain

C. Does not affect the gain of amplifier

D. None of above

Ans. B

Multiple Choice Questions

266. For generating 1 kHz signal most suitable circuit is
A. Crystal oscillator B. Wheatstone bridge
C. Wien Bridge Oscillator D. Both A & C
Ans. C
267. The main feature or prominent property of the crystal oscillator
A. Economy B. Reliability
C. Stability D. High frequency
Ans. C
268. Primary of a machine is stationary while secondary is rotating. This rotating transformer is known as
A. Conduction motor B. Current transformer
C. Potential transformer D. Induction motor
Ans. D
269. For rectification, which of the following is used
A. Capacitors B. Resistors
C. Diodes D. Inductors
Ans. C
270. Conduction angle in amplifier in class A amplifiers is
A. 180 B. 90
C. 270 D. 360
Ans. D
271. In amplifiers, the common mode rejection ratio (CMRR) should be
A. High (in ideal differential amplifier CMRR is infinity)
B. Low
C. Keeps modulating between high and low
D. None of above
Ans. A
271. A transformer with a winding ratio of 20:1 means
A. For every 20 turns of primary, there shall be one secondary turn
B. There are 20 turns on primary and 1 turn on secondary
C. Secondary voltage is $1 / 20^{\text{th}}$ of the primary voltage.
D. Primary current is 20 times greater than secondary current
Ans. A

272. Power 'P' is required to be transmitted by overhead lines over the length 'L'. For the same power loss and the same voltage between conductor and earth, the least conductor material is required in
- A. 3 wire AC system
 - B. 2 wire DC system
 - C. 4 wire AC system
 - D. 3 wire DC system

Ans. B

273. A 100V bulb has a resistance of 500 ohm. The number of hours it can work for every KWH of energy consumed will be
- A. 10 hours
 - B. 35 hours
 - C. 55 hours
 - D. 50 hours

Ans. D

274. If the poles are in the left half of s-plane then the system is
- A. Marginally stable
 - B. Unstable
 - C. Stable
 - D. Critically stable

Ans. C

275. In which circuit, current leads the voltage by 90° or voltage lags the current by 90°
- A. Inductive
 - B. Resistive
 - C. Capacitive
 - D. None

Ans. C

276. The efficiency of a transformer will be maximum when
- A. Power factor is closer to unity
 - B. When it is fully loaded
 - C. Copper losses equal to the iron losses
 - D. When it is loaded at half of its capacity

Ans. C

277. The instrument which senses the fault and initiates the trip
- A. Fuse
 - B. Protective relays
 - C. Circuit breaker
 - D. Barriers

Ans. B

278. The storage of electric charge is possible in ---- and it is charged and discharged continuously.
- A. Lelanche cells
 - B. Edison cells

Multiple Choice Questions

C. Lead acid battery

D. Nickel chromium battery

Ans. C

279. Which type of instrument cannot be used for both AC and DC?

A. Dynamometer type

B. Electrostatic type

C. Induction type

D. None of these

Ans. C

280. U_{235} is an isotope of Uranium making up about -----% of natural uranium.

A. 0.7%

B. 0.9%

C. 0.10%

D. 0.5%

Ans. A

281. Which of the following is used as a moderator in nuclear reactor?

A. Graphite

B. Boron

C. Uranium

D. Hydrogen

Ans. A

282. Occurrence of electric potential (usually less than 10 V) between two isolated objects that ideally should not have any voltage difference between them is due to

A. Stray voltage

B. Dim voltage

C. Tame voltage

D. Ground voltage

Ans. A

283. PMMC (Permanent Magnet Moving Coil) instruments have following features

A. Low hysteresis loss

B. Reduced Eddy current

C. Uniform scale

D. Low power consumption

E. All of above

Ans. E

284. Common base amplifier when compared to FET is represented as

A. Common gate

B. Common source

C. Common drain

D. None

Ans. A

285. In an electrodynamometer type wattmeter

A. Current coil is fixed

B. Pressure coil is fixed

C. Both are fixed

D. Both are moving

Ans. A

286. A Hall's effect sensor can be used for measuring
- A. Pressure
 - B. Magnetic flux
 - C. Relative humidity
 - D. Current

Ans. B

287. In an Oscilloscope, time base is generated by
- A. Horizontal amplifier
 - B. Vertical amplifier
 - C. Sweep generator
 - D. Signal generator

Ans. C

288. Each stage of a four stage amplifier has a voltage gain of 12. The overall voltage gain is

A. 12

B. 34

C. 20736

D. None

Ans. C

289. Seismic transducer is used for measuring
- A. Linear velocity
 - B. Angular velocity
 - C. Acceleration
 - D. Pressure

Ans. C

290. Spectrum analyzer graphically presents energy distribution of a signal as function of

A. Frequency

B. Phase

C. Amplitude

D. None

Ans. A

291. Signal generators generate
- A. Signals of varying amplitude and varying frequency
 - B. Repeating and non repeating electronic signals
 - C. Signals of constant amplitude and constant frequency
 - D. None of above

Ans. B

292. A triangular wave shape is obtained by

A. Integrating sine wave

- B. Integrating rectangular waves
- C. Integrating square wave
- D. All of above

Ans. C

293. Wave analyzer is an instrument to measure relative amplitude of single frequency component in a

- A. Complex waveform
- B. Sinusoidal waveforms
- C. Both A & B
- D. None of above

Ans. A

294. For an OP-AMP with negative feedback the output is

- A. Equal to the input
- B. Increased
- C. Feedback to the inverting input
- D. Feedback to the non-inverting input

Ans. C

295. In an operational amplifier the common mode gain is

- A. Zero
- B. Infinity
- C. Very low
- D. Very high

Ans. A

296. An electronic oscillator is

- A. Just like an alternator
- B. Nothing but an amplifier
- C. An amplifier with feedback
- D. A converter of ac to dc energy

Ans. C

297. In RC phase shift oscillator circuit

- A. There is no need for feedback signal
- B. Pure sine wave output is possible
- C. Feedback factor is less than unity
- D. None of above

Ans. B

298. Closed loop gain of a feedback amplifier is the gain obtained when

- A. Its output terminals are closed
- B. Negative feedback is applied
- C. Feedback loop is closed

D. Feedback factor exceeds unity

Ans. C

299. Feedback in an amplifier always helps to

- A. Control its output
- B. Increase its gain
- C. Decrease its input impedance
- D. Stabilize its gain

Ans. A

300. The internal resistance of a saturated Weston cell is of the order of

- A. A few hundred ohms
- B. Negligible
- C. Infinite
- D. Thousand ohms

Ans. A

301. If two or more interrupts occur during execution, the sequence of appearance of interrupts is called

- A. Multi-interrupt
- B. Nested interrupt
- C. Interrupt within interrupt
- D. Nested interrupt and interrupt within interrupt

Ans. D

302. The condition occurring when two or more devices try to write data to a bus simultaneously is

- A. Address decoding
- B. Bus contention
- C. Bus collisions
- D. Address multiplexing

Ans. B

303. In memory mapped scheme, the devices are viewed as

- A. Distinct I/O devices
- B. Memory locations
- C. Only input devices
- D. Only output devices

Ans. B

304. The process of refreshing the data in RAM to reduce the possibility of data loss is known as

- A. Data cycle
- B. Regain cycle
- C. Retain cycle
- D. Refresh cycle

Ans. D

305. The instruction, MOV AX, 20H is an example of

- A. Register addressing mode

Multiple-Choice Questions

- B. Direct addressing mode
- C. Immediate addressing mode
- D. Based indexed addressing mode

Ans. C

306. The instruction that unconditionally transfers the control of execution to the specified address is

- A. JMP
- B. CALL
- C. RET
- D. IRET

Ans. A

307. Unlike microprocessors, micro controllers make use of batteries because they have

- A. High power dissipation
- B. Low power consumption
- C. Low voltage consumption
- D. Low current consumption

Ans. B

308. Ripple factor of a bridge rectifier is

- A. 0.5
- B. 1
- C. 2
- D. 0.75

Ans. A

309. Which of the following is NOT a purpose of Disturbance Monitoring Equipment?

- A. Model validation
- B. Disturbance investigation
- C. Incorrect relay setting
- D. Assessment of system protection performance

Ans. C

310. Which one of the following is not a basic category of measurement?

- A. Null
- B. Validity
- C. Direct
- D. Indirect

Ans. B

311. A use of functions is that, they can be used to _____ and to make programs more understandable and easier to maintain.

- A. Increase code duplication
- B. Decrease code duplication
- C. Sub program
- D. List expression

Ans. B

Multiple Choice Questions

312. The large or surge impedance loading of a long transmission line can be increased without adversely affecting its stability by connecting a lumped
- A. Inductance in series with the line
 - B. Inductance in shunt with the line
 - C. Capacitance in shunt with the line
 - D. Capacitance in series with the line

Ans. D

313. As compared to oscillators, inverter provides
- A. Low voltage output
 - B. Low frequency output
 - C. Distortion less output
 - D. Noise less output

Ans. B

314. A _____ can be used to make automated potentiometer in comparison measurements.
- A. Analog to digital converter
 - B. Digital to analog converter
 - C. Electrometer
 - D. Precision meter

Ans. B

315. Depletion region of diode contains
- A. No mobile charge carriers
 - B. A small number of mobile carriers
 - C. A large number of mobile carriers
 - D. The number of mobile carriers depend upon temperature

Ans. A

316. The analog to digital converter provides _____ of input signal.
- A. Representation
 - B. Quantization
 - C. Maximum value
 - D. All information

Ans. B

317. A higher directivity is specified by
- A. High gain low bandwidth
 - B. High gain high bandwidth
 - C. Low gain low bandwidth
 - D. Low gain high bandwidth

Ans. A

318. GSM uses
- A. FDMA
 - B. TDMA
 - C. Both
 - D. None of above

Ans. C

Multiple Choice Questions

319. Advanced mobile phone systems (AMPS) use
A. TDMA
B. FDMA
C. None
D. Both

Ans. B

320. Which modulation has higher data rates?
A. FM
B. AM
C. QAM
D. QPSK

Ans. C

321. Fly back converter is used for
A. AC-AC
B. AC-DC
C. DC-DC
D. DC-AC
E. Both B & C

Ans. E

322. Large phase mercury arc rectifier is used as
A. Inverter
B. Rectifier
C. Both
D. None

Ans. B

323. In a transformer it is difficult to measure the efficiency by output-input measurement methods because

- A. The output is sinusoidal and hence cannot be determined
B. Losses are abnormally high
C. Efficiency of transformer is usually high and hence extremely accurate measurements will be necessary
D. Output is out of phase with respect to input

Ans. C

324. Series capacitor compensation is used to

- A. Increase the series reactance between load and supply
B. Reduce the series reactance between load and supply
C. Supply the reactive power
D. Increase voltage dip on load buses

Ans. B

325. Shunt reactors are needed

- A. To boost receiving end voltage under light loads

- B. To boost receiving end voltage under heavy loads
- C. To bring down receiving end voltage at light loads
- D. To bring down receiving end voltage under heavy loads

Ans. C

326. In a transfer function gain $k=0$ root locus roots are
- A. Break in point
 - B. Open loop poles
 - C. Break away points
 - D. Open loop zeros

Ans. B

327. TDMA uses
- A. Phase modulation
 - B. Amplitude modulation
 - C. Frequency modulation
 - D. All of above

Ans. A

328. Output occurring due to only input with zero initial conditions is called
- A. Zero state
 - B. Zero input
 - C. Absolute state
 - D. Real state

Ans. A

329. The maximum loads attached to a device called
- A. Fan in
 - B. Fan out
 - C. Phase in
 - D. Phase out

Ans. B

330. Link layer design is also called
- A. Transport layer
 - B. Access layer
 - C. Data layer
 - D. Protocol design layer
 - E. Network layer

Ans. C

331. TCP/IP address is how many bits
- A. 16 bits
 - B. 32 bits
 - C. 64 bits
 - D. 128 bits

Ans. B

332. If two 16 bit numbers are multiplied then the result is
- A. Two bytes
 - B. Four bytes
 - C. Six bytes
 - D. Eight bytes

Ans. B

333. Differential amplifier uses which coupling
- A. Transformer coupling
 - B. RC coupling
 - C. Direct coupling
 - D. None of above

Ans. C

334. The main advantage of auto transformer over a two winding transformer is that

- A. No cooling is required
- B. Hysteresis losses are minimized
- C. Eddy current losses are minimized
- D. Only one winding is used as a result there is substantial saving in material

Ans. D

335. In a line to ground fault on a system, the fault current is 1500 A. The zero sequence current is

- A. 1500 A
- B. 0 A
- C. 750 A
- D. 500 A

Ans. D

336. The torque of an induction motor is

- A. Directly proportional to slip
- B. Inversely proportional to slip
- C. Proportional to the square of slip
- D. Directly proportional to current

Ans. A

337. In which form, waves reach at the antenna

- A. Modulated digital
- B. Modulated analog
- C. Aligned waves
- D. All of above

Ans. D

338. Why are pole tips in a DC machine chamfered?

- A. To improve commutation characteristics
- B. To reduce armature reaction effect
- C. To achieve nearly sinusoidal air-gap flux density distribution
- D. To increase induced EMF per coil

Ans. B

339. The phase difference between the primary and secondary voltage of a transformer is
 A. 0
 B. 90
 C. 180
 D. Between 30 and 60
Ans. C

340. Why is it important to maintain an impedance match from the source to the load when sending signals?
 A. To reduce external noise
 B. To keep the line balanced
 C. To reduce reflected energy
 D. To reduce attenuation
Ans. C

341. Power input to a transformer at no load and rated voltage consists of
 A. Eddy current loss
 B. Hysteresis loss
 C. Copper loss
 D. Core loss
Ans. D

342. In a transformer, no load current
 A. Leads the applied voltage by 90
 B. Lags the applied voltage by 90
 C. Lags the applied voltage by some what less than 90
 D. Leads the applied voltage by some what less than 90
Ans. C

343. Number of cycles generated in 8 pole alternator in one revolution
 A. 2
 B. 4
 C. 8
 D. 16
Ans. B

344. What limits design of long transmission line?
 A. Thermal considerations
 B. Conductor area
 C. Both A & B
 D. None of above
Ans. B

345. Which of following terms are related to PWM?
 A. NRZ
 B. RZ
 C. Both
 D. None of the above
Ans. C

346. What is the main task of power electronics?
A. AC-DC conversion B. AC-AC conversion
C. DC-AC conversion D. A & C
Ans. B
347. The bit used for error detection and retransmission is named as
A. Parity bit B. First bit
C. Low bit D. High bit
Ans. A
348. In a DC machine, the angle between the stator and rotor fields is
A. 0 B. 90
C. 180 D. 270
Ans. B
349. Torque of an indicating meter depends upon
A. Spring B. Gravity
C. Both D. None
Ans. C
350. If gauge of copper is increased in impedance matching transformer what will happen
A. Resistance will increase B. Resistance will decrease
C. Resistance remains the same D. None of the above
Ans. A
351. A 440V, 100W bulb on 220V will behave like a
A. 25W B. 50W
C. 75W D. None
Ans. A
352. Doped semiconductor material has temperature coefficient of
A. Positive B. Negative
C. Neither positive nor negative D. Either positive or negative
Ans. A
353. Laplace transform is used for solving
A. Complex equations B. Differential equations
C. Linear equations D. Quadratic equations
Ans. B

354. If 1 Hz frequency is applied to the field of dc machine armature EMF will be
 A. 1 Hz sinusoidal
 B. DC
 C. 1 Hz square wave
 D. None of above
Ans. A

355. Heating value is measured by
 A. Hygrometer
 B. Barometer
 C. Altimeter
 D. Bomb calorimeter
Ans. D

356. Which of the following is not running cost of the thermal power plant?
 A. Equipment
 B. Fuel
 C. Workers
 D. Maintenance
Ans. A

357. Calorific value is usually given by unit of energy divided by
 A. Mass (usually)
 B. Volume
 C. Weight
 D. Density
Ans. A

358. Efficiency of thermal power plant is measured by subtracting efficiency of turbine from
 A. Boiler
 B. Condenser
 C. Compressor
 D. None of these
Ans. A

359. The time of power plant which is obtained by dividing average time by total time is called
 A. Plant operating factor
 B. Demand factor
 C. Plant capacity factor
 D. Diversity factor
Ans. A

360. Total number of stages in gas turbine power plant
 A. Four
 B. Two
 C. Six
 D. None
Ans. A

361. The method in which customer pays some fixed cost along with peak demand cost and total electricity usage cost is called

- A. Two part tariff
- B. Three part tariff
- C. Commercial tariff
- D. None of the above

Ans. B

362. Which hydel plant has lowest production capacity?

- A. Rasul Barrage
- B. Dargai Hydro Plant
- C. Gomal Zam Dam
- D. Duber Khawar Hydro

Ans. C

363. Calorific value of which fuel is highest

- A. Anthracite
- B. Hydrogen
- C. Coal
- D. Natural gas

Ans. B

364. Which winding of transformer has less cross sectional area?

- A. Primary winding
- B. Secondary winding
- C. Low voltage winding
- D. High voltage winding

Ans. D

365. A helical antenna is used in satellite tracking because of its

- A. Circular polarization
- B. Maneuverability
- C. Broad bandwidth
- D. Good front to back ratio

Ans. A

366. A heterodyne frequency changer is called a

- A. Modulator
- B. Mixer
- C. Demodulator
- D. Frequency translator

Ans. B

367. The process in which the signal is first compressed before modulation and expanded after demodulation so as to allow the use of a uniform quantizing rate is known as

- A. Pre emphasis
- B. De-emphasis
- C. Quantization
- D. Companding

Ans. D

368. Frequency shift keying is used mostly in
A. Radio transmission
B. Telegraphy
C. Telephone
D. Satellite communication
Ans. B
369. LVDT (linear variable differential transformer) is a ____ device.
A. Electrodynamic
B. Electromechanical
C. Electromagnetic
D. Electrostatic
Ans. B
370. The autocorrelation function is
A. An odd function in t_0
B. An even function in t_0
C. An exponential function in t_0
D. None
Ans. B
371. Probability density function of thermal noise is
A. Binomial
B. Poisson
C. Gaussian
D. None of these
Ans. C
372. If 360 coulomb charge is stored for a time period of 30 minutes. What will be the current?
A. 200mA
B. 20A
C. 2A
D. 20mA
Ans. A
373. The potential difference between two similar charges is
A. Same
B. Infinite
C. Nil
D. None of above
Ans. C
374. Mass, in force-voltage analogy, is analogous to
A. Charge
B. Current
C. Inductance
D. Resistance
Ans. C
375. Top loading is sometimes used with an antenna in order to
A. Decrease its input impedance
B. Increase its height

Multiple Choice Questions

- C. Decrease its radiation resistance
- D. Increase its effective height

Ans. D

376. A rhombic antenna is a
- A. Resonant antenna
 - B. Non resonant antenna
 - C. Either of the above
 - D. None

Ans. B

377. The carrier of a 100% modulated AM wave is suppressed, the percentage power saving is _____.
- A. 100%
 - B. 50%
 - C. 83%
 - D. 66.66%

Ans. D

378. Burning material such as wood, paper and textile constitute which type of fire
- A. Class A
 - B. Class B
 - C. Class C
 - D. Class D

Ans. A

379. The radiation pattern of a parabolic antenna is
- A. Omni directional
 - B. A figure of eight
 - C. Highly directional
 - D. None

Ans. C

380. Execution of program instruction in computer takes place in
- A. RAM
 - B. ROM
 - C. Hard disk
 - D. Motherboard

Ans. A

381. The breakdown voltage in gases depends on
- A. Distance between electrodes
 - B. Relative air density
 - C. Humidity
 - D. All of these

Ans. D

382. Turbo alternators are characterized by
- A. Short diameters and great axial lengths

Multiple Choice Questions

- B. Short diameters and narrow axial lengths
 - C. Large diameters and narrow axial lengths
 - D. Large diameters and great axial lengths
- Ans. A**

383. An ammeter is convertible to a voltmeter by
- A. Changing the scale
 - B. Putting a large resistance in parallel with the actual measuring part of the instrument
 - C. Putting a large resistance in series with the actual measuring part of the instrument
 - D. Simply installing the instrument in parallel with the circuit
- Ans. C**

384. Transformers are designed to have _____ leakage induction.
- A. Zero
 - B. Low
 - C. High
 - D. Medium
- Ans. B**

385. The path of the magnetic flux in transformer should have
- A. Low reluctance
 - B. Low resistance
 - C. High reluctance
 - D. High resistance
- Ans. A**

386. For transmitting power on a 20-25 km line which voltage should be used
- A. 5kV
 - B. 11KV
 - C. 33KV
 - D. 66kV
- Ans. B**

387. Due to low budget the weight of the conductor is to be reduced by 25 % using the same conductor material. As a power engineer what will you do
- A. Reduce the voltage level
 - B. Double the voltage level
 - C. Reduce the frequency level
 - D. None of the above
- Ans. B**

388. In a _____ current is induced with mechanical motion of the conductor

Multiple Choice Questions

- A. Transformer
- C. Thyristor

Ans. B

- B. Generator
- D. None of the above

389. 1000 million tons coal is required to generate 1000 MW for a year, for uranium this fuel amount to

- A. 10-15
- C. 30-35

Ans. C

- B. 20-25
- D. 40-45

390. $E = N \frac{d\phi}{dt}$ is called

- A. Lenz's law
- C. Amperes Law

Ans. B

- B. Faraday's law
- D. Gauss's Law

391. In real power system constant used $a + j b$, j is called

- A. $\sqrt{1}$
- C. -1

Ans. B

- B. $\sqrt{-1}$
- D. 1

392. Capacity factor = 0.628, maximum demand is 325 MW, plant capacity is 350 MW, calculate load factor, Average load = 250 MW.

- A. 0.8
- C. 0.9

Ans. B

- B. 0.67
- D. 0.5

*Actual answer is 0.76 (NTS mistakenly writes answer as 0.67)

393. For transmission lines the standing wave ratio is the ratio of

- A. Maximum voltage to minimum voltage
- B. Maximum current to minimum voltage
- C. Peak voltage to RMS voltage
- D. Maximum reactance to minimum reactance

Ans. A

394. In order to improve the steady state stability of overhead transmission lines, which of the following methods can be adopted

- A. Reducing impedance between the stations
- B. Adopting quick response excitation
- C. Using series capacitors to make $X = \sqrt{3}R$
- D. Any of the above

Ans. D

395. The elementary DC & AC generators are essentially built the same way. In each case, a coil rotates between the poles of a magnet and an AC voltage is induced in the coil. The machines only differ in the way the coils are connected to the external circuit. Which of the following statements is then correct?
- A. The AC generators carry slip rings while DC generators require a commutator
 - B. The DC generators carry slip rings while AC generators require a commutator
 - C. Both AC and DC generators carry slip rings
 - D. Both AC and DC generators require a commutator
 - E. The AC generators carry slips while DC generators require diode rectifiers to produce ac output

Ans. A

396. In shunt generator, the shunt winding is parallel with the armature its advantage is
- A. Single source is used to excite both
 - B. Eliminates need for external excitation
 - C. Both
 - D. None of above

Ans. B

397. The turbines of run of river hydel power plant (low head turbines) deal with which kind of water
- A. Less volume and low pressure
 - B. Less volume and high pressure
 - C. High volume and low pressure
 - D. High volume and high pressure

Ans. C

398. If a large load is disconnected suddenly from an alternator or a power system, then
- A. Turbine speed increases and frequency also increases
 - B. Turbine speed decreases and frequency also decreases
 - C. Turbine speed increases but frequency decreases
 - D. Turbine speed decreases but frequency increases

Ans. A

399. The probability that a loss of load occurs for a given combination of system demand and generators availabilities is called

OR

A loss of load occurs when system load exceeds the available generating capacity. The overall probability that there will be a shortage of power is called _____

- A. Loss of load probability
- B. Load loss detachability
- C. Load probability
- D. None of above

Ans. A

400. The power in the circuit other than that which keeps on flowing from source to load and back is called

- A. Active power
- B. Reactive power
- C. Apparent power
- D. None of above

Ans. A

401. The current flowing through negative sequence impedance is called

- A. Positive sequence current
- B. Zero sequence current
- C. Negative sequence current
- D. Neutral current

Ans. C

402. In a DC generator, eddy current is proportional to

- A. Thickness of laminations
- B. Square of thickness of laminations
- C. Inverse of square of thickness of laminations
- D. Inverse of Thickness of laminations

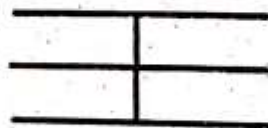
Ans. B

403. When an induction motor is connected to the supply, the rotation is caused by

- A. Rotating magnetic field of stator
- B. Rotating magnetic field of rotor
- C. Electric field of stator
- D. Electric field of rotor

Ans. A

404. The fault shown in the figure is _____



- A. Symmetric
- B. Asymmetric
- C. Skewed
- D. Lopified

Ans. A

405. Ratio of magnetic flux density in material to the field in vacuum is called
A. Absolute permeability
B. Relative permeability
C. Relative permittivity
D. Absolute permittivity
Ans. B
406. Plasma frequency of copper
A. 2.6×10^{15}
B. 2.6×10^{12}
C. 2.6×10^6
D. 2.6×10^3
Ans. A
407. When a current carrying conductor is placed in a magnetic field it is subjected to Electromagnetic or Lorentz force which is
A. Parallel to field
B. Perpendicular to field
C. 45° to field
D. 135° to field
Ans. B
408. In an infinite sheet charge is uniformly distributed in YZ plane, the direction of electric field will be
A. Along x-axis
B. Along y-axis
C. Along z-axis
D. Can be along any of these
Ans. A
409. Dq/Dt is called
A. Current
B. Charge
C. Voltage
D. Capacitance
Ans. A
410. Four inductors 10mH, 20mH, 25mH, and 5mH are connected in series, net inductance will be
A. 10mH
B. 25mH
C. 60mH
D. 75mH
Ans. C
411. Four inductors 10mH, 10.5mH, 20mH, and 20.5mH are connected in parallel, the equivalent inductance will be
A. 4.3mH
B. 3.4mH
C. 6mH
D. 7mH
Ans. B

Multiple Choice Questions

412. In series RLC circuit $R=2\text{ ohm}$, $L=1\text{ H}$, $C=1\text{ F}$, the system response would be
- A. Damped
 - B. Underdamped
 - C. Critically damped
 - D. Overdamped
- Ans. C**

413. For undamped system, $R=1\text{ ohm}$, $L=2\text{ H}$, $C=2\text{ F}$, the value of frequency
- A. 0.1
 - B. 0.5
 - C. 1.0
 - D. 1.5
 - E. 2.0
- Ans. B**

414. Electrical field with uniform charge density on sphere
- A. $X>R$
 - B. $X<R$
 - C. $X=R$
 - D. None
- Ans. B**

415. Addition of small displacements along a zig-zag path and summing them is
- A. Equal to vector pointing from initial to final point
 - B. Work done
 - C. Impossible to find
 - D. Not equal to single vector
- Ans. A**

416. In Kirchoff's law summation of all the currents entering or leaving a node are
- A. Unity
 - B. Zero
 - C. Infinity
 - D. None of these
- Ans. B**

417. In an RLC series circuit the total Impedance between two end points would be
- A. $Z=\sqrt{R^2+(XL-XC)^2}$
 - B. $Z=\sqrt{(R+XL)^2+XC^2}$
 - C. $Z=R+XL-XC$
 - D. $Z=R-XL+XC$
- Ans. A**

418. In Cathode Ray Oscilloscope vertical axis represents _____ and horizontal axis represents _____
- A. Volts/Division ; Time/Division
 - B. Time/Division ; Volts/Division
 - C. Voltage ; Resistance
 - D. Resistance ; Current
- Ans. A**

419. Instrument for measuring ocular focus or refraction of eyes _____
 A. Drum meter B. Durometer
 C. Ellipsigraphy D. Diptometer
 E. Electroretinography
Ans. D
420. For input function of 2 Boolean variables there are _____ Boolean algebra functions.
 A. 12 B. 8
 C. 16 D. 4
Ans. C
421. Diode clampers are used to shift AC voltage waveform up or down in positive and negative peak by inserting _____.
 A. DC level B. AC level
 C. Both AC and DC level D. None of above
Ans. A
422. Rectifiers employ ----- operational amplifier to eliminate diode voltage.
 A. Passive circuit B. Active circuit
 C. Saturation circuit D. Non-saturation circuit
Ans. A
423. Which of the following statements is incorrect?
 A. Switching regulators use switching speeds of 20 kHz or more
 B. A great advantage of switching regulators is that their power consumption is very low
 C. Both bipolar transistors and FETs have very good switching characteristics
 D. The output voltage of a switching regulator is controlled by altering the switching frequency
Ans. D
424. SCR is turned on by applying gate pulse, now it can be turned off when
 A. Anode current falls below holding current
 B. Anode current falls below latching current
 C. Anode current increase above the holding current
 D. None of the above
Ans. A

Multiple Choice Questions

425. Which of the following is normal operation of NPN TRANSISTOR?

- A. Emitter to base junction is forward biased and collector to base junction reverse biased
- B. Emitter to base junction is forward biased and collector to base junction forward biased
- C. Emitter to base junction is reverse biased and collector to base junction reverse biased
- D. Emitter to base junction is reverse biased and collector to base junction forward biased

Ans. A

426. If first byte of the data is stored at _____ address, 8086 can read the entire word in one operation.

- A. Odd address
- B. Even address
- C. 0521H
- D. Any segment

Ans. B

427. Instead of establishing different connections of wires, modern devices are built with virtual relay contacts, these are programmed using

- A. Assembly language
- B. Machine language
- C. Ladder logic
- D. Visual basic

Ans. C

428. First generation of computers use

- A. Microprocessors
- B. IC's
- C. Vacuum tubes
- D. None of the above

Ans. C

429. Program counter is used to

- A. Store address of the next instruction to be executed
- B. Store address of the previous instructions
- C. Store address of the segment
- D. None of these

Ans. A

430. Intel MCS_51 is commonly known as

- A. 8080
- B. 8051
- C. 5151
- D. None of the above

Ans. B

431. Data storage system is provided by
 A. Control mechanism B. Register
 C. Logic gates D. Both A & B
 Ans. C
432. Inverse of even function
 A. Even B. Odd
 C. Linear D. Does not exist
 Ans. D
433. For multiple video channels, digital modulation and ____ diodes are necessary.
 A. Zener B. Schotky
 C. Laser D. Light emitting
 Ans. C
434. Proper way to apply time shifting and scaling on a signal is
 A. Time shifting is applied first and then scaling
 B. Scaling is applied first and then time shifting
 C. Anyone can be applied irrespective of order
 D. Only one operation can be performed
 Ans. A
435. In closed loop control system feedback strategy is
 A. Input dependent B. Fail safe
 C. Error driven D. Both A & B
 Ans. C
436. Asymptotic stability of a control system is determined by
 A. Eigen values B. Poles and zeros
 C. Only zeros D. None of above
 Ans. A
437. Baseband analog intensity modulation is done by modulating ____ applied to LED.
 A. Voltage B. Current
 C. Frequency D. Amplitude
 Ans. B

Multiple Choice Questions

438. Two Coherent modes are present in optical fiber detection one is known as homodyne and _____ is the other.
- A. Balanced detection
 - B. Heterodyne detection
 - C. Unbalanced detection
 - D. None
- Ans. B

439. Identify correct statement about FM and AM
- A. More power is required for FM than AM
 - B. Less power is required for FM than AM
 - C. Equal power is required for FM and AM
 - D. None of the above
- Ans. B

440. The autocorrelation of discrete Pseudo noise sequence is similar to _____.
- A. Random atmospheric generator
 - B. White noise
 - C. Ground clutches
 - D. Audio distortion
- Ans. B

441. Bandwidth should be _____ to avoid distortion of the signal.
- A. Equal
 - B. Twice
 - C. Thrice
 - D. 4 times
- Ans. B

442. To avoid aliasing of the signal, signal frequency should be _____.
- A. Equal
 - B. Twice
 - C. Thrice
 - D. Half
- Ans. C

443. $y'' + 2y = 4(x + y)^2$ is _____ order equation.
- A. First
 - B. Second
 - C. Third
 - D. None
- Ans. A

444. Π Method is used
- A. Capacitance C and reactance can be localized at receiving end
 - B. Capacitance C localizes at receiving end and reactance at sending end lumped

Multiple Choice Questions

- C. Line to neutral capacitance is divided by two halves
- D. Capacitance C and reactance equally localized at sending, receiving and midpoint

Ans. C

445. In a power plant, coal is carried from storage place to boilers generally by means of

- A. Bucket
- B. V belts
- C. Trolleys
- D. Manually

Ans. B

446. A condenser in a thermal power plant condenses steam coming out of

- A. Boiler
- B. Super heater
- C. Economizer
- D. Turbine

Ans. D

447. Which variety of coal has lowest calorific value?

- A. Steam coal
- B. Bituminous coal
- C. Lignite
- D. Anthracite

Ans. C

448. In position control systems, the device used for providing rated feedback voltage is called

- A. Potentiometer
- B. Synchro transmitter
- C. Synchro transformer
- D. Tachogenerator

Ans. D

449. Phase margin of system specifies

- A. Absolute stability
- B. Frequency response
- C. Relative stability
- D. Instability

Ans. C

450. In force voltage analogy, the moment of inertia is analogous to

- A. Capacitance
- B. Inductance
- C. Inverse capacitance
- D. Inverse inductance

Ans. B

451. Which of the following non linearity is caused by servo motor?

Multiple Choice Questions

- A. Coulomb friction
- C. Saturation

- B. Dead space
- D. Dissemination

Ans. C

452. The transfer function of a system is used for the calculation of
- A. Output for a given input
 - B. Steady state gain
 - C. Order of the system
 - D. Time constant

Ans. A

453. A balanced modulator produces

- A. AM
- C. VSB

- B. SSB
- D. DSB

Ans. D

454. In common base amplifier circuit the output is taken from

- A. Collector
- C. Base

- B. Emitter
- D. Both A & C

Ans. A

455. The greatest possible amplification is obtained in

- A. Common emitter circuit
- C. Common collector circuit

- B. Common base circuit
- D. None

Ans. A

456. An Inductor is operated at 50 Vac with a frequency of 10 KHz and current of 7.96 mA then the value of L is

- A. 100mH
- C. 1mH

- B. 10mH
- D. 1H

Ans. A

457. Which type of copper wire will have the highest tensile strength?

- A. Soft drawn
- C. Hard drawn

- B. Medium drawn
- D. None

Ans. C

458. At breakaway point, several branches of root loci coalesce because system characteristics equation has

- A. Single root

- B. All roots on right hand side of S plane

- C. Several roots
- D. Imaginary roots only

Ans. C

459. Excessive noise in a control system may result in
- A. Reduction in gain
 - B. Reduction in bandwidth
 - C. Oscillations
 - D. Saturation in amplifying stages

Ans. D

460. If 3000 kW power is to be transmitted over a distance of 30 km, what will be the voltage level to transmit the power?
- A. 11kV
 - B. 33 kV
 - C. 66 kV
 - D. 132 kV

Ans. B

461. Basically a controller is a
- A. Amplifier
 - B. Clipper
 - C. Comparator
 - D. Summer

Ans. C

462. In a 3 phase half wave diode rectifier, the ratio of average output voltage to per phase maximum AC voltage is
- A. 0.827
 - B. 1.57
 - C. 3.2
 - D. 0.25

Ans. A

463. AGC voltage is applied to the stages which are
- A. Before the detector stage
 - B. After the detector stage
 - C. Detector stage
 - D. Both A & C

Ans. D

464. Receiver having poorer IF selectivity will have poor
- A. Sensitivity
 - B. Blocking of adjacent channels
 - C. Diverse reception
 - D. None

Ans. B

465. Paddrs are provided in a radio receiver
- A. To improve sensitivity
 - B. To improve tracking
 - C. For reducing noise
 - D. For fine tuning

Ans. B

466. Fidelity in a communication receiver is provided by
A. Detector stage B. Mixer stage
C. Audio stage D. All of above
Ans. D
*(If option all of the above is not given then tick audio stage)
467. Which of the following communication system is digital?
A. FM B. AM
C. PAM D. PCM
Ans. D
468. A PWM signal can be generated by
A. A monostable multivibrator B. Unstable multivibrator
C. Integrating the PPM signal D. Differentiating the PPM signal
Ans. D
469. Optical fibers rely for their operation on the phenomenon of
A. Reflection B. Refraction
C. Dispersion D. Total internal reflection
Ans. D
470. In order to get the original signal from the sampled signal, which of the following filters should be necessarily used
A. Band stop signal B. Low pass filter
C. High pass filter D. Band pass filter
Ans. B
471. In an AC circuit which of the following elements consume power
A. Inductor B. Capacitor
C. Resistor D. All
Ans. C
472. Which one of the following is a closed loop system?
A. Electric switches B. Car starter
C. DC generator D. Autopilot of an aircraft
Ans. D
473. Which of the following losses of DC motor decrease with the increase in load?

- A. Friction & windage loss
- C. Brush contact loss

Ans. D

- B. Core loss
- D. None of above

474. For Zener regulation we don't want Zener current to fall below knee current because
- A. It will damage the physical structure of Zener diode
 - B. A lot amount of heat will be produced
 - C. Below Zener knee current a constant voltage is not maintained by the Zener diode
 - D. It will consume more electrical power

Ans. A

475. A wire mesh or electrode between the cathode and anode is known as
- A. Plate
 - C. Filament
 - B. Grid
 - D. None

Ans. B

476. Collection of structured data which may be manipulated at some or all of the data held is called
- A. Information
 - C. Controlling
 - B. Database
 - D. Securities

Ans. B

477. The control unit directs the ALU to perform an arithmetic operation, the machine cycles is involved in its
- A. First step
 - C. Second step
 - B. Third step
 - D. Fifth step

Ans. B

478. In Poisson distribution, the probability of success is
- A. 1
 - C. 0.2
 - B. 0.5
 - D. 0

Ans. D

479. In a light bulb factory, it is found that the probability of bulb being defective is 0.12. Estimate how many defective bulbs will be produced in a total of 8000 bulbs
- A. 260
 - C. 9600
 - B. 960
 - D. 96000

Ans. B

Multiple Choice Questions

480. Technique which is used to enable multiple broadband signals transmitted over single mode fiber
- A. Subscriber multiplexing
 - B. Wavelength division multiplexing
 - C. Time division multiplexing
 - D. Frequency division multiplexing
- Ans. A

481. ____ cells make concentration layer of the lens.
- A. Strong
 - B. Fibrous
 - C. Weak
 - D. Optical
- Ans. B

482. Most data communications involving telegraph lines use
- A. Simplex lines
 - B. Wideband lines
 - C. Narrowband lines
 - D. Dialed service
- Ans. C

483. In a critically damped system, the damping factor is
- A. Zero
 - B. Less than unity
 - C. Greater than unity
 - D. Unity
- Ans. D

484. If two vectors a and b are anti-parallel to each other, then the resultant vector is
- A. $2b$
 - B. $a+b$
 - C. $a-b$
 - D. $2a$
- Ans. C

485. The scalar product of two parallel vectors is equal to the
- A. The product of their magnitude
 - B. Equal to their magnitude
 - C. The product of their directions
 - D. All of the above
- Ans. A

486. A thyristor has ____ alternating semiconductor layers and ____ PN junctions are present.

Multiple Choice Questions

A. Three, four

C. Three, two

Ans. B

B. Four, three

D. None

487. A programmer would most likely prepare a flow chart for a

A. Specific program flow chart

B. General program flow chart

C. Specific system design

D. General system design

Ans. A

487. In digital electronics, numbers of basic operations or functions are

A. 5

B. 1

C. 2

D. 4

Ans. C

488. 127 may be represented in binary number system as

A. 0001 1111B

B. 1000 0000B

C. 111 1111

D. 1111 1111

Ans. C

489. Which gate is called universal gate?

A. AND

B. NOT

C. NOR

D. XNOR

E. OR

Ans. C

490. The phenomenon in which changing current in one coil induces emf in another coil placed near to the first is called

A. Mutual induction

B. Self induction

C. Primary induction

D. Secondary induction

Ans. A

491. Transformer oil must be free from

A. Odour

B. Gases

C. Sulphur

D. Moisture

Ans. D

492. A current transformer should not have

A. A movable secondary winding

- B. A high value of resistance across secondary
 - C. Primary and secondary open circuited
 - D. None of above
- Ans. B

493. In a piston, the maximum temperature occurs at
- A. Ring section
 - B. Gudgeon pin
 - C. Top sides
 - D. Top centre
- Ans. D

494. Which of the following enters the super heater of a boiler?
- A. Cold steam
 - B. Hot water
 - C. Wet steam
 - D. Superheated steam
- Ans. C

495. In outdoor substations, the lightning arresters are placed nearer to
- A. Isolator
 - B. Current transformer
 - C. Power transformer
 - D. Circuit breaker
- Ans. C

496. Which of the following type tests are conducted on isolator?
- A. Temperature rise test
 - B. Impulse voltage withstand test
 - C. Short time current test
 - D. All
- Ans. D

497. Curl of vector is _____ cross product of Δ with that vector.
- A. Two dimensional
 - B. Three dimensional
 - C. One dimensional
 - D. None
- Ans. B

499. The current is flowing into positive terminal of the battery, the power being _____
- A. Absorbed
 - B. Discharged
 - C. Unaltered
 - D. None of above
- Ans. A

500. Difference between synchronous speed and _____ is called slip.
- A. Motor speed
 - B. Actual speed
 - C. Asynchronous speed
 - D. None of above
- Ans. B

501. EMF is ____ integral of non-conservative electric field generated by power source.
A. Line
B. Surface
C. Constant
D. None of above
Ans. A
502. Electronic circuits with high gain and phase shift condition produce
A. Oscillations
B. Damping
C. Resonance
D. Fluctuations
Ans. A
503. Squirrel cage rotor with ____ number of bars prevent current induced from imposing back to supply.
A. Even
B. Odd
C. Prime
D. Natural
Ans. C
504. The definite integral of $dy/dx = \cos x$ is
A. $\sin x$
B. $\tan x$
C. $-\sin x$
D. None of these
Ans. A
505. The disadvantage of a half wave rectifier is that ____
A. Components are expensive
B. Diode must have a high power rating
C. Output is difficult to filter
D. None
Ans. C
506. Noise in resistance depends upon
A. Temperature
B. Sampling rate
C. Material
D. All of above
Ans. A
507. In a parallel resonance circuit, at resonance
A. Impedance is zero
B. Current is maximum
C. Voltage is maximum
D. Impedance is minimum
Ans. C
508. What is meant by Admittance?
A. Measure of how a circuit or device will oppose the flow of current

Multiple Choice Questions

- B. Measure of how easily a circuit or device will allow the flow of current
- C. Measure of how a circuit or device will divert the flow of current
- D. None of the above

Ans. B

509. Force on one meter length of conductor in a magnetic field created by a current of 1 ampere is

- A. EMF
- B. Voltage
- C. Electric intensity
- D. Magnetic Induction

Ans. D

510. In right hand rule thumb points in the direction of current and finger curl in the direction of

- A. Electric field
- B. Electric force
- C. Magnetic field
- D. None of above

Ans. C

511. Radius of curvature of the path of a charged particle in a uniform magnetic field is directly proportional to

- A. Flux density of field
- B. Particle's energy
- C. Particle's momentum
- D. Particle's charge

Ans. C

512. _____ effect determines the sign of charge.

- A. Thomson
- B. Seeback
- C. Hall
- D. Petlier

Ans. C

513. Time constant of a series R-L circuit equals

- A. L/R
- B. C/R
- C. R/L
- D. All

Ans. A

514. Amperes law is concerned with

- A. A unit magnetic pole
- B. Electrochemical equivalent
- C. Force on wire carrying current in a magnetic field
- D. RMS value

Ans. C

515. Resistance, Capacitance and inductance are ----- elements.
A. Active
B. Redundant
C. Passive
D. None of above
Ans. C
516. Magnets were first used by ----- to find range
A. Indians
B. Europeans
C. Chinese
D. Japanese
Ans. C
517. A bridge used for the measurement of capacitance or dielectric loss of an insulator is
A. Shearing bridge
B. Hay bridge
C. Wheatstone bridge
D. None
Ans. A
518. Long wire wound tightly on a cylinder core is called
A. Toroid
B. Solenoid
C. Cable
D. Conductor
Ans. B
519. Lenz's law is law of conservation of
A. Momentum
B. Charge
C. EMF
D. Energy
Ans. A
520. A material having strong magnetic properties is called
A. Paramagnetic
B. Ferromagnetic
C. Diamagnetic
D. None of above
Ans. B
521. For a fuse rating of 2.5 KW and 220 Volt microwave the rating of the current is
A. 5 A
B. 10 A
C. 12 A
D. 15 A
Ans. C
522. The brush voltage drop in DC motors is usually of the order of
A. 4
B. 6
C. 8
D. 2
Ans. D

Multiple Choice Questions

523. What will happen if relative speed b/w rotating flux of the stator and rotor of induction motor is zero?
- A. Torque produced will be very large
 - B. Rotor will not run
 - C. Rotor runs at high speed
 - D. Slip of motor is 5%
- Ans. B

524. If the oscillations per minute of a rotor are 50 with a stator frequency of 50 Hz, slip will be
- A. 10%
 - B. 12%
 - C. 4%
 - D. 8%
- Ans. C

525. The power scale of circle diagram of an induction motor can be found from
- A. Stator resistance test
 - B. No load test only
 - C. Short circuit test only
 - D. None of above
- Ans. C

526. Variation in supply mains, frequency is compensated by _____ in industrial motors
- A. Overcurrent relays
 - B. VFD
 - C. Opto electronic devices
 - D. Centre tapped transformers
- Ans. B

527. Critical resistance of a DC generator varies with
- A. $1/N^2$
 - B. N^2
 - C. $1/N$
 - D. N
- Ans. D

529. Which statement is valid for a single phase capacitor start motor in steady state?
- A. Forward flux by rotor current is equal to backward flux by rotor current
 - B. Net forward flux is equal to net backward flux by rotor current
 - C. Net forward flux is less than net backward flux by rotor current
 - D. None of above
- Ans. B

530. Hopkinson test is conducted at

- A. Full load
- B. Part load
- C. Low load
- D. No load

Ans. A

531. The back EMF of a DC motor depends on

- A. Field flux
- B. Shape of conductors
- C. Type of slip rings
- D. Brush material

Ans. A

523. Equalizer connections are required when paralleling two

- A. Bipolar generators
- B. Series generators
- C. Shunt generators
- D. Compound generator

Ans. D

533. Highest losses in a DC motor are

- A. Copper losses
- B. Core losses
- C. Mechanical losses
- D. None of the above

Ans. A

534. A DC motor can easily be identified by

- A. Yoke
- B. Commutator
- C. Size of conductor
- D. Winding

Ans. B

535. The torque speed characteristics of a DC motor

- A. Parabola
- B. Linearly rising
- C. Rectangular hyperbola
- D. Linearly declining

Ans. C

536. Usually very wide and sensitive speed control method is used for

- A. Reciprocating pumps
- B. Colliery winders
- C. Centrifugal bellows
- D. Lathe machine

Ans. B

537. A large size alternator is protected against over loads by providing

- A. Overcurrent relays
- B. Thermal relays
- C. A combination of A & B
- D. Temperature sensitive relays

Ans. D

Multiple Choice Questions

538. Which of the following test can be used to determine the efficiency of two identical transformers at full load
A. Open circuit test
B. Short circuit test
C. Type tests
D. Back to back test
Ans. D
539. The ratio error of a current transformer is due to the presence of
A. Exciting currents
B. Stray magnetism
C. Corona effects
D. Lagging power factor
Ans. A
540. Device which compares difference between the voltages and sends signal
A. Oscillator
B. Voltage comparator
C. Controller
D. None
Ans. B
541. In JFET, shunt sampling gate has
A. Voltage
B. Current
C. AC
D. DC
Ans. B
542. Sampling gate is
A. OR
B. NAND
C. Linear
D. Random
Ans. C
543. _____ circuits always have memory elements
A. Combinational
B. Sequential
C. Elemental
D. None of these
Ans. B
544. Early effect of BJT refers to
A. Avalanche breakdown
B. Thermal runaway
C. Base narrowing
D. Zener breakdown
Ans. C
545. Voltage gain of common collector is
A. Equal to 1
B. Greater than 10
C. Greater than 100
D. Less than 1
Ans. D

546. In transistor circuit _____ capacitor is used

- A. Mica
- B. Air
- C. Paper
- D. Electrolyte

Ans. D

547. The output impedance of a CB transistor is

- A. High
- B. Zero
- C. Low
- D. Very low

Ans. A

548. The input impedance of a CB transistor is

- A. High
- B. Zero
- C. Low
- D. Very low

Ans. C

549. In an ideal op amp if a different signal is applied at both the ends the output will be

- A. Zero
- B. Infinite
- C. Input 2 - input 1
- D. None

Ans. B

550. If same signal of 0.4 V is applied on both the ends of the op amp with 100 db gain. The output will be

- A. Zero
- B. Infinite
- C. 1
- D. None of above

Ans. A

551. Multiplexer converts

- A. Parallel data into parallel data
- B. Serial data into parallel data
- C. Parallel data into serial data
- D. Serial data into serial data

Ans. C

552. ASCII (American standard code for information interchange) is _____ bits code

- A. 5
- B. 7
- C. 12
- D. 18

Ans. B

Multiple Choice Questions

553. Decoders convert binary input to _____ output.
A. Decimal
B. Hexadecimal
C. Binary
D. Octal

Ans. A

554. In a radio receiver
A. All stages contribute equally to noise
B. RF stage has no effect on S/N ratio
C. Mixer stage contributes most of the noise generated
D. RF stage has effect on S/N ratio

Ans. C

555. A radio receiver has _____ of amplification.
A. Single stage
B. Double stage
C. Three stage
D. More than 3 stages

Ans. D

556. Hot wire anemometers are used to measure -----
A. Velocity of air stream
B. Pressure of fluids
C. Varying voltage
D. Leakage reactance

Ans. A

557. The letter DPDT is for
A. Switch
B. Conductor
C. Thick wire
D. Fuse

Ans. A

558. Due to burning of 1 Kg of pure carbon with a minimum quantity of air required, the percentage of carbon dioxide in the exhaust gas would be
A. 10%
B. 19%
C. 29%
D. 39%

Ans. C

559. A graphical representation between discharge and time is known as
A. Monograph
B. Hectograph
C. Topography
D. Hydrograph

Ans. D

560. In an ideal diesel cycle, the working substance is
 A. Air
 B. Diesel
 C. Mixture of air and diesel
 D. Any combustible material
Ans. A

561. Which of the following is generally not a constituent of coal?
 A. Sulphur
 B. Moisture
 C. Chromium
 D. Hydrogen
Ans. C

562. Coal rank classifies coal according to its
 A. Carbon percentage
 B. Ash content
 C. Degree of metamorphism
 D. Density
Ans. C

563. Power plants using coal work closely on which of the following cycle
 A. Otto cycle
 B. Binary vapor cycle
 C. Brayton cycle
 D. Rankine cycle
Ans. D

564. The air standard efficiency of a diesel engine depends on
 A. Compression ratio
 B. Speed
 C. Torque
 D. All of above
Ans. A

565. Coking is
 A. Formation of lumps or masses of coke in boiler surfaces at high temperatures
 B. Heating of coal in absence of air, driving out CO₂ and leaving behind the residue and carbon
 C. Burning of coal in furnace
 D. Producing lumps of coal from fine powders with the help of a binder
Ans. B

566. Deuterium oxide is used in nuclear reactors as
 A. Fuel
 B. Moderator
 C. Shield
 D. Regulator
Ans. B

Multiple Choice Questions

567. The output of a solar cell is of the order of
A. 0.1W
B. 0.5W
C. 1W
D. 5W

Ans. C

568. As compared to steam at entry to the turbine, which of the following will be larger at exit
A. Pressure
B. Flow rate
C. Specific volume
D. Specific enthalpy

Ans. C

569. The model of transmission line in which full charging current flows over half the length of line
A. Nominal T
B. Short line
C. Nominal N
D. Equivalent N

Ans. A

570. Which of the following is called "certain length of actual transmission line"?
A. Electronic delay line
B. Distribution delay line
C. Electromagnetic delay line
D. Magnetic delay line

Ans. B

571. Transient state stability is generally improved by
A. Using high speed governors on machines
B. Using low inertia machines
C. Dispensing with neutral grounding
D. Any of above

Ans. A

572. The surge resistance of transmission lines is about
A. 50 ohm
B. 75 ohm
C. 400 ohm
D. 800 ohm

Ans. C

573. In high voltage transmission lines, the top most conductor is
A. R-phase conductor
B. Y-phase conductor
C. B-phase conductor
D. Earth conductor

Ans. D

574. Skin effect is proportional to
A. Diameter of conductor
B. (Diameter of conductor)^{1/2}
C. (Diameter of conductor)²
D. (Diameter of conductor)⁴

Ans. C

575. Shunt capacitance is usually neglected in the analysis of
A. Short transmission lines
B. Medium transmission lines
C. Long transmission lines
D. Medium as well as long transmission lines

Ans. A

576. In order to reduce skin effect at UHF
A. Conductors are painted
B. Conductors are anodized
C. Copper tubes with silver plating are used
D. Copper rods with silver plating are used

Ans. C

577. Transmission lines link
A. Service point to consumer premises
B. Distribution transformer to consumer premise
C. Receiving end station to distribution
D. Generating station to receiving end station

Ans. D

578. The flow chart of a thermal power plant consists of ____ main circuits.
A. Four
B. Five
C. Six
D. Seven

Ans. A

579. In ____ the furnace is arranged as a horizontal cylinder.
A. Horizontal boiler
B. Vertical boiler
C. Cylindrical boiler
D. Cyclone fired boiler

Ans. D

580. Fossil fuel power plants often have a ____ section in the steam generating furnace.
A. Heat exchanger
B. Heat recovery
C. Super heater
D. None of above

Ans. C

Multiple Choice Questions

581. Overload protection requires a _____ which simply measure the current in circuit and is used with protection device for measuring.
A. Power transformer
B. Auto transformer
C. Current transformer
D. None

Ans. C

582. _____ measure both voltage and current at the relaying point.
A. Differential protection
B. Earth fault protection
C. Distance protection
D. None

Ans. C

583. Protective device _____ is the process of determining the "best fit" timing of current interruption when abnormal electrical conditions occur.
A. Diagnosis
B. Coordination
C. Calibration
D. All of above

Ans. B

584. In _____ one or two phases become connected to earth via low impedance path, their magnitudes will increase dramatically as current will imbalance.
A. Earth fault
B. Phase to phase fault
C. Symmetrical fault
D. None

Ans. A

585. _____ is used because they offer precise control of voltage, frequency, VARs and Watts.
A. Induction generator
B. Synchronous generator
C. DC generator
D. AC generator

Ans. B

586. In process control system there are three main terms or factors: manipulated variable, _____ and uncontrolled variables.
A. Controlled variable
B. Disturbance
C. Both A & B
D. None of above

Ans. B

587. A process control consists of four essential elements such as process measurement, _____ and control.
A. Analysis
B. Evaluation

C. Quality
Ans. B

D. None of above

588. _____ provide a conductive path for DC for rotating field winding.
A. Terminal ends
B. Collector rings
C. Commutator
D. None of above
Ans. B

589. Internal parts of a motor are protected from environmental elements by
A. Frame
B. Enclosure
C. Housing
D. Capsule
E. Casing
Ans. B

590. _____ exciter gets field power from generator output voltage.
A. Series type
B. Shunt type
C. Brushless type
D. Brush type
E. Console type
Ans. B

591. _____ which feeds its own field current from its output.
A. Self excited generator
B. Separately excited generator
Ans. B

592. Modern voltage regulators are designed to maintain the generator line voltage within better than _____ of nominal for wide variations of machine load.
A. $\pm 1\%$
B. $\pm 3\%$
C. $\pm 5\%$
D. $\pm 7\%$
Ans. A

593. Sinusoidal voltage and current at constant frequency is characterized by 2 parameters; A maximum value and _____.
A. Phase angle
B. Value of load angle
C. R value
D. Load angle
Ans. A

594. Reactive power that can be generated at low load is determined by
A. Field current heating limit
B. Field current cooling limit
C. Field current overheating limit
D. None of above
Ans. A

595. Power system _____ is a word used in connection with the AC current power system denoting a condition wherein, the various alternators in the system remain in synchronism with each other.

- A. Range
- B. Loop
- C. Gain
- D. Conservation
- E. Stability

Ans. E

596. _____ transformers are used for voltage of low values and _____ transformers for high voltages.

- A. Electronic; Power
- B. Power; Electronic
- C. Neither A or B
- D. Current; Instrument

Ans. A

597. Which of following circuits are used to measure performance of transformer?

- A. Equivalent circuit
- B. Power circuit
- C. Electronic circuit
- D. Both A & B

Ans. A

598. Which transformer splits secondary voltage into two equal voltages?

- A. Power transformer
- B. Centre tapped transformer
- C. Current transformer
- D. Step up transformer

Ans. B

599. Which of the following is not a type of thyristor?

- A. DIAC
- B. TRIAC
- C. Light activated
- D. Inverter gate

Ans. D

600. Steam pressure can be classified by shaft position, method of drive, _____ and action of steam.

- A. Exhaust pressure
- B. Blade design
- C. Boiler type
- D. Inlet feed to the boilers

Ans. A

601. Strength of magnetic field is increased by

- A. Increasing number of turns
- B. Increasing air gap

- C. Decreasing number of turns
- D. Decreasing air gap

Ans. A

602. Skin effect is proportional to
- A. (Diameter of conductor)²
 - B. (Diameter of conductor)⁴
 - C. Diameter of conductor
 - D. (Diameter of conductor)^{1/2}

Ans. A

603. _____ rotor has too weak magnetic field.
- A. Salient pole type
 - B. Non Salient pole type
 - C. Both A and B
 - D. None

Ans. A

604. Which of following is not a type of transformer?
- A. Resonant transformer
 - B. Laminated core transformer
 - C. Single instrument transformer
 - D. Ferrite core transformer
 - E. Cast iron transformer

Ans. E

605. Which of the following is semi controlled power switch?
- A. Thyristor
 - B. Transistor
 - C. Diode
 - D. All

Ans. A

606. Stator core is made of many thin metal plates or sheets joined together called
- A. Wallet
 - B. Slots
 - C. Laminations
 - D. Pastes

Ans. C

607. In _____ substation is a substation without a transformer where there is no step up or step down voltage transformation and operating at only a single voltage level.
- A. Switching
 - B. Collector
 - C. Converter
 - D. None of above

Ans. A

608. A _____ transfers power from transmission system to distribution system of an area. It is uneconomical to directly connect electricity consumers to the main transmission network, unless they use large amounts of power

Multiple Choice Questions

- A. Distribution substation
- C. Transmission substation

- B. Generating substation
- D. None

Ans. A

609. In air blast circuit breaker the pressure of air is of the order of
- A. 3 to 5 kg/cm²
 - B. 20 to 30 kg/cm²
 - C. 30 to 50 kg/cm²
 - D. None

Ans. B

610. In induction motor when the length of the air gap is increased, the magnetizing current of the motor increases while the short circuit current
- A. Decreased
 - B. Increased
 - C. Remains unchanged
 - D. Grows exponentially

Ans. C

611. In DC choppers per unit ripple is maximum when duty cycle α is
- A. 0.1
 - B. 0.3
 - C. 0.5
 - D. 0.7

Ans. C

612. In control systems with feedback
- A. System stability increases and system gain decreases
 - B. System stability decreases and system gain increases
 - C. System stability decreases and system gain decreases
 - D. System stability as well as gain increases

Ans. A

613. The electrostatic potential inside a hollow conductor is
- A. Constant
 - B. Minimum
 - C. Maximum
 - D. Zero

Ans. A

614. Inside a hollow spherical conductor electric field is
- A. Constant
 - B. Minimum
 - C. Maximum
 - D. Zero

Ans. D

615. In an FM signal, the power
- A. Increases as the modulation index increases
 - B. Reduces as the modulation index increases
 - C. Reduces as the modulation index decreases

D. Remains constant when modulation index increases
 Ans. D

616. Microprocessor at most elemental level is made of
 A. Transistors
 B. Flip flops
 C. Transistors & gates
 D. Digital logic gates & latches
 Ans. D

617. 16 bit binary word provides approximately how many combinations?
 A. 2^n code combinations
 B. 256 code combinations
 C. 65000
 D. 0001.10
 Ans. C

618. $S^2 - 4RT > 0$ is ____ type of wave equation.
 A. Elliptic
 B. Parabolic
 C. Hyperbolic
 D. Semi-circle
 Ans. C

619. $S^2 - 4RT = 0$ is _____ type of wave equation.
 A. Elliptic
 B. Parabolic
 C. Hyperbolic
 D. Semi-circle
 Ans. B

620. $S^2 - 4RT < 0$ is ____ type of wave equation.
 A. Elliptic
 B. Parabolic
 C. Hyperbolic
 D. Semi-circle
 Ans. A

621. Let $y = x^2 + 1$, then the average rate of change of 'y' with respect to 'x' over interval [3, 5] is
 A. -8
 B. 2x
 C. 8
 D. 16
 Ans. B

622. A 5 feet ladder leg against the wall slips in such a way that its base is moving away from the wall at the rate of 2 feet/sec. At that instant when base is 4 feet from the wall. How fast is top of the ladder moving down the wall of that instant?
 A. -2 ft/sec
 B. -4 ft/sec
 C. -8 ft/sec
 D. -8/3 ft/sec
 Ans. D

Multiple Choice Questions

623. A 220 V shunt motor takes a total current of 80 ampere and runs at 800 RPM. Resistance of shunt field is 50Ω and that of armature is 0.1Ω . Iron and friction losses amount to 1600 W. What is the driving power of motor?

A. 16050 W
C. 12600 W

B. 14500 W
D. 18500 W

Ans. A

624. A shunt generator delivers 195 A at a terminal potential difference of 250 V. The armature resistances are 0.02Ω and 50Ω respectively. What is the value of generated EMF?

A. 246V
C. 254V

B. 270V
D. 282V

Ans. C

625. If a large number of load gate inputs are connected in a TTL circuit, what will happen to V_{oh} and V_{oh-min} ?

A. V_{oh} and V_{oh-min} are unaffected
B. V_{oh} exceeds V_{oh-min}
C. V_{oh-min} drops below V_{oh}
D. V_{oh} chops below V_{oh-min}

Ans. D

626. The execution unit has a 16 bit architectural unit (ALU). Which of the following has not been performed by ALU?

A. AND
C. XOR

B. OR
D. NAND

Ans. D

627. A signal is defined as power signal if and only if

A. Its power is normalized by assuming R to be 1Ω
B. Power is de-normalized of normal value
C. It has infinite energy but non zero power $0 < P < \infty$ for all time
D. It is periodic

Ans. C

628. Purpose of a transfer function is to decide.

A. Systems is FIFO

B. System is not stable

C. System is stable BIBO

D. None

Ans. C

629. Efficiency of electric motors is usually between
- A. 80 - 90%
 - B. 70 - 80%
 - C. 75 - 98%
 - D. 60 - 98%

Ans. A

630. The primary and secondary induced EMFs (E_1 and E_2) in a two winding transformer are always

- A. Equal in magnitude
- B. Anti-phase with each other
- C. In phase with each other
- D. Determined by load on transformer

Ans. C

631. The main difference between electric lines and magnetic lines of force
- A. Electric lines are closed curves whereas magnetic lines of force are not

- B. Electric lines are in the form of open curves whereas the magnetic lines are closed curves

- C. Electric lines tend to contract lengthwise whereas magnetic lines do not

- D. None

Ans. B

632. In synchronous motor if load (same) is off suddenly then motor

- A. Begins to speed up

- B. Begins to slow

- C. Suddenly have to carry load

- D. Remains working

Ans. A

633. A _____ wave is a high frequency waveform (sinusoidal usually) that is modulated with an input signal.

- A. Modulated

- B. Carrier.

- C. Sinusoidal

- D. Amplitude

Ans. B

634. What principle is used by indicating instruments?

- A. Electromagnet principle

- B. Gravity and spring

- C. Lenz law

- D. None of above

Ans. B

Multiple Choice Questions

635. Power carrying capability is limited by
A. Thermal conditions
B. Internal properties of system
C. Design of system
D. None of above

Ans. A

636. A transformer has negative voltage regulation when its load power factor is
A. Zero
B. Unity
C. Leading
D. Lagging

Ans. C

637. The commercial efficiency of a transformer while on open circuit is
A. Zero
B. Maximum
C. Either zero or 100%
D. 100%

Ans. A

638. In large power transformer, best utilization of available core space can be made by employing _____ cross section.
A. Rectangular
B. Square
C. Stepped
D. None of above

Ans. C

639. Arrangement of data in a specific order is called
A. Merging
B. Sorting
C. Classification
D. Verification

Ans. B

640. When covalent bonds break
A. Holes and electrons pair are produced
B. Ions are created
C. Both A & B
D. None of above

Ans. A

641. The duration of the pulse in a pulse triggering system for SCRs should be at least

- A. 60 micro seconds
B. 40 micro seconds
C. 20 micro seconds
D. 10 micro seconds

Ans. D

642. IBM 360 series was introduced in
A. First generation
B. Second generation
C. Third generation
D. 1950

Ans. C

643. The power factor of ac circuit lies between
A. 0 and 1
B. -1 and 1
C. 0 and -1
D. None of above

Ans. A

644. The heat developed in an electric iron is attributed to ___ power.
A. Apparent
B. Reactive
C. True
D. True and reactive

Ans. C

645. When the power factor in the transmission line is leading, which device is employed at substation to reduce the power factor?
A. CVT
B. Shunt Reactor
C. Synchronous condenser
D. None of above

Ans. B

646. In a circuit, low reactive power compared to true power indicates
A. Low power factor
B. High power factor
C. Low efficiency
D. High efficiency

Ans. B

647. The rating of given on the name plate of a transformer indicates the
A. True power which it can supply
B. Apparent power which it can supply
C. Apparent power which it draws from the supply mains
D. True power which it draws from the supply mains

Ans. B

648. In a stepper motor the speed of rotation is determined by
A. Frequency of the waveform
B. Voltage applied to the motor
C. Input current
D. All of these

Ans. A

Multiple Choice Questions

649. Electrical field intensity on equipotential surface is
A. Parallel to surface
B. Adjacent to surface
C. Alongside the surface
D. Perpendicular to surface
Ans. D

650. Mechanical energy is supplied to a DC generator at the rate of 4200 J/s . The generator delivers 32.2 Amp at 120 V . How much energy is cost per minute of operation?
A. 20060 J
B. 20160 J
C. 23060 J
D. 25060 J
Ans. B

651. Norton equivalent current is
A. An open circuit
B. A pure resistive circuit
C. Short circuit through load
D. None of above
Ans. C

652. The main current crossing the collector junction in a normally biased NPN transistor is
A. Diffusion current
B. Base current
C. Equal current
D. Drift current
Ans. D

653. The only place where slip ring induction motors used in thermal power plants is
A. Boilers
B. Coal handling plant
C. Not used in thermal plants
D. None of above
Ans. B

654. An input transducer
A. Converts voltage to current
B. Converts current to voltage
C. Converts electrical quantity to non-electrical
D. Non electrical quantity to electrical quantity
Ans. D

655. Low attenuation rate and bandwidth is the cause of use of optical fiber system for communication.

- A. Low
 - C. High
- Ans. C

- B. Narrow
- D. Constant

656. Peak time is constant along

- A. Imaginary axis
 - C. Real axis
- Ans. C

- B. Diagonal
- D. None of above

657. A voltmeter using thermocouple measures

- A. Peak value
 - C. Average value
- Ans. B

- B. RMS value
- D. Peak to peak value

658. Which coal will have highest ash content?

- A. Bituminous coal
 - C. Coking coal
- Ans. D

- B. Grade 1 steam coal
- D. Lignite

659. What is the main disadvantage of phase advancers?

- A. Cannot be used for motors below 200 H.P
 - B. Produces noise
 - C. Can be used where synchronous motors is inadmissible
 - D. None of these
- Ans. A

660. Under what condition is D.C supply applied safely to the primary of a transformer?

- A. We can connect directly to DC; no condition is required
 - B. We cannot connect to DC supply
 - C. A High resistance should be connected in series with primary, but circuit will be useless
 - D. Above statements are wrong
- Ans. C

661. In a Transformer, the primary flux is always _____ the secondary flux.

- A. Greater
 - C. Twice
- Ans. D

- B. Smaller
- D. Equal

Multiple Choice Questions

662. Bandwidth can be increased by use of ----- network.

- A. Phase lag
- B. Phase lead
- C. Mesh
- D. None

Ans. B

663. Which of the following is the source of non-linearity?

- A. Backlash in gear
- B. Saturation in effective is amplified
- C. Threshold season
- D. All of above

Ans. D

664. The program for early PLC was in

- A. Boolean algebra
- B. Ladder logic
- C. Arithmetic logic
- D. All of above

Ans. B

665. The pointer which cannot be used in the register indirect addressing mode

- A. BX
- B. BP
- C. SI
- D. DI
- E. AX

Ans. E

666. ----- compensation is used to decrease steady state error.

- A. Lag
- B. Lead
- C. Lead and lag
- D. Lag and lead
- E. None of above

Ans. A

667. The mutual inductance between two coils is zero when the fluxes produced by them

- A. Aid each other
- B. Oppose each other
- C. Are at right angle to each other
- D. None of above

Ans. C

668. If the admittance of a parallel AC circuit is increased, the circuit current is

- A. Decreased
- B. Increased
- C. Remains constant
- D. None

Ans. B

669. Impedance is for AC circuit and resistance is for DC circuit, the difference is because of
- A. AC is vector while DC is scalar quantity
 - B. AC changes its direction while DC does not
 - C. Voltage phasor or current phasor
 - D. None of above

Ans. C

670. 40 W, 60 W, 100 W and 200 W bulbs are connected in series which bulb will glow brighter?

- A. 40 W
- C. 100 W

- B. 60 W
- D. 200 W

Ans. A

671. Which of the following is true?
- A. Transducer and actuator are sensor
 - B. Sensor and actuator are transducer
 - C. Sensor and transducer are actuator
 - D. None

Ans. B

672. Peak to peak 200 Volt will be read by an AC voltmeter as

- A. 141.7 V
- C. 200 V

- B. 100 V
- D. 70.7 V

Ans. D

673. The square law of photo detector gives current. This current is proportional to _____ of combined optical field.

- A. Square
- C. Cube

- B. Square root
- D. None of above

Ans. A

674. Intensity of light depends on

- A. Wavelength
- C. Velocity

- B. Frequency
- D. Amplitude

Ans. D

675. The _____ is an electromagnetic carrier wave which is modulated to carry information.

Multiple Choice Questions

- A. Air
- C. Light

Ans. C

- B. Sound
- D. Electricity

676. A super conductor may be used for generating
- A. Voltage
 - B. Current
 - C. Pressure
 - D. Magnetic field

Ans. D

677. Materials in superconducting state have the property of
- A. Absorbing magnetic field
 - B. Repelling magnetic field
 - C. Absorbing electric field
 - D. Repelling electric field

Ans. B

678. Stability of LC tuned circuit depends on
- A. Quality factor
 - B. Inductor
 - C. Capacitor
 - D. None of above

Ans. A

679. Primary and secondary winding of an ordinary 2-winding transformer always has

- A. Different number of turns
- B. Same size of copper wire
- C. A common magnetic
- D. Separate magnetic circuit

Ans. C

680. In a transformer, the leakage flux of each winding is proportional to the current in that winding because

- A. Ohm's law applied to magnetic circuits
- B. Leakage paths do not saturate
- C. The two windings are electrically isolated
- D. Magnetic flux is confined to core

Ans. B

681. Common emitter is used for amplification of

- A. Current
- B. Voltage
- C. Power
- D. All

Ans. C

682. Transformer is rated as KVA instead of KW because
- A. Load power factor is unknown

- B. Transformer loss depends on volt-amperes
- C. It has become customary
- D. All of above

Ans. B

683. Reverse bias of JFET increases its width of depletion layer and

- A. Decrease its channel capacitance
- B. Increase its channel capacitance
- C. Decrease its channel resistance
- D. Increase its channel resistance

Ans. D

684. Net reactance in RLC at resonance is

- A. Maximum
- B. Minimum
- C. Zero
- D. Infinity

Ans. B

685. Circuit current is _____ in RLC at resonance.

- A. Maximum
- B. Minimum
- C. Zero
- D. Infinity

Ans. A

686. _____ is current in transistor due to minority charge carriers.

- A. Forward leakage current
- B. Reverse leakage current
- C. Forward resistance of transistor
- D. Reverse resistance of transistor

Ans. B

687. Which configuration can be to convert high impedance into low impedance by using OP-AMP?

- A. Inverting
- B. Non-inverting
- C. Summing amplifier
- D. Voltage follower

Ans. D

688. The CMRR should be _____ for better noise cancellation in OP-AMP.

- A. Low
- B. Zero
- C. High
- D. None of above

Ans. C

Multiple Choice Questions

689. The VI characteristics of UJT is
- A. Similar to CE with a linear and saturation region
 - B. Similar to tunnel diode in some respects
 - C. Similar to FET with a linear and pinch-off region
 - D. Similar to PN junction in some respects

Ans. B

690. A DC-DC converter with a high step up voltage gain is used for several applications such as
- A. High intensity discharge lamp ballasts for automobile headlamps
 - B. Fuel energy conversion system
 - C. Solar cell energy conversion system
 - D. Battery backup systems
 - E. All

Ans. E

691. Transfer function is
- A. Mathematical model
 - B. System with no physical structure
 - C. System with no defined inputs
 - D. Can be calculated through differential equations
 - E. All

Ans. E

692. Which system needs more stability?
- A. Automatic washing machine
 - B. Traffic signal system
 - C. Home heating system
 - D. Motor with position control
 - E. Remote control

Ans. D

693. In parallel resonance RLC circuit
- A. Impedance is minimum
 - B. Power factor is unity
 - C. Current is maximum
 - D. None of above

Ans. B

694. Cross over distortion is maximum in _____ amplifier.
- A. Class A
 - B. Class B
 - C. Class H
 - D. Class C
 - E. Class AB

Ans. B

695. _____ is maximum when RLC circuit is in resonance.
 A. Inductive circuit
 B. Power dissipation
 C. Capacitive voltage
 D. None
Ans. B

696. Group diversity factor is
 A. Less than 1
 B. Greater than 1
 C. Equal to 1
 D. Zero
Ans. B

697. Like 3 phase _____ gives constant power transfer to the linear load.
 A. HVDC
 B. Split phase
 C. Two phase
 D. Single phase
Ans. C

698. Which of the following technique/method is-used for the measurements of ac high frequency voltages?
 A. Peak voltmeter
 B. Series resistance micro ammeter
 C. Resistance potential divider
 D. Any of above
Ans. A

699. Paschen's law is associated with
 A. Breakdown voltage
 B. Ionization
 C. Thermal radiations
 D. None
Ans. A

700. A Tesla coil is a
 A. Cascaded transformer
 B. Coreless transformer
 C. High frequency resonant transformer
 D. Low impedance transformer
Ans. C

701. Van de Graaff generators are useful for
 A. Very high voltage and low current applications
 B. Very high voltage and high current applications

- C. Constant high voltage and current applications
- D. High voltage pulses only

Ans. A

702. The phenomenon of corona is generally accompanied by
- A. Bang
 - B. Hissing sound
 - C. Magnetic hum
 - D. All of above

Ans. B

703. Which of the following is a polar dielectric?
- A. Teflon
 - B. Quartz
 - C. Nylon
 - D. Polyethylene

Ans. C

704. Polar dielectrics are normally used for
- A. High frequencies
 - B. Microwaves
 - C. DC and power frequencies
 - D. None of above

Ans. C

705. The moving system in the indicating instruments is subjected to
- A. Deflecting torque
 - B. Controlling torque
 - C. Damping torque
 - D. All of above

Ans. D

706. If there are three resistances in parallel which path current will chose
- A. High resistance
 - B. High impedance
 - C. High conductance
 - D. None

Ans. C

707. The basic requirement of a DC armature winding is that it must be
- A. Closed one
 - B. Lap winding
 - C. Wave winding
 - D. Either B or C

Ans. A

708. Among the following damping method, the most effective and efficient damping is

- A. Air friction
- B. Fluid friction
- C. Eddy current
- D. All are equally efficient

Ans. C

Multiple Choice Questions

709. A capacitor start, capacitor run single phase induction motor is basically a
A. AC series motor
B. DC series motor
C. Two phase induction motor
D. Three phase induction motor

Ans. C

710. A capacitor start single phase induction motor will usually have a power factor of

A. Unity
B. 0.8 leading
C. 0.6 leading
D. 0.6 lagging

Ans. D

711. In ultrasonic welding the frequency range is generally

A. 100-4000 cps
B. 4000 - 20,000 cps
C. 20,000 - 80,000 cps
D. 80,000 - 800,000 cps
E. 800,000 - 5,000,000 cps

Ans. B

712. Kwh meter is a ____ type of meter.

A. Recording
B. Digital
C. Integrating
D. None

Ans. C

713. If resistance decreases with increasing temperature, the coefficient will be.

A. Positive
B. Negative
C. Zero
D. None

Ans. B

714. Synchronous motor is operating on leading PF when the motor is

A. Over excited
B. Under excited
C. Non excited
D. None

Ans. A

715. Regarding skewing of motor bars in a squirrel cage induction motor, (SCIM) which statement is false.

A. It prevents cogging
B. It increases starting torque
C. It produces more uniform torque
D. It reduces motor 'hum' during its operation

Ans. B

Multiple Choice Questions

716. If the series resistance increases in an unloaded zener regulator, the zener current
- A. Decreases
 - B. Stays the same
 - C. Increases
 - D. Equals the voltage divided by the resistance
- Ans. A**

717. If the load resistance increases in a zener regulator, the zener current
- A. Decreases
 - B. Stays the same
 - C. Increases
 - D. Equals the source voltage divided by the series resistance
- Ans. C**

718. If the base supply voltage increases, the Q point moves
- A. Down
 - B. Up
 - C. Nowhere
 - D. Off the load line
- Ans. B**

719. Active power and apparent power are respectively represented by
- A. kW and kVAR
 - B. kVAR and kVA
 - C. kVA and kVAR
 - D. kW and kVA
- Ans. D**

720. For a consumer what is the most economical power factor?
- A. 0.25-0.5 lagging
 - B. 0.25 - 0.5 leading
 - C. 0.85 - 0.95 lagging
 - D. 0.85 - 0.95 leading
- Ans. C**

721. The primary reason for the low power factor is due to the installation of
- A. DC motors
 - B. Synchronous motors
 - C. Induction motors
 - D. Commutator motors
- Ans. C**

722. The most suitable location for the power factor improvement device is
- A. Near the electrical appliance which is responsible for the poor power factor
 - B. At the sending end
 - C. At receiving end in case of transmission lines
 - D. Both (a) and (c)
- Ans. D**

723. In order to improve the power factor of equipment operating at lagging power factor, a capacitor is connected
- A. In series with the equipment
 - B. In parallel with the equipment
 - C. In series-parallel with the equipment
 - D. Either (a) or (b)

Ans. B

724. If the load resistance decreases in a Zener regulator, the series current
- A. Decreases
 - B. Stays the same
 - C. Increases
 - D. Equals the source voltage divided by the series resistance

Ans. B

725. The device associated with voltage controlled capacitance is a
- A. Light emitting diode
 - B. Photodiode
 - C. Varactor diode
 - D. Zener diode

Ans. C

726. To isolate an output circuit from an input circuit, which is the device to use
- A. Back diode
 - B. Optocoupler
 - C. Seven-segment indicator
 - D. Tunnel diode

Ans. B

727. The danger of electric shock is maximum
- A. During arcing
 - B. After arcing
 - C. While inserting electrode into the holder
 - D. None of above

Ans. C

728. The average DC output voltage for a half-wave rectifier is 13.05 V. Average value for a full-wave rectifier will be
- A. 26.1
 - B. 28
 - C. 10
 - D. None of these

Ans. A

729. The major advantage of a photo-transistor as compared to a photo-diode is

Multiple Choice Questions

- A. Response to higher frequencies
 - B. AC operation
 - C. Increase sensitivity
 - D. Durability
- Ans. C**

730. When transistors are used in digital circuits they usually operate in the
- A. Active region
 - B. Breakdown region
 - C. Saturation and cut off regions
 - D. Linear region
- Ans. C**

731. Power amplifiers in high frequency applications are mainly used
- | | |
|--------------------------|------------------------|
| A. As a switch | B. For amplification |
| C. As protective devices | D. Voltage controllers |
- Ans. A**

732. Input impedance of an inverting OP-AMP is
- | | |
|----------------|------------------|
| A. Zero | B. Infinity |
| C. $10M\Omega$ | D. None of these |
- Ans. B**

733. Switching surge is
- | | |
|-------------------------------------|--------------------|
| A. High voltage DC | B. High voltage AC |
| C. Short duration transient voltage | |
| D. Hyperbolically dying voltage | |
- Ans. C**

734. Insulators for high voltage applications are tested for
- | | |
|--------------------------|------------------|
| A. Power frequency tests | B. Impulse tests |
| C. Both (A) & (B) | D. None of above |
- Ans. C**

735. Transformers contribute to radio interference due to
- | | |
|---|-----------------|
| A. Corona discharges in air | |
| B. Internal or partial discharges in insulation | |
| C. Sparking | D. Any of above |
- Ans. D**

736. Surge voltage originate in power systems due to
 A. Lightening
 B. Switching operations
 C. Faults
 D. Any of above

Ans. D

737. The torque developed by a split phase motor is proportional to
 A. Sine of angle between I_m and I_s
 B. Cosine of angle between I_m and I_s
 C. Main winding current, I_m
 D. Auxiliary winding current, I_s

Ans. A

738. The power factor of an alternator depends on
 A. Load
 B. Speed of rotor
 C. Core losses
 D. Armature losses

Ans. A

739. A welding generator has _____ characteristics.
 A. Rising
 B. Drooping
 C. Linear
 D. None of them

Ans. B

740. A 4-pole, 12-slot lap-wound DC armature has two coil-sides/slots. Assuming single turn coils and progressive winding, the back pitch would be
 A. 5
 B. 7
 C. 3
 D. None of above

Ans. B

741. If the load on a DC shunt motor is increases, its speed is slightly reduced due to
 A. Increase in armature current
 B. Increase in flux
 C. Decrease in reactance
 D. Decrease in back emf

Ans. D

742. Frequency of voltage generated by an alternator having 4-poles and rotating at 1800 rpm is -----hertz.

A. 60
 B. 7200
 C. 120
 D. 450

Ans. A

Multiple Choice Questions

743. The main disadvantage of using short-pitch winding in alternators is that it
- A. Reduces harmonics in the generated voltage
 - B. Reduces the total voltage around the armature coils
 - C. Produces asymmetry in the three phase windings
 - D. Increases Cu of end connections
- Ans. B**

744. The efficiency and power factor of a Squirrel Cage induction motor increases in proportion to its
- A. Speed
 - B. Mechanical load
 - C. Voltage
 - D. Rotor torque
- Ans. B**

745. A 4-band resistor has Red, Black, Green, Blue bands, its resistance
- A. 1 M Ω
 - B. 3 M Ω
 - C. 2 M Ω
 - D. None
- Ans. C**

746. An AC waveform having DC equivalent value
- A. Effective value
 - B. 0.707 peak value
 - C. Both A & B
 - D. None of above
- Ans. C**

747. If $i = 5 + 5 \sin 100\pi t$ then what will be the average current value of half sine wave
- A. 0
 - B. 5
 - C. 10
 - D. None
- Ans. B**

748. Absence of skin effect, lower line cost, less corona effect are features of which of the transmission system
- A. High voltage direct current (HVDC)
 - B. AC transmission system
 - C. Subsurface distribution system
 - D. Both A & B
- Ans. A**

749. Extra high voltage (EHV) transmission has which of the following advantages
- A. Reduction in noise
 - B. Increase in transmission efficiency
 - C. Improves voltage regulation
 - D. All of these
- Ans. D

750. The purpose of comparator is to
- A. Amplify an input voltage
 - B. Detect the occurrence of a changing input voltage
 - C. Maintain a constant output when the DC input voltage changes
 - D. Produce a change in input voltage when an input voltage equals the reference
- Ans. D

751. DOG-ACSR conductor has
- A. 1 strand of steel 6 strand of aluminum
 - B. 6 strand of steel 1 strand of aluminum
 - C. 6 strand of steel 7 strand of aluminum
 - D. 7 strand of steel 6 strand of aluminum
- Ans. D

752. Manufacturers measure the resistance of conductor at which temperature
- A. 0
 - B. 20
 - C. 25
 - D. 27
- Ans. C

753. Standard voltage supply in Pakistan is
- A. 220
 - B. 230
 - C. 240
 - D. 400
- Ans. B

754. One horse power (hp) equals how many pounds per feet of engine
- A. 22000 foot-pounds per minute
 - B. 22000 foot-pounds per second
 - C. 22000 foot-pounds per hour
 - D. 33000 foot-pounds per minute
- Ans. D

Multiple Choice Questions

755. A piece of wire is stretched to double its length the resistance of wire becomes
- A. $2R$
 - B. $4R$
 - C. $R/2$
 - D. $R/4$

Ans. B

756. One ton of air conditioner means
- A. One ton of ice in 1 hour
 - B. One ton of ice in 12 hour
 - C. One ton of ice in 24 hour
 - D. None

Ans. C

757. A 50 ohm resistance with 5% tolerance will have colour code

- A. Green, black, black
- B. Green, black, black, gold
- C. Green, black, brown, gold
- D. Green, black, gold

Ans. D

758. Cost saving of conductor in three phase over single phase

- A. 100%
- B. 200%
- C. 300%
- D. 400%

Ans. C

759. In electrical traction, speed of DC motor can be varied by varying

- A. Terminal voltage
- B. Field current
- C. 1st varying terminal voltage then field current
- D. None

Ans. B

760. In case the air gap in an induction motor is increased

- A. The magnetizing current of rotor will decrease
- B. The power factor will decrease
- C. Speed of motor will increase
- D. Windage losses will increase

Ans. B

761. The number of slip rings on a squirrel cage induction motor is usually

- A. Two
- B. Three
- C. Four
- D. None

Ans. D

762. What is the dielectric strength of porcelain (kV per inch)?
 A. 20
 B. 100
 C. 203
 D. 405

Ans. C

763. What is the dielectric strength of glass (kV per inch)?
 A. 355
 B. 500
 C. 600
 D. 750

Ans. A

764. Cost of underground cables over overhead transmission lines is
 A. Same
 B. Double
 C. More than double
 D. None of above

Ans. C

765. For percentage voltage-drop expression which of the following voltage is used
 A. Sending end voltage
 B. Receiving end voltage
 C. System nominal voltage
 D. Any of above

Ans. C

766. Which gas is used in gas insulated sub station?
 A. Nitrogen
 B. Sulphur hexachloride
 C. Sulphur hexafluoride
 D. Air

Ans. C

767. The speed of squirrel-cage induction motor can be controlled by all of the following except
 A. Changing supply frequency
 B. Changing number of poles
 C. Changing winding resistance
 D. Reducing supply voltage

Ans. C

768. In case of a three phase induction motor, plugging means
 A. Pulling the motor directly on line without a starter
 B. Locking of rotor due to harmonics
 C. Starting the motor on load which is more than the rated load
 D. Interchanging two supply phases for quick stopping

Ans. D

Multiple Choice Questions

769. The speed of an alternator is changed from 3000 rpm to 1500 rpm. The generated emf/phase will become
A. One fourth B. Half
C. Double D. Unchanged
Ans. B
770. Alternators used in aircraft systems usually have frequency of
A. 50Hz B. 60Hz
C. 25Hz D. 400Hz
Ans. D
771. Single phase induction motor torque at the instant of starting is
A. More than the rated torque
B. Equal to the rated torque
C. Zero
D. Less than the rated torque
Ans. C
772. Which motor has the highest power factor?
A. Capacitor start motor B. Capacitor run motor
C. Shaded pole motor D. Repulsion motor
Ans. B
773. The electric motor used in portable drill is
A. Capacitor run motor B. Hysteresis motor
C. Universal motor D. Repulsion motor
Ans. C
774. The direction of rotation of universal motor can be reversed by reversing the flow of current through
A. Armature winding B. Field winding
C. Both A & B D. None of above
Ans. C
775. Which system is used in industrial process for monitoring and self-correction?
A. Coal-slurry B. Closed loop
C. Open loop D. Feed forward
Ans. B

776. $50\mu A$ and $2k\Omega$ voltmeter will show half scale deflection with voltage
 A. 0.05 volt
 B. 0.01 volt
 C. 0.1 volt
 D. 1 volt
 Ans. C
777. A magnetic shield or screen used to protect a delicate instrument should be made of which of the following materials
 A. Plastic
 B. Soft iron
 C. Copper
 D. Aluminum
 Ans. B
778. For generating 1MHz following oscillator could be used
 A. Colpitt's
 B. Wein-bridge
 C. RC phase shift
 D. Hartley
 Ans. A
779. Dielectric strength in case of mica can be expected to be more than
 A. 500kV/mm
 B. 1500kV/mm
 C. 2500kV/mm
 D. 3500kV/mm
 Ans. A
780. Which impurity is present in liquid dielectric which strengthens the dielectric effect?
 A. Dust
 B. Dissolved gases
 C. Moisture
 D. Ionic impurity
 Ans. C
781. Circuit breaker is used for
 A. Fault detection
 B. Interruption
 C. Both A & B
 D. None
 Ans. B
782. What is the relative speed of stator and rotor fluxes?
 A. N_s
 B. N_r
 C. $N_s - N_r$
 D. 0
 Ans. C
783. What is the synchronous speed of 960 rpm and 4% slip induction motor?
 A. 1000rpm
 B. 900rpm

C. 2000rpm

D. 3000rpm

Ans. A

784. The principle of operation of a 3-phase induction motor is most similar to that of a

- A. Synchronous motor
- B. Repulsion start induction motor
- C. Transformer with short secondary
- D. Capacitor start

Ans. C

785. The three phase induction motor with rotor circuit open will

- A. Run normally
- B. Make noise
- C. Not run
- D. Get over heated

Ans. C

786. Poly phase field mean

- A. Pulsating and stationary field
- B. Pulsating and rotating field
- C. Constant amplitude and rotating field
- D. Constant amplitude and stationary field

Ans. C

787. The main reason for generation of harmonics in a transformer could be

- A. Fluctuating load
- B. Poor insulation
- C. Mechanical vibrations
- D. Saturation of core

Ans. D

788. Tertiary winding is used in which transformer

- A. Star-delta
- B. Delta-delta
- C. Star-star
- D. Any of above

Ans. C

789. A power transformer has a single primary winding and three secondary windings producing 5.0volts, 12.6 volts and 150 volts. Assuming similar wire sizes, which of the three secondary windings will have the highest measured DC resistance?

- A. 5 volt winding
- B. 12.6 volt winding
- C. 150 volt winding
- D. All will have equal resistance

Ans. C

790. A 230 DC motor is run on 230 volt AC supply then
A. It will run smoothly
B. It will stop
C. It will burn out
D. It will run with less efficiency and high sparks
Ans. D

791. A good dielectric should have all these parameters except
A. High mechanical strength
B. High thermal deterioration
C. High dielectric loss
D. Freedom from gaseous inclusion
Ans. C

792. Corona effect can be identified by
A. Bushy sparks
B. Faint violet glow
C. Red light
D. Arcing between conductors and earth
Ans. B

793. Van de Graff generator output voltage can be controlled by
A. Controlling the corona source voltage
B. Controlling the belt speed
C. Controlling the lower spray point
D. Any of above
Ans. A

794. Which of following materials is not used in fuses?
A. Copper
B. Silver
C. Aluminum
D. Carbon
Ans. D

795. Resistive type transducer is used in
A. Carbon microphone
B. Strain-gauge
C. Thermistor
D. All
Ans. D

796. Speed of induction motor can be varied by varying
A. Voltage of supply
B. Frequency
C. Both A & B
D. None
Ans. C

Multiple Choice Questions

797. Operation of induction motor above base speed can be done with

- A. High voltage and high frequency
- B. Constant voltage and high frequency
- C. Constant frequency and high voltage
- D. 3rd harmonics

Ans. B

798. Rotating wheel electrode is used in

- A. Arc welding
- B. Resistive spot welding
- C. Resistive seam welding
- D. Dielectric welding

Ans. C

799. Voltage regulators normally use

- A. Negative feedback
- B. Positive feedback
- C. No feedback
- D. Phase limiting

Ans. A

800. A power supply with low output impedance has low

- A. Load regulation
- B. Current limiting
- C. Line regulation
- D. Efficiency

Ans. A

801. When electrical and mechanical degrees become same in DC machine

- A. Speed more than 360 rpm
- B. Less than 360 rpm
- C. In 4 pole machine
- D. In 2 pole machine

Ans. D

802. In which braking method of induction motor, the motor stops dissipating heat in the resistor

- A. Regenerative braking
- B. Dynamic braking
- C. Plugging
- D. All of above

Ans. B

803. In AC systems, ground or earth is connected to

- A. Neutral
- B. One of the phases
- C. Midpoint
- D. None

Ans. A

804. Bus bar is at

- A. Constant voltage
- C. Both A & B
- E. None of above

- B. Constant current
- D. Variable voltage and current

Ans. A

805. For which of following loads voltage drop is minimum
- A. Load at the end of feeder
 - B. Uniformly distributed load
 - C. Uniformly increasing load
 - D. Uniformly decreasing load

Ans. D

806. In a DC machine, hysteresis loss is
- A. Proportional to frequency
 - B. Inversely proportional to frequency
 - C. Proportional to square of frequency
 - D. None of above

Ans. A

807. In a DC machine, eddy current loss is
- A. Proportional to frequency
 - B. Inversely proportional to frequency
 - C. Proportional to square of frequency
 - D. None of above

Ans. C

808. The Common Collector configuration is used for
- A. Impedance matching
 - B. Voltage gain
 - C. High power applications
 - D. None of above

Ans. A

809. The current in a copper wire is because of
- A. Free electrons
 - B. Holes
 - C. Holes and free electrons
 - D. Ions

Ans. A

810. DC transmission is economical for
- A. Short transmission lines
 - B. Medium transmission lines
 - C. Long transmission lines
 - D. Both medium and long transmission lines

Ans. C

Multiple Choice Questions

811. When the receiving end voltage is greater than the sending end voltage this is called
- A. Skin effect
 - B. Proximity effect
 - C. Corona effect
 - D. Ferranti effect
- Ans. D**

812. In modern computers which of the following technology is used now a days.
- A. Mosfet
 - B. BJT
 - C. JFET
 - D. TTL
- Ans. D**

813. In domestic wiring earth is provided to
- A. Protect human beings from electric shock
 - B. To protect machines
 - C. To protect human and machines
 - D. To protect birds
- Ans. A**

814. Fuse wire is installed
- A. In series with the wire circuit
 - B. In series with the neutral wire
 - C. In parallel with the neutral wire
 - D. In parallel with earth wire in the circuit
- Ans. A**

815. The merging of a free electron and a hole is called
- A. Covalent bonding
 - B. Lifetime
 - C. Recombination
 - D. Thermal energy
- Ans. C**

816. In an intrinsic semiconductor, the number of free electrons
- A. Equals the number of holes
 - B. Is greater than the number of holes
 - C. Is less than the number of holes
 - D. None of above
- Ans. A**

817. At absolute zero temperature (-273°C) an intrinsic semiconductor has
 A. Few free electrons
 B. Many holes
 C. Many free electrons
 D. No holes or free electrons

Ans. D

818. When the graph of current versus voltage is a straight line, the device is referred to as

A. Active
 B. Linear
 C. Non linear
 D. Passive

Ans. B

819. Meggar test is used to measure

A. To measure the insulation resistance
 B. To check the calibration of instrument
 C. To find the unknown resistance
 D. None of above

Ans. A

820. Transformer oil is used for

A. Insulation
 B. Cooling
 C. Both A & B
 D. Lubrication

Ans. C

821. Which circuit breakers are normally used for 11 KV?

A. Oil circuit breaker
 B. SF6
 C. Vacuum circuit breaker
 D. Air blast circuit breaker

Ans. C

822. Trans conductance indicates how effectively the input voltage controls the

A. Voltage gain
 B. Input resistance
 C. Supply voltage
 D. Output voltage

Ans. D

823. Demand factor is the ratio of

A. Maximum demand to connected load
 B. Connected load to maximum demand
 C. Maximum demand to average load
 D. Average load to maximum load

Ans. A

Multiple Choice Questions

824. An over excited synchronous generator supplies _____ to the grid.
A. Active power
B. Reactive power
C. Active load
D. Reactive load
Ans. B
825. The amount of heat necessary to raise the temperature of one Kilogram (or 1 liter) of pure water by 1 Celsius degree at normal atmospheric pressure is called
A. 1 calorie
B. Kcal
C. Joule
D. None of above
Ans. B
826. Power FETs are
A. Integrated circuits
B. Small signal devices
C. Used mostly with analog signals
D. Used to switch large currents
Ans. D
827. Most power FETS are
A. Used in high current applications
B. Digital computers
C. RF stages
D. Integrated circuits
Ans. A
828. Monolithic ICs are
A. Forms of discrete circuits
B. On a single chip
C. Combinations of thin film and thick film circuits
D. Also called hybrid ICs
Ans. B
829. For ceiling fans generally the single phase motor used is
A. Split phase type
B. Capacitor start type
C. Capacitor start and run type
D. Permanent capacitor type
Ans. D
830. The gain of two cascaded amplifiers are
A. Added
B. Subtracted
C. Multiplied
D. Divided
Ans. C

831. Kirchhoff's second law is based on the law of conservation of
A. Charge
B. Energy
C. Momentum
D. Mass
Ans. B
832. Which of the following is not the same as watt?
A. Joule/sec
B. Amperes/volt
C. Amperes x volts
D. (amperes)² x volt
Ans. B
833. Which method can be used for absolute measurement of resistances?
A. Ohm's law method
B. Whetstone bridge method
C. Releigh method
D. Lortentz method
Ans. B
834. A standard 60W bulb is in series with a room heater and connected across the mains. If 60W bulb is replaced by 100W bulb
A. The heater output will increase
B. The heater output will reduce
C. The heater output remains unaltered
D. None of above
Ans. A
835. Which material is expected to have least resistivity?
A. Copper
B. Lead
C. Mercury
D. Zinc
Ans. A
836. Certain substances lose their electrical resistance completely at finite low temperatures. Such substances are called
A. Dielectrics
B. Super conductors
C. Semi-conductors
D. Perfect conductors
Ans. B
837. The plates of a lead acid battery are made of
A. Rolled zinc-copper alloy
B. Cast antimonial lead alloy
C. Perforated nickel cadmium alloy
D. Pressed antimony bismuth alloy
Ans. B

Multiple Choice Questions

838. In a lead acid battery, during charging
A. Anode becomes whitish in colour
B. Voltage drops
C. Specific gravity of acid increases
D. The cell gives out energy

Ans. C

839. The value of specific gravity of acid when a lead acid battery is fully charged is

A. 1.285 B. 2.185
C. 2.585 D. 2.9585

Ans. A

840. The indication of the state of charge of a battery is best given by

A. Specific gravity of electrolyte B. Temperature of electrolyte
C. Color of electrolyte D. Level of electrolyte

Ans. A

841. On watt hour basis the efficiency of a lead acid battery is in the range

A. 90 to 95 percent B. 80 to 85 percent
C. 70 to 85 percent D. 60 to 70 percent

Ans. C

842. The internal resistance of a dry cell is of the order of

A. 0.2 to 0.4 ohm B. 1 to 1.5 ohm
C. 2 to 5 ohm D. 1 to 15 ohm

Ans. A

843. The electrode for a battery must be

A. A good conductor of electricity
B. A bad conductor of electricity
C. A semi-conductor D. An insulator

Ans. A

844. The specific gravity of acid is checked with the help of a

A. Hygrometer B. Lactometer
C. Hydrometer D. Cell tester

Ans. C

845. Cells are connected in series to
A. Increase the voltage output
B. Decrease the voltage output
C. Decrease the internal resistance
D. Increase the current capacity
Ans. A
846. A battery whose EMF is 45 volts is connected to a 20 ohm resistance and a current of 2.1A flows. The terminal voltage is
A. 42V
B. 45V
C. 40V
D. 54V
Ans. A
847. The best instrument for the measurement of EMF of a cell is
A. Voltmeter
B. Ammeter
C. Potentiometer
D. Wheatstone bridge
Ans. C
848. The RMS value of sinusoidal 200V peak to peak wave is
A. 200V
B. $100/\sqrt{2}$ V
C. $200/\sqrt{2}$ V
D. 100 V
Ans. B
849. Which wave has the highest value of form factor?
A. Sine wave
B. Triangular wave
C. Square wave
D. Half wave rectified sine wave
Ans. D
850. The form factor of DC supply voltage is always
A. Zero
B. 0.5
C. Unity
D. Infinite
Ans. C
851. Which of the following relation is incorrect ?
Power factor =
A. Real power / Apparent power
B. kW/kVA
C. Resistance / Impedance
D. Conductance / Susceptance
Ans. D

Multiple Choice Questions

852. The capacitors for power factor correction are rated in terms of
A. Voltage
B. VA
C. kW
D. KVAR
Ans. D
853. Power factor of an inductive circuit can be improved by connecting a capacitor to it in
A. Series
B. Parallel
C. Either series or parallel
D. Depends on the value of capacitor
Ans. B
854. A series circuit consisting of $R=1.2 \text{ k}\Omega$ and $C=0.1\mu\text{F}$ is supplied with 45V at a frequency of 1kHz. The reactive power will be
A. 0.1 VAR
B. 0.4 VAR
C. 0.81 VAR
D. 1.62 VAR
Ans. C
855. A non-linear network does not satisfy
A. Homogeneity condition
B. Super position condition
C. Both A & B
D. None of above
Ans. C
856. A coil with 1000 turns carrying a current of 8A produces a flux of 6×10^{-6} Wb. The inductance of coil would be
A. 0.75 H
B. 0.075 H
C. 0.0075 H
D. 0.00075 H
Ans. D
857. The super position theorem is applicable to
A. Linear responses only
B. Linear and non-linear responses only
C. Linear, non-linear and time variant responses
D. None of above
Ans. A
858. The super position theorem is applicable to
A. Current only
B. Voltage only
C. Both current and voltage
D. Current, voltage and power
Ans. D

859. A unit ramp function when integrated yields
 A. Unit parabolic function
 B. Unit ramp function
 C. Unit doublet
 D. Unit impulse function
Ans. A
860. The system with characteristic equation $s^4 + 3s^3 + 6s^2 + 9s + 12 = 0$
 A. Stable
 B. Unstable
 C. Marginality stable
 D. None
Ans. B
861. If a zero appears in first column of the Routh table, the system is
 A. Necessarily stable
 B. Necessarily unstable
 C. Marginally stable
 D. None
Ans. B
862. The open loop transfer functions of systems are given below. Identify the system that is not stable for all values of gain constant K
 A. $\phi = \frac{k}{s+4}$
 B. $\phi = \frac{k}{(s+1)(s+4)}$
 C. $\phi = k/(s^2 + 2s + 2)$
 D. $\phi = k(s+1)/(s+2)(-s+4)$
Ans. D
863. The main application of transfer function is in the study of
 A. Steady behaviors of system
 B. Steady as well as transient behaviors of systems
 C. Only transient behaviors of system
 D. Neither steady nor transient behaviors of system
Ans. B
864. Which signal will become zero when the feedback signal and reference signals are equal?
 A. Actuating signal
 B. Reference signal
 C. Feedback signal
 D. Input signal
Ans. A

Multiple Choice Questions

865. The output of a thermocouple is
A. DC current
B. AC current
C. DC voltage
D. AC voltage
Ans. C
866. The Bode plot is used to analyze
A. All phase network
B. Lag lead network
C. Minimum phase network
D. Maximum phase network
Ans. C
867. Non linearity caused by servo motor is
A. Saturation
B. Backlash
C. Static friction
D. None of above
Ans. A
868. Resistivity of metals is expressed in terms of
A. μ ohm
B. μ ohm/cm
C. μ ohm-cm²
D. μ ohm-cm
Ans. D
869. Constantan contains
A. Copper and nickel
B. Copper and tungsten
C. Tungsten and silver
D. Silver and tin
Ans. A
870. Bakelite is
A. A semiconductor
B. Incombustible
C. Low resistance conductor
D. Highly inflammable
Ans. B
871. Dielectric constant for vacuum is
A. Infinity
B. 100
C. 1
D. Zero
Ans. C
872. Which material can be used at temperatures above 100??
A. Polythene
B. Teflon
C. Rubber
D. Paraffin wax
Ans. B

873. A force of 1 Newton is experienced between 2 equal charges in space, separated by 1m and having a magnitude of
- A. 1 coulomb
 - B. 10 micro-coulombs
 - C. 100 pico-coulombs
 - D. None of above

Ans. B

874. Which medium has least dielectric strength?
- A. Air
 - B. Quartz
 - C. Glass
 - D. Paraffin wax

Ans. A

875. A region around a stationary electric charge has
- A. Magnetic field
 - B. Electric field
 - C. Both magnetic and electric field
 - D. Neither magnetic nor electric field

Ans. B

876. One volt is same as
- A. One joule
 - B. One joule/sec
 - C. One joule/coulomb
 - D. One coulomb/joule

Ans. C

877. One farad is the same as
- A. One coulomb/volt
 - B. One joule/ volt
 - C. One joule/coulomb
 - D. One coulomb/joule

Ans. A

878. Two infinitely long parallel conductors in vacuum are separated by a distance of 1 meter between centers, when a current of 1 ampere flows through each conductor. The magnitude of force exerted by the two conductors on each other will be

- A. 2×10^{-7} N per meter length
- B. 2×10^{-5} N per meter length
- C. 2×10^{-3} N per meter length
- D. 2×10^{-2} N per meter length

Ans. A

879. A device that converts from decimal to binary number is called
- A. Decoder
 - B. Encoder
 - C. CPU
 - D. Converter

Ans. B

Multiple Choice Questions

880. The hexadecimal number B6C7 is equivalent to decimal number
A. 49761
B. 46791
C. 47691
D. 49761

Ans. B

881. Monolithic technology is widely used in the manufacture of
A. Antenna
B. Transistors
C. Integrated circuits
D. All of above

Ans. C

882. 64 K is
A. 6400
B. 64000
C. 65536
D. 66536

Ans. C

883. Micro processor 8085 is the enhanced version of ----- with essentially the same construction set.

- A. 6800
B. 68000
C. 8080
D. 8000

Ans. C

884. Opcode
A. That part of construction which tells the computer what operation to perform
B. An auxiliary register that stores the data to be added or subtracted from the accumulator
C. The register that receives the constructions from the memory
D. One of the constructions in the memory set

Ans. A

885. In 8085, the instruction register is part of the control unit. The contents of the instruction register are split into two nibbles. The upper nibble goes to the -----

- A. Memory address
B. Controller sequence
C. Source programme
D. Micro-instruction

Ans. B

886. Interaction between a CPU and a peripheral device that takes place during an I/O operation is known as

- A. Handshaking
- C. Relocating

- B. Flagging
- D. Subroutine

Ans. A

887. Equalizer rings are required in a lap winding DC machine
- A. To decrease armature reaction
 - B. To improve commutation
 - C. To filter out harmonics
 - D. To prevent flow of circulating currents through the brushes

Ans. D

888. If the no load voltage of a certain generator is 220 V and the rated voltage is 200 V, then the voltage regulation is

- A. 1%
- B. 10%
- C. 20%
- D. 9%

Ans. B

889. The critical resistance of DC generator refers to the resistance of

- A. Armature
- B. Load
- C. Field
- D. Brushes

Ans. A

890. The armature reaction of an unsaturated DC machine is

- A. Non-magnetizing
- B. Magnetizing
- C. Demagnetizing
- D. Cross-magnetizing

Ans. D

891. The speed of a series wound DC motor

- A. Can be controlled by shunt field regulator
- B. Cannot be controlled by diverter
- C. Increases as flux decreases
- D. Increases as armature circuit resistance increases

Ans. C

892. The function of breather in a transformer is

- A. To provide oxygen to the cooling oil
- B. To provide cooling air
- C. To arrest flow of moisture when outside air enters the transformer
- D. To filter the transformer oil

Ans. C

Multiple Choice Questions

893. Power transformers are usually designed to have maximum efficiency at
A. Near full load
B. At 75% of full load
C. At 50% of full load
D. Between 50% and 75% of full load

Ans. A

894. Distribution transformers are usually designed to have maximum efficiency at
A. Near full load
B. Near 75% of full load
C. Near 50% of full load
D. Near no load

Ans. C

895. Which value of flux is involved in the emf equation of transformer?
A. Maximum value
B. Average value
C. RMS value
D. Critical value

Ans. A

896. An alternator is said to be over excited when it is operating at
A. Unity power factor
B. Leading power factor
C. Lagging power factor
D. Lagging to leading power factor

Ans. C

897. For an alternator when the power factor of load is unity
A. The armature flux will have square waveform
B. The armature flux will be de magnetizing
C. The armature flux will be cross magnetizing
D. The armature flux will reduce to zero

Ans. C

898. Which of the following is likely to be the full load power factor of a three phase induction motor?
A. 0.2 leading
B. 0.2 lagging
C. 0.8 lagging
D. 0.8 leading

Ans. C

899. Which single phase motor has relatively high power factor?
A. Universal motor
B. Split phase motor
C. Repulsion motor
D. Synchronous motor

Ans. A

900. Out of following which one is not an unconventional source of energy?

Multiple Choice Questions

- A. Tidal power
- C. Nuclear energy

Ans. C

- B. Geothermal energy
- D. Wind power

901. Overall thermal efficiency of a steam power station is in the range
- A. 18 - 24%
 - B. 30 - 40%
 - C. 44 - 62%
 - D. 68 - 79%

Ans. A

902. Most of the generators in thermal power plants run at
- A. 3000 rpm
 - B. 1500 rpm
 - C. 1000 rpm
 - D. 750 rpm

Ans. A

903. In power station practice "spinning reserve" is
- A. Reserve generating capacity that is in operation but not in reserve
 - B. Reserve generating capacity that is connected to bus and ready to take the load
 - C. Reserve generating capacity that is available for service but not in operation
 - D. Capacity of part of plant that remains under maintenance

Ans. B

904. The overall efficiency of boiler in a thermal power plant is of the order of
- A. 10%
 - B. 25 to 30%
 - C. 40 to 50%
 - D. 70 to 80%

Ans. D

905. Cost of operation of which plant is least?
- A. Gas turbine plant
 - B. Thermal power plant
 - C. Nuclear power plant
 - D. Hydroelectric plant

Ans. D

906. In a hydro-electric plant a conduit system for taking water from the intake works to the turbine is known as
- A. Dam
 - B. Reservoir
 - C. Penstock
 - D. Surge tank

Ans. C

Multiple Choice Questions

907. In a thermal power plant cooling towers are used to
- A. Condense low pressure steam
 - B. Cool condensed steam
 - C. Cool water used in condenser for condensing steam
 - D. Cool feed water of boiler

Ans. C

908. Advantage(s) of hydroelectric power station is
- A. Low operating cost
 - B. Free from pollution problems
 - C. No fuel transportation problems
 - D. All of above

Ans. D

909. When coal analysis gives fixed carbon, volatile combustible matter, ash and moisture the analysis is termed as
- A. Ultimate analysis
 - B. Proximate analysis
 - C. Orsat analysis
 - D. Gross analysis

Ans. B

910. Generally the major constituent of exhaust gases from a thermal power plant is
- A. Oxygen
 - B. Carbon Monoxide
 - C. Nitrogen
 - D. Carbon dioxide

Ans. C

911. In hydro plants
- A. Initial cost is high and operating cost is low
 - B. Initial cost as well as operating cost is high
 - C. Initial cost is low and operating cost is high
 - D. Initial cost as well as operating cost is low

Ans. A

912. In which of the following power plants, availability of power is least reliable?
- A. Solar power plant
 - B. Wind power plant
 - C. Tidal power plant
 - D. Geothermal power plant

Ans. B

913. The major disadvantage with solar cells for power generation is
- A. Lack of availability
 - B. Large area requirement
 - C. Variable power
 - D. High cost

Ans. D

914. The total power of a wind stream is proportional to
- A. Velocity of stream
 - B. (Velocity of stream)²
 - C. (Velocity of stream)³
 - D. None of above

Ans. C

915. Load factor during a period is
- A. Average load/ Installed capacity
 - B. Average load/Maximum load
 - C. Maximum load/Average load
 - D. Maximum load/Installed capacity

Ans. B

916. Which plant can never have 100% load factor?
- A. Nuclear power plant
 - B. Hydro- electric plant
 - C. Peak load plant
 - D. Base load plant

Ans. C

917. Which equipment provides fluctuating load?
- A. Lathe machine
 - B. Exhaust fan
 - C. Welding transformer
 - D. All of above

Ans. C

918. In a power plant a reserve generating capacity which is in operation but not in service is known as

- A. Hot reserve
- B. Cold reserve
- C. Spinning reserve
- D. Firm power

Ans. A

919. A steam power station will run with maximum efficiency when it is run
- A. At low steam pressure
 - B. On pulverized coal
 - C. At higher speeds
 - D. Near full load

Ans. D

Multiple Choice Questions

920. Which of the following is likely to result in lower efficiency of a power station?

- A. Varying loads
- B. Low voltage generation
- C. Low turbine speeds
- D. Non-automatic controls

Ans. A

921. The life of underground cable is taken as

- A. 1 year
- B. 2 year
- C. 5 year
- D. 40 year

Ans. D

922. A diesel power plant is best suited as

- A. Base load plant
- B. Stand-by plant
- C. Peak load plant
- D. General purpose plant

Ans. B

923. Which power plant cannot have single unit of 100 MW?

- A. Steam power plant
- B. Nuclear power plant
- C. Hydroelectric power plant
- D. Diesel power plant

Ans. D

923. Hydrogen is used for cooling of large sized generators because

- A. It has high thermal conductivity
- B. It is light
- C. It offers reduced fire risk
- D. All of above

Ans. D

924. A nuclear power plant is invariably used as a

- A. Base load plant
- B. Peak load plant
- C. Stand by plant
- D. Spinning reserve plant

Ans. A

925. For the same plant size, initial cost of which plant is the highest?

- A. Steam power plant
- B. Diesel engine plant
- C. Nuclear power plant
- D. Gas turbine plant

Ans. C

926. Base load plants have

- A. High capital cost, high operating cost and high load factor
- B. High capital cost, low operating cost and high load factor
- C. Low capital cost, low operating cost and low load factor
- D. Low capital cost, high operating cost and high load factor

Ans. B

927. Which of the following is protective device against lightening over voltages?

- A. Rod gaps
- B. Surge absorbers
- C. Horn gaps
- D. All of above

Ans. D

928. In power plants insurance cover is provided for

- A. Equipment only
- B. Skilled workers only
- C. Unskilled workers only
- D. All of above

Ans. D

929. Skin-effect results in

- A. Reduced effective resistance but increased effective internal reactance of the conductor
- B. Increased effective resistance but reduced effective internal reactance of conductor
- C. Reduced effective resistance as well as effective internal reactance
- D. Increased effective resistance as well as effective reactance

Ans. B

930. Strain type insulators are used where the conductors are

- A. Dead ended
- B. At intermediate anchor towers
- C. Any of the above
- D. None of above

Ans. C

931. The current drawn by line due to corona losses is

- A. Sinusoidal
- B. Square
- C. Non-sinusoidal
- D. None of above

Ans. C

932. The effect of wind pressure is more predominant on

- A. Transmission lines
- B. Neutral lines
- C. Insulator
- D. Supporting towers

Ans. D

Multiple Choice Questions

933. In transmission system a feeder feeds power to
A. Service mains
B. Generating stations
C. Distributors
D. All of above

Ans. C

934. In a transmission line following are the distributed constants
A. Resistance and inductance only
B. Resistance, inductance and capacitance
C. Resistance, inductance, capacitance and short conductance
D. None of above

Ans. C

935. A relay used on long transmission lines is
A. Mho's relay
B. Reactance relay
C. Impedance relay
D. No relay is used

Ans. A

936. Total load transmitted through a 3 phase transmission line is 10,000 kW at 0.8 power factor lagging. The $I^2 R$ losses are 900kW. The efficiency of transmission line is

A. 60%
B. 90%
C. 95%
D. 99%

Ans. B

937. The power transmitted will be maximum when
A. Sending end voltage is more
B. Receiving end voltage is more
C. Reactance is high
D. Corona losses are least

Ans. A

938. Stranded conductors are used for transmitting power at high voltages because of

A. Increased tensile strength
B. Better in wind resistance
C. Ease in handling
D. Low cost

Ans. C

939. In case the height of transmission tower is increased

A. The line capacitance and inductance will not change

Multiple Choice Questions

- B. The line capacitance will decrease and line inductance will decrease
- C. The line capacitance will decrease but line inductance will increase
- D. The line capacitance will decrease but line inductance will remain unaltered

Ans. D

940. Under no load conditions the current in a transmission line is due to
- A. Corona effects
 - B. Capacitance of line
 - C. Back flow from earth
 - D. Spinning reserve

Ans. B

941. Which distribution system is more reliable?
- A. Ring main system
 - B. Tree system
 - C. Radial system
 - D. All are equally reliable

Ans. A

942. In a substation the equipment used to limit short circuit current level is
- A. Series reactor
 - B. Coupling capacitor
 - C. Lightning switch
 - D. Isolator

Ans. A

943. In order to increase the limit of distance of transmission line
- A. Series resistances are used
 - B. Synchronous condensers are used
 - C. Shunt capacitors and series reactors are used
 - D. Series capacitors and shunt reactors are used

Ans. D

944. All of the following are leading power factor systems except
- A. Under excited synchronous generator
 - B. Series and shunt capacitors
 - C. Induction motors
 - D. Overexcited synchronous motors

Ans. C

945. The fault clearing time of a circuit breaker is usually
- A. Few minutes
 - B. Few seconds
 - C. One second
 - D. Few cycles of supply voltage

Ans. D

946. In modern EHV system circuit breakers, the operating time between instant of receiving trip signal and final contact separation is of the order of
 A. 0.001 sec B. 0.015 sec
 C. 0.003 sec D. 0.03 sec
Ans. D
947. For motor circuit breakers, the time of closing the cycle is
 A. 0.001 sec B. 0.01 sec
 C. 0.10 sec D. 0.003 sec
Ans. D
948. The fuse current in amperes is related with fuse wire diameter as
 A. $I \propto \frac{1}{D}$ B. $I \propto D$
 C. $I \propto D^3$ D. $I \propto D^2$
Ans. C
949. Fuse wire protection system is usually not used beyond
 A. 10 A B. 25 A
 C. 50 A D. 100 A
Ans. D
950. The number of cycles in which a high speed circuit breaker can complete its operation is
 A. 3 to 8 B. 10 to 18
 C. 20 to 30 D. 40 to 50
Ans. A
951. In a circuit breaker the current which exists at the instant of contact separation is known as
 A. Restriking current B. Surge current
 C. Breaking current D. Recovery current
Ans. C
952. A Merz-price protection is suitable for
 A. Transformers B. Alternators
 C. Feeders D. Transmission lines
Ans. B

953. Breaking capacity of a circuit breaker is usually expressed in terms of
 A. Amperes
 B. Volts
 C. MW
 D. MVA
Ans. D

954. The arc voltage produced in the circuit breaker is always
 A. In phase with the arc current
 B. Leading the arc current by 90°
 C. Lagging the arc current by 90°
 D. In between the lead and lag angles
Ans. A

955. In a circuit breaker the time duration from the instant of fault to the instant of energizing of trip coil is known as
 A. Lag time
 B. Lead time
 C. Protection time
 D. Operation time
Ans. C

956. In a circuit breaker, time duration from the instant of fault to the instant of closing of contact is known as
 A. Recycle time
 B. Total time
 C. Gross time
 D. Reclosing time
Ans. D

957. For a high speed circuit breaker the total clearing time is nearly
 A. 1 to 2 cycles
 B. 5 to 10 cycles
 C. 10 to 15 cycles
 D. Less than 50 cycles
Ans. A

958. Which relay is used for feeders?
 A. MHO relay
 B. Translay relay
 C. Merz price protection
 D. Buchholz relay
Ans. B

959. A fuse wire should have
 A. Low specific resistance and high melting point
 B. Low specific resistance and low melting point
 C. High specific resistance and high melting point
 D. High specific resistance and low melting point
Ans. D

Multiple Choice Questions

960. Cables can be generally used up to
- A. 400V
 - B. 1000V
 - C. 11kV
 - D. 33kV

Ans. D

961. The size of conductor of power cables depends on
- A. Type of insulation
 - B. Current
 - C. Voltage
 - D. Power factor

Ans. B

962. A zero watt lamp consumes.
- A. No power
 - B. About 5 to 7 watts of power
 - C. About 15 to 20 watts of power
 - D. About 25 to 30 watts of power

Ans. B

963. A DC generator used for AC welding should have
- A. Rising characteristics
 - B. Drooping characteristics
 - C. Straight characteristics
 - D. None of above

Ans. B

964. The power factor of load using welding transformer least depends on
- A. Arc length
 - B. Type of electrode
 - C. No. of operating stations
 - D. Material to be welded

Ans. D

965. Which type of wattmeter cannot be used for both A.C and D.C?
- A. Dynamometer type
 - B. Electrostatic type
 - C. Induction type
 - D. None of above

Ans. C

966. When the damping of an instrument is adjusted to enable the pointer to rise quickly to its deflected position without overshooting, in that case the instrument is said to be

- A. Dead beat
- B. Off beat
- C. Over damped
- D. Under damped

Ans. A

967. When the damping force is more than optimum, instrument will become
 A. Dead
 B. Oscillating
 C. Slow and lethargic
 D. Fast and sensitive

Ans. C

968. When shunt resistance of a galvanometer circuit is increased, its
 A. Current sensitivity increases
 B. Current sensitivity decreases
 C. Damping increases
 D. Controlling torque decreases

Ans. B

969. Bridge used to measure dielectric loss of an insulator is
 A. Anderson bridge
 B. Wein's bridge
 C. Schearing bridge
 D. Any of above

Ans. A

970. Synchro is a transducer
 A. Variable reluctance
 B. Angular position
 C. Parabolic
 D. Synchronizing

Ans. B

971. A Ryall Crest voltmeter is used to measure
 A. Peak voltage
 B. RMS voltage
 C. DC voltage
 D. All of above

Ans. A

972. In a three phase half wave rectifier, each diode conducts for a duration of
 A. 180°
 B. 120°
 C. 90°
 D. 60°

Ans. B

973. Which of the following finds application in speed control of DC motor?
 A. FET
 B. NPN transistor
 C. SCR
 D. None of above

Ans. C

974. A device that does not exhibit negative resistance characteristics is
 A. FET
 B. UJT
 C. Tunnel diode
 D. SCR

Ans. A

Multiple Choice Questions

975. Thyristor is turned off when anode current falls below
A. Forward current
B. Latching current
C. Holding current
D. Break over current
Ans. C
976. In thyristor, dv/dt protection is achieved through the use of
A. L across thyristor
B. R across thyristor
C. RC across thyristor
D. RL across thyristor
Ans. C
977. For a three phase, 6 pulse diode rectifier, average output voltage is
A. $\frac{\sqrt{3}}{\pi} V_m$
B. $3V_m/\pi$
C. $3\sqrt{3}\frac{V_m}{\pi}$
D. None of above
Ans. B
978. In 1 ϕ full converter, for load current I ripple free, average thyristor current is
A. $(1/4) I$
B. $(1/2) I$
C. $(3/4) I$
D. I
Ans. B
979. In 1 ϕ full converter, number of SCRs conducting during overlap
A. 2
B. 4
C. 6
D. 8
Ans. B
980. When one of three series resistors is removed from a circuit and the circuit is reconnected, the current
A. Increases
B. Increase by one third
C. Decreases by one third
D. Decreases by the amount of current through the removed resistor
Ans. A
981. The total power in a certain circuit is 12 W. Each of the four equal-value series resistors making up the circuit dissipates
A. 12 W
B. 48 W
C. 3 W
D. 8 W
Ans. C

982. All the voltage drops and the source voltage added together in a series circuit is equal to
- A. The total of the voltage drops
 - B. The source voltage
 - C. Zero
 - D. The total of source voltage and voltage drops
- Ans. C

983. If a 24 V and a 6 V battery are series opposing, the total voltage is
- A. 30 V
 - B. 24 V
 - C. 18 V
 - D. 0
- Ans. C

984. The output of a certain voltage divider is 12 V with no load. When a load is connected, the output voltage
- A. Decreases
 - B. Increases
 - C. Remains same
 - D. Becomes zero
- Ans. A

985. The parallel combination of a 470Ω resistor and a $1.5\text{ k}\Omega$ resistor is in series with parallel combination of five $1\text{ k}\Omega$ resistors. The source voltage is 50 V. The percentage of the load current through any single $1\text{ k}\Omega$ resistor is
- A. 25%
 - B. 20%
 - C. 100%
 - D. 50%
- Ans. B

986. In a certain series resonant circuit, $V_C = 125\text{ V}$, $V_L = 125\text{ V}$, and $V_R = 40\text{ V}$. The value of source voltage is
- A. 125 V
 - B. 250 V
 - C. 290 V
 - D. 40 V
- Ans. D

987. In a series RC circuit, 12 V(rms) is measured across the resistor and 15 V(rms) is measured across the capacitor. The rms source voltage is
- A. 3V
 - B. 27V
 - C. 19.2V
 - D. 1.9V
- Ans. C

Multiple Choice Questions

988. When the frequency of the source voltage decreases, the impedance of a parallel RC circuit

- A. Increases
- B. Decreases
- C. Does not change
- D. Decreases to zero

Ans. A

989. An AC circuit consists of a resistor and a capacitor. To increase the phase angle above 45° , the following condition must exist:

- A. $R = XC$
- B. $R > XC$
- C. $R < XC$
- D. $R = 5XC$

Ans. C

990. A 5mH, a 4.3mH and a 0.6mH inductors are connected in parallel. The total inductance is

- A. 9.9mH
- B. Greater than 5mH
- C. 9.9mH or greater than 5mH
- D. Less than 0.6mH

Ans. D

991. A 2mH, a 3.3mH and a 2.2mH inductors are connected in series. The total inductance is

- A. 55mH
- B. Less than 0.2mH
- C. Less than 5.5mH
- D. 5.5mH

Ans. D

992. The winding resistance of a coil can be increased by

- A. Increasing the number of turns
- B. Using a thinner wire
- C. Changing the core material
- D. Increasing the number of turns or using thinner wire

Ans. D

993. When the current through an inductor decreases, the amount of energy stored in the electromagnetic field

- A. Increases
- B. Decreases
- C. Remains the same
- D. Doubles

Ans. B

994. The inductance of an iron-core coil decreases if

- A. The number of turns is decreased

- B. The iron core is removed
- C. The length of the coil decreases
- D. None of the above

Ans. A

995. When the current through an inductor is cut in half, the amount of energy stored in the electromagnetic field
- A. Is quartered
 - B. Quadruples
 - C. Doubles
 - D. Does not change

Ans. A

996. In applying the superposition theorem
- A. The sources are considered one at a time with all others replaced by their internal impedance
 - B. All sources are considered independently
 - C. All sources are considered simultaneously
 - D. The sources are considered one at a time with all others replaced by their internal resistance

Ans. A

997. In order to get maximum power transfer from a capacitive source, the load must
- A. Have a capacitive reactance equal to circuit resistance
 - B. Have an impedance that is the complex conjugate of the source impedance
 - C. Be as capacitive as it is inductive
 - D. None of the above

Ans. B

998. A 6 V battery is connected to a $300\ \Omega$ load. Under these conditions, it is rated at 40 Ah. How long can it supply current to the load?
- A. 1 h
 - B. 200 h
 - C. 2,000 h
 - D. 10 h

Ans. C

999. A half-watt is equal to how many mill watts?
- A. 5,000 mW
 - B. 5 mW
 - C. 500 mW
 - D. 50 mW

Ans. C

Multiple Choice Questions

1000. Three hundred joules of energy are consumed in 15 s. The power is
- A. 2,000 W
 - B. 2 W
 - C. 20 W
 - D. 200 W

Ans. C

1001. How much continuous current can be drawn from a 60 Ah battery for 14 h?

- A. 42.8 A
- B. 428 A
- C. 4.28 A
- D. 4.2 A

Ans. C

1002. A $68\ \Omega$ resistor is connected across the terminals of a 3 V battery. The power dissipation of the resistor is

- A. 132 mW
- B. 13.2 mW
- C. 22.6 mW
- D. 226 mW

Ans. A

1003. If the value of C in a series RLC circuit is decreased, the resonant frequency

- A. Is not affected
- B. Increases
- C. Is reduced to zero
- D. Decreases

Ans. B

1004. The conductance of an $8\ \Omega$ resistance is

- A. 12.5 mS
- B. 8 mS
- C. 12 S
- D. 125 mS

Ans. D

1005. A two-terminal variable resistor is known as a

- A. Potentiometer
- B. Thermistor
- C. Rheostat
- D. Wiper

Ans. C

1006. When the speed at which a conductor is moved through a magnetic field is increased, the induced voltage

- A. Increases
- B. Decreases
- C. Remains constant
- D. Reaches zero

Ans. A

Multiple Choice Questions

1007. The induced voltage across a coil with 250 turns that is located in a magnetic field that is changing at a rate of 8 Wb/s is
- A. 1,000 V
 - B. 2,000 V
 - C. 31.25 V
 - D. 3,125 V

Ans. B

1008. For a given wire wound core, an increase in current through the coil
- A. Reverses the flux lines
 - B. Decreases the flux density
 - C. Increases the flux density
 - D. causes no change in flux density

Ans. C

1009. If the cross-sectional area of a magnetic field increases, but the flux remains the same, the flux density
- A. Increases
 - B. Decreases
 - C. Remains the same
 - D. Doubles

Ans. B

1010. When the current through the coil of an electromagnet reverses, the
- A. direction of the magnetic field reverses
 - B. direction of the magnetic field remains unchanged
 - C. magnetic field expands
 - D. magnetic field collapses

Ans. A

1011. The unit for reluctance is
- A. Tesla
 - B. At/Wb
 - C. At/m
 - D. Wb

Ans. B

1012. What kVA rating is required for a transformer that must handle a maximum load current of 8 A with a secondary voltage of 2 kV?
- A. 4 kVA
 - B. 0.25 kVA
 - C. 16 kVA
 - D. 8 kVA

Ans. C

1013. A certain transformer has 400 turns in the primary winding and 2,000 turns in the secondary winding. The turns ratio is

Multiple Choice Questions

A. 0.2

B. 0.4

C. 5

D. 25

Ans. C

1014. The primary winding of a transformer has 110V AC across it. What is the secondary voltage if turns ratio is 8?

A. 8.8 V

B. 88 V

C. 880 V

D. 8,800 V

Ans. C

1015. In a certain loaded transformer, the secondary voltage is one-fourth the primary voltage. The secondary current is

A. One-fourth the primary current

B. Four times the primary current

C. Equal to the primary current

D. One-fourth the primary current and equal to the primary current

Ans. B

1016. The primary winding of a power transformer should always be

A. open

B. shorted

C. switched

D. fused

Ans. D

1017. In a certain transformer, input power to primary is 120W. If 8.5W are lost to winding resistance, what is the output power to the load, neglecting any other issues?

A. 0 W

B. 14.1 W

C. 111.5 W

D. 1,020 W

Ans. C

1018. The maximum output voltage of a certain low-pass filter is 15 V. The output voltage at the critical frequency is

A. 0 V

B. 15 V

C. 10.60 V

D. 21.21 V

Ans. C

1019. Impulse testing of transformers is done to determine the ability of

A. Bushings to withstand vibrations

B. insulation to withstand transient voltages

- C. windings to withstand voltage fluctuations
- D. all of the above

Ans. B

1020. Vacuum insulation is used in all of the following EXCEPT
- A. Particle accelerators
 - B. EHT of color TV
 - C. Field emission tubes
 - D. X-rays

Ans. B

1021. All of the following dielectric materials are preferred for high frequency applications EXCEPT
- A. Polyethylene
 - B. Butyl rubber
 - C. Teflon
 - D. Polystyrene

Ans. B

1022. The output of a NAND gate when both the inputs are high is
- A. High
 - B. Low
 - C. High-high
 - D. Low-low

Ans. B

1023. A 100 W bulb is connected in series with a room heater. If now 100 W bulb is replaced by a 40 W bulb the heater output will
- A. Increase
 - B. Decrease
 - C. Remains same
 - D. Uncertain

Ans. B

1024. Kirchoff's Laws are applicable to circuits with
- A. Lumped parameters
 - B. Passive elements
 - C. Non-linear resistances
 - D. All of these

Ans. A

1025. Thermocouple is based on
- A. Seeback effect
 - B. Thomson effect
 - C. Joule's law
 - D. Hall's effect

Ans. A

1026. According to fuse law, the current carrying capacity varies as
- A. D
 - B. $D^{1/2}$
 - C. $D^{3/2}$
 - D. $1/D$

Ans. C

Multiple Choice Questions

1027. Laplace transform of a unit step function is

- A. 1
- B. S
- C. $1/s$
- D. s^2

Ans. C

1028. The laplace transform of $e^{-at} \cos(wt)$ is

- A. $(S+a) / (S+a)^2 + w^2$
- B. $S / (S+a)^2 + w^2$
- C. $(S+a) / (S+a)^2 - w^2$
- D. $S / (S+a)^2 - w^2$

Ans. A

1029. An electric circuit with 10 branches and 7 nodes will have

- A. 3 loop equations
- B. 4 loop equations
- C. 7 loop equations
- D. 10 loop equations

Ans. B

1030. The surface integral of the normal component of the electric displacement D over any closed surface equals the charge enclosed by the surface. This statement is associated with

- A. Gauss's law
- B. Kirchoff's law
- C. Faraday's law
- D. Lenz's law

Ans. A

1031. A network is said to be a non-linear if it does not satisfy

- A. Homogeneity condition
- B. Superposition condition
- C. Both Homogeneity condition as well as superposition condition
- D. Homogeneity, superposition and associative condition

Ans. C

1032. Instrument used for DC measurement alone is

- A. Moving iron type
- B. Permanent magnet type
- C. Electrodynamic type
- D. Induction type

Ans. B

1033. As the height of the transmission tower is increased, the line capacitance and line inductance ----- and ----- respectively.

- A. Decreases, Decreases
- B. Increases, Decreases
- C. Decreases, Remains unaltered
- D. Increases, Increases

Ans. C

1034. Addition of Zeros in a transfer function causes
 A. Lead compensation B. Lag compensation
 C. Lead lag compensation D. Interval compensation
Ans. A
1035. The knowledge of transfer function of a system is necessary for the calculation of
 A. Output for a given input B. Steady state gain
 C. Order of the system D. Time constant
 E. All of the above
Ans. E
1036. Which of the following technique is not applicable to non-linear system?
 A. Functional analysis B. Nyquist criterion
 C. Quasi linearization D. Phase plane representation
Ans. B
1037. The SCR is a ----- device.
 A. Uni-directional B. Bi-directional
 C. Tri-directional D. Two terminal
Ans. A
1038. The most commonly used transistor arrangement is -----.
 A. Common emitter B. Common base
 C. Common collector D. None of these
Ans. A
1039. The shunt derived series fed feedback in an amplifier
 A. Increases its output impedance
 B. Decreases its output impedance
 C. increases its input impedance
 D. Both B and C
Ans. D
1040. FET is a ----- device.
 A. Half power B. Logarithmic
 C. Linear D. Square law
Ans. D

Multiple Choice Questions

1041. A pulse transformer uses a ----- core.

- A. Copper
- B. Iron
- C. Ferrite
- D. Air

Ans. C

1042. Which of the following can be generated by the use of a monostable multivibrator?

- A. Sweep
- B. Sinusoidal
- C. Pulse
- D. Any of the above

Ans. A

1043. The best electronic device for fast switching is

- A. BJT
- B. Triode
- C. JFET
- D. MOSFET

Ans. D

1044. The minimum value of current required to maintain conduction in an SCR is called its ---- current.

- A. Commutation
- B. Holding
- C. Gate trigger
- D. Breakover

Ans. B

1045. An ideal voltage amplifier should have

- A. $R_i = 0$, $R_o = 0$
- B. $R_i = 0$, $R_o = \infty$
- C. $R_i = \infty$, $R_o = 0$
- D. $R_i = \infty$, $R_o = \infty$

Ans. C

1046. An ideal current amplifier should have

- A. $R_i = 0$, $R_o = 0$
- B. $R_i = 0$, $R_o = \infty$
- C. $R_i = \infty$, $R_o = 0$
- D. $R_i = \infty$, $R_o = \infty$

Ans. B

1047. How many flip flop circuits are needed to divide by 16?

- A. Two
- B. Four
- C. Eight
- D. Sixteen

Ans. B

1048. 64 K is

- A. 6400
- C. 65536
- Ans. C

- B. 64000
- D. 66536

1049. The mnemonics used in writing a program is called
- A. Assembly language
 - B. Fetch cycle
 - C. Micro instruction
 - D. Object program
- Ans. A

1050. XOR function can be realized by a minimum of
- A. 2 NAND gates
 - B. 4 NAND gates
 - C. 5 NAND gates
 - D. 3 NAND gates
- Ans. C

1051. Magnetrons are commonly used as radar transmitters because
- A. High power can be generated and transmitted to aerial directly from oscillator
 - B. It is easily cooled
 - C. It is a cumbersome device
 - D. All of the above
- Ans. A

1052. Which of the following is essential for fast communication?
- A. High S/N ratio
 - B. High channel capacity
 - C. Large bandwidth
 - D. All of the above
- Ans. A

1053. Lissajous patterns obtained by an oscilloscope can be used to get
- A. Phase information
 - B. Frequency of input signal
 - C. Both frequency and phase information
 - D. Voltage amplitude
- Ans. C

1054. An oscilloscope is generally used to measure the value of ----- voltage
- A. DC
 - B. RMS AC
 - C. Peak to peak AC
 - D. Average value of AC
- Ans. C

1055. The inverse fourier transform of the function $F(\omega) = 1/j\omega \prod \delta(\omega)$

Multiple Choice Questions

A. $\sin \omega t$

C. $\sin(t)$

Ans. C

B. $\cos \omega t$

D. $U(t)$

1056. The fourier transform of a unit step function is given by

A. $F(j\omega) = j/\omega$

B. $F(j\omega) = j\omega$

C. $F(j\omega) = 1/j\omega$

D. $F(j\omega) = 1/\omega$

Ans. C

1057. The form factor of a 220v, 50 Hz AC waveform is

A. 1.5

B. 1.14

C. 1.11

D. 0.85

Ans. C

1058. Conductors have an excess of

A. Free electrons

B. Electrons

C. Protons

D. Neutrons

Ans.

1059. In superposition theorem, independent current sources are replaced by

A. Short circuit

B. Open circuit

C. Close circuit

D. Active circuit

Ans. B

1060. Which wave has the highest value of form factor?

A. Sine wave

B. Triangular wave

C. Square wave

D. Half wave rectified sine wave

Ans. D

1061. Orthogonal means two lines

A. Parallel to each other

B. Perpendicular to each other

C. Coplanar

D. None of these

Ans. B

1062. A functional software is managed by

A. Computer programmer but not computer organization

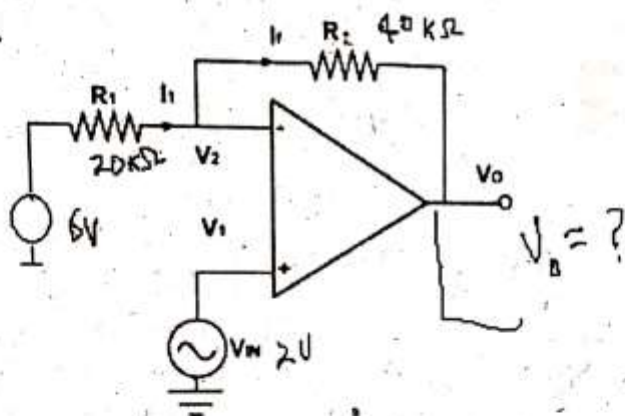
B. Computer programmer and computer organization

C. Not Computer programmer, not computer organization

D. Not Computer programmer but computer organization

Ans. D

1063. Accuracy of an instrument is defined as
 A. Precision + Calibration error B. Precision + Significant figure
 C. Precision + sensitivity D. Precision + resolution
 Ans. A
1064. The bandwidth of an optical fibre can be increased by
 A. WDM B. TDM
 C. FDM D. None
 Ans. A
1065. If the angle between voltage and current is 90° then the power consumed is ?
 A. Zero B. Maximum
 C. Minimum D. Half
 Ans. A



1066. What will be the output V_o ?
 A. 12 B. -12
 C. 6 D. -6
 E. 0
 Ans. D
1067. Fourier transform imposes _____ parity for Fourier cosine.
 A. Even B. Odd
 C. Both even and odd D. None
 Ans. A

Multiple Choice Questions

1068. The ideal delay system is defined by the equation $Y[n] = x[n-nd]$, $-\infty < n < \infty$ Where nd is a fixed negative integer in the above equation, then the system would
- A. Shift the input sequence to the right by nd samples to form the output
 - B. Shift the input sequence to the left by nd samples to form the output
 - C. The output of the system remains unchanged for positive or negative values of the nd
 - D. The system will become unstable and output will remain undefined

Ans. B

1069. Which term relates analog and its discrete representation?

- A. Sampling
- B. Quantization
- C. Digitization
- D. None of the above

Ans. B

1070. The stability of a general dynamical system with no input can be described with _____ stability.

- A. PID
- B. Lyapunov
- C. Haralop
- D. None

Ans. B

1071. A Function is _____ if it lies in open interval.

- A. Differentiable
- B. Dependent
- C. Independent
- D. Not differentiable

Ans. A

1072. Fourier transform of discrete time system is represented as

- A. continuous frequency spectrum continuous time response
- B. discrete frequency spectrum discrete time response
- C. discrete frequency spectrum continuous time response
- D. continuous frequency spectrum discrete time response

Ans. D

1073. $d(\text{function})^2 / dt^2 = 1/k \times d(\text{function}) / dt$ is known as -----

- A. Parabolic
- B. Elliptical equation
- C. Telegraphy
- D. Laplace equation

Ans. C

1074. $1/\int f(x)\sin(x)+\infty-\infty$ is known as

- A. Gibbs
- C. Dirichlet

- B. Euler equation
- D. Green

Ans. B

1075. Superposition theorem applies to a circuit which have ____ voltage and current sources.

- A. More than one
- C. More than three

- B. More than two
- D. None

Ans. A

1076. Matrix has m rows and n columns the order of the product of both matrices will be

- A. M
- C. m x n

- B. N
- D. n x m

Ans. C

1077. In Thevenin Theorem the equivalent resistance is connected in series with

- A. Voltage source
- C. Power source

- B. Current source
- D. None of these

Ans. A

1078. Electric lines of force at right angle to its length tend to

- A. MOVE AWAY FROM EACH OTHER
- B. Cross each other
- C. Come close to each other
- D. None

Ans. A

1079. Current carrying conductor at right angle to the magnetic field experiences

- A. Force
- C. Momentum

- B. Torque
- D. Acceleration

Ans. A

1080. The armature reaction of an unsaturated DC machine is

- A. Non magnetizing
- C. Demagnetizing

- B. Magnetizing
- D. Cross magnetizing

Ans. D

1081. The insulating properties of transformer oil are adversely affected by the presence of

- A. Oxygen
- B. Copper
- C. Ozone
- D. Moisture

Ans. D

1082. Which type of instruments can be used for the measurement of AC only?

- A. Moving iron type
- B. PMMC type
- C. Induction type
- D. None of the above

Ans. C

1083. Super heated steam is always

- A. at a temperature higher than the saturation temperature corresponding to a steam pressure
- B. at a pressure more than the boiler steam pressure
- C. separated from water particles before being supplied to turbine
- D. at a pressure less than the maximum cycle pressure

Ans. A

1084. The ____ dictates that higher efficiencies can be attained by increasing the temperature of steam.

- A. Steam efficiency
- B. Carnot efficiency
- C. Mechanical efficiency
- D. None

Ans. B

1085. Which is not a part of steam turbine or coal fired power plant?

- A. Condenser
- B. Boiler
- C. Superheater
- D. Moderator

Ans. D

1086. _____ energy needs no boiler/condenser since they use naturally occurring steam source.

- A. Geothermal
- B. Hydel
- C. Solar
- D. None of the above

Ans. A

1087. Performance and design criteria for system protection devices include _____, selectivity, cost, speed, economy and simplicity.

- A. Reliability
- B. Compatibility

C. Ruggedness

D. None

Ans. A

1088. _____ interrupting contacts of a circuit breaker is a set of contacts which enable circuit breaker to be removed.

A. Withdrawal

B. Disconnect

C. Plug in circuit breaker

D. Current limiting

E. Moulded case

Ans. B

1089. Which analysis deals with the effect of disturbances on power system?

A. Fault trend analysis

B. Sinusoidal analysis

C. Stability analysis

D. Line power analysis

E. Load flow analysis

Ans. C

1090. The _____ of an equipment is specified by manufacturer the rating of circuit breaker as making rating.

A. Rated making capacity

B. Rated breaking capacity

C. Rated ultimate short circuit breaking capacity

D. Rated short circuit breaking capacity

E. Rated short circuit making capacity

Ans. E

1091. The terminal of an element is called or vertex is also called as

A. Edge

B. Limit

C. Zero

D. Node

E. Rim

Ans. D

1092. _____ is defined as subgraph of connected element when not more than two elements connected to any node.

A. Planar graph

B. Path

C. Route

D. Linear graph

E. Tree

Ans. B

1092. _____ is the point from where power is supplied to the induction motor.

A. Stator

B. Rotor

C. Slip rings

D. Commutator

Ans. A

1093. Power switches are divided into ____ groups.

A. 2

B. 4

C. 5

D. 7

Ans. A

1094. If $F(j\omega)$ is the Fourier transform of $f(t)$, then

A. $\int f(-t) = F(j\omega)$

B. $\int f(-t) = F^*(j\omega)$

C. $\int f(-t) = F(-j\omega)$

D. $\int f(-t) = F^*(-j\omega)$

Ans. B

1095. Binary of decimal 0.6875 is

A. 1.1011

B. 0.01011

C. 0.1011

D. None

Ans. C

1096. Which of the following is not a basic component of a transformer?

A. Primary winding

B. Secondary winding

C. Core

D. Mutual flux

Ans. D

1097. The faults due to lightning and storm damage are called

A. Line to Line faults

B. Single line to ground faults

C. Double line to ground faults

D. Ground to ground faults

Ans. B

1098. $\Delta^2 V = -P/E$ is called

A. Maxwell equation

B. Poisson equation

C. Laplace equation

D. Continuity equation

Ans. B

1099. Concept of sending/receiving text etc on computer networks is

A. Online database

B. Email

C. Tele conferencing

D. Tele Printing

Ans. B

1100. Drawback of IIR (Infinite impulse response) filters is

- A. Instability
- B. Non linear
- C. Causal
- D. All

Ans. B

1101. Full wave rectification needs minimum ____ number of diodes.

- A. Four
- B. Two
- C. One
- D. Six

Ans. B

1102. A circuit of zero lagging power factor behaves as

- A. An inductive circuit
- B. A capacitive circuit
- C. R-L circuit
- D. R-C circuit

Ans. A

1103. In order to improve the power factor which device should be connected to the power system

- A. Series capacitor
- B. Shunt capacitor
- C. Series reactor
- D. Shunt reactor

Ans. B

1104. In an induction motor when the air gap field between rotor and stator increases power factor of the machine

- A. Increases
- B. Decreases
- C. Does not have any effect
- D. None

Ans. B

1105. The power factor of an ac circuit is equal to:

- A. Cosine of the phase angle
- B. Sine of the phase angle
- C. Tangent of the phase angle
- D. Cotangent of the phase angle

Ans. A

1106. In an ac circuit $i \times \sin(\Phi)$ is called the ____ component of the current.

- A. Wattless
- B. Reactive
- C. Quadrature
- D. All the above

Ans. D

1107. According to free electron theory, In metals, electrons revolve because of

Multiple Choice Questions

- A. constant V
- B. sinusoidal V
- C. square V
- D. triangular V
- E. non periodic V

Ans. A

1108. Which of the following is not base load power plant?

- A. Pump storage
- B. Run water
- C. Diesel
- D. Nuclear

Ans. A

1109. The common emitter short circuit current gain is

- A. 0
- B. 1
- C. 10
- D. 100

Ans. B

1110. By increasing frequency the current in series resonance circuit before

- A. increase before resonance and decreases after resonance
- B. Decrease before resonance and increase after resonance
- C. Increase before resonance as well increase after resonance
- D. None of the above

Ans. A

1112. A steam power generation has an overall efficiency of 20 %. 0.6 Kg of coal is burnt per kWh of electrical energy generated. Calculated the calorific value of fuel?

- A. 7166.67 kCal/kg
- B. 7611.45 kCal/kg
- C. 6921.23 kCal/kg
- D. None of the above

Ans. A

1113. The ripple factor of a Half wave rectifier

- A. 0.5
- B. 1.21
- C. 0.482
- D. 1.11

Ans. B

1114. In case of photo conductor for Germanium when forbidden energy gap is 0.72 eV, the critical wavelength for intrinsic excitation will be

- A. 1.73 micro-meter
- B. 1.5 micro-meter
- C. 1.3 micro-meter
- D. 2.73 micro-meter

Ans. A

Multiple Choice Questions

1115. What will be the thermal efficiency of a 240 V, 1000 W electric kettle if it brings 2 liters of water at 15° C to boiling point 15 Minutes?

- A. 74.56 %.
- B. 78.96 %.
- C. 79.33 %.
- D. 80.25 %.

Ans. C

1116. The sequence components of the fault current are as follows : $I_+ = j1.5$ pu, $I_- = ? j0.5$ pu, $I_0 = ? j$ pu Which fault is this?

- A. LG fault
- B. LLG fault
- C. LL fault
- D. None of the above

Ans. B

1117. An overhead line conductor has an inductance per unit length of L Henry. If the entire medium around the conductor is filled with a dielectric material of permittivity (?), then the inductance will be

- A. L/ϵ
- B. ϵ/L
- C. 0
- D. Infinite

Ans. A

1118. Cosine of the angle which a pole makes with real axis is equal to

- A. Natural frequency
- B. Damping ratio
- C. Peak time
- D. Settling time

Ans. D

1119. High ac voltages are mostly measured with:

- A. electrostatic voltmeters
- B. potential transformer and voltmeter
- C. current transformer and potential transformer
- D. voltmeter and multiplier

Ans. B

1120. Horizontal line in the S plane represents lines of

- A. Damping ratio
- B. Percentage overshoot
- C. constant peak time
- D. Maximum settling time

Ans. C

1121. Types of robotics is done for ----- repetitive jobs

- A. 1
- B. 2
- C. 3
- D. 4

Ans. B

Multiple Choice Questions

1122. ---type of robotics is done for Menial task.

- A. 2
- B. 1
- C. 3
- D. 4

Ans. C

1123. In PLC each program line is called

- A. Rung
- B. Step
- C. Line
- D. All

Ans. B

1124. In PLC -- is replaced by

- A. Motor
- B. Machine
- C. Relay
- D. All

Ans. C

1125. As compared to 2-wire DC system the volume of conductor material required in 3-phase 3-wire AC system is

- A. $2/\cos\phi$
- B. $3/\cos^2\phi$
- C. $0.5/\cos^2\phi$
- D. $4/\cos^2\phi$
- E. $1.5/\cos^2\phi$

Ans. C

1126. Q-factor is

- A. Directly proportional to resistance of coil
- B. Inversely proportional to resistance of coil
- C. Independent of resistance of coil
- D. None

Ans. B

1126. 4 Condensers / Capacitors are connected in parallel with capacitance 4 micro-F, C-eq will be

- A. 16 micro-F
- B. 4 micro-F
- C. 1 micro-F
- D. $\frac{1}{4}$ micro-F

Ans. A

1127. Current across 90 Ohm resistor is to be reduced by 90% which resistor should be connected in parallel to it

- A. 10 ohm
- B. 900 ohm
- C. 90 ohm
- D. 45 ohm

Ans. A

1128. Union of two events $P(a)$ and $P(b)$ is $P(a \cup b) =$

- A. $P(a) + P(b) - P(a \cap b)$
- B. $P(a) + P(b)$
- C. $P(a) + P(b) + P(a \cap b)$
- D. $P(a) + P(b) + P(a \cup b)$

Ans. A

1129. Minimum acceptable range of biasing voltage for operational amplifier is

- A. -18 to +18
- B. -15 to +15
- C. -10 to +10
- D. -5 to +5

Ans. A

1130. In most of the op-amps the level of the roll off is approximately ____

- A. -3 db
- B. -6 db
- C. -12 db
- D. -18 db

Ans. B

* -20 dB / decade or -6 dB / octave

1131. In a cumulatively compound DC motor shunt and series field winding

- A. Multiply each other
- B. Subtract each other
- C. Add each other
- D. None

Ans. C

1132. DC series motor is known for its

- A. Torque
- B. Speed
- C. Power
- D. None

Ans. A

1133. To decrease the power in control system we use

- A. Open loop system
- B. Closed loop system
- C. Open loop and closed loop system
- D. None

Ans. A

1134. What is power factor?

- A. True power/apparent power
- B. KW/KVA
- C. R/Z
- D. All of the above

Ans. D

1135. Generally speaking a digital multimeter with ammeter, voltmeter and ohm meter are used to measure current, voltage and resistance. If these 3 are taken on a single unit is called

- A. Low pass filter
- B. High pass filter
- C. Band pass filter
- D. Analog to digital converter
- E. Digital to analog converter

Ans. D

1136. In a 3 phase 4 wire AC system the number of voltages we get is

- A. Two
- B. Three
- C. Four
- D. None

Ans. A

1137. In an LTI system, if all the poles and zeros are inside the unit circle then

- A. Its inverse does not exist
- B. The system is causal and stable
- C. The inverse of system is causal and stable
- D. Both system and its inverse are causal and stable

Ans. D

1138. Z-Transform is used when signal is not

- A. Absolute summable
- B. Squarely summable
- C. Converges
- D. Diverges
- E. A, B, and C

Ans. E

1139. In which of the following power plant the availability of power is least reliable

- A. Solar
- B. Wind
- C. Tidal
- D. Geothermal
- E. Biogas

Ans. B

1140. _____ is the source which gives constant voltage ($V=E$) no matter how much current is drawn from it.

- A. Ideal voltage source
- B. Real voltage source
- C. Ideal current source
- D. Ideal resistance source
- E. Real voltage and current source

Ans. E

1141. Power in inductive reactance of the circuit is called
 A. Active power
 B. Reactive power
 C. Apparent power
 D. None
 Ans. B

1142. Ideal transformer has the following properties
 A. Zero winding resistance or no copper loss
 B. Zero core losses
 C. No leakage flux
 D. Infinite permeability
 E. All
 Ans. E

1143. Output variables are known as
 A. Dependent variables
 B. Independent variables
 C. Constant variables
 D. Zero variables
 Ans. A

1144. Circuit that produces output without external signal source is obtained from
 A. Filter
 B. Amplifier
 C. Oscillator
 D. None
 Ans. C

1145. Diode limiters are used
 A. To clip positive input cycle
 B. To clip negative input cycle
 C. To add a DC level in input cycle
 D. To clip both positive as well as negative input cycle
 Ans. D

1146. _____ is used for converting signal from time domain to frequency domain.
 A. ROC
 B. Fourier transform
 C. Fourier series
 D. Laplace transform
 Ans. B

1147. DIAC is a two terminal _____ layer device.
 A. One
 B. Two
 C. Three
 D. Four
 Ans. D

1148. Load factor is
A. Average load / peak load
B. Peak load / average load
C. Average load / connected load
D. None

Ans. A

1149. Voltage is difference in _____ between two points.
A. Electric pressure
B. Magnetic pressure
C. Pneumatic pressure
D. Hydraulic pressure

Ans. A

1150. Oscilloscope measures _____.
A. Current
B. Voltage
C. Resistance
D. None

Ans. B

1151. Superposition theorem is used to solve _____ network.
A. Thevenin
B. Norton
C. Both Norton and thevenin
D. Newton

Ans. C

1152. Ripple frequency of a bridge rectifier is
A. same as the input frequency
B. double the input frequency
C. half the frequency
D. None

Ans. B

1153. The Norton equivalent of a circuit consists of an ideal _____ in parallel with an ideal impedance or resistor for non-reactive circuits.
A. Current source
B. Voltage source
C. Power source
D. None

Ans. A

1154. Automatic circuit controller or circuit breaker will _____ when a fault occurs in the system.
A. Open
B. Close
C. Trip a sensor alarm
D. None

Ans. A

1155. Which motor gives best variable frequency speed control?
 A. Variable frequency drive B. Wound motor
 C. Traction motor D. Shunt motor

Ans. B

1156. The technology of long-distance communication is known as
 A. Mass communication B. Telephony
 C. Telecommunications D. Mobile communication

Ans. C

1157. The turn on voltage of a Germanium (Ge) junction diode is ——— volt.
 A. 0.7 B. 1.0
 C. 0.1 D. 0.3

Ans. D

1158. A tunnel diode
 A. Is a highly doped P-N junction device
 B. Is a gallium arsenide device
 C. Is a point contact diode with a high reverse resistance
 D. Has a small tunnel in its junction

Ans. A

1159. FPGA is
 A. Reprogrammable silicon chip
 B. Programmable routing resource
 C. Logic block
 D. High sensitivity silicon chip

Ans. A

1160. Which instruction is used to copy a specific word to top of stack in 8086 microprocessor?

- A. Copy B. Mov
 C. Push D. PushA

Ans. C

1161. If carrier and modulated signals have frequency of 998KHz and 2KHz respectively, then upper sideband and lower sideband frequencies are

- A. 1000KHz & 998KHz B. 998KHz & 900KHz
 C. 1002KHz & 998KHz D. 1002KHz & 996KHz

Ans. C

1162. Brush voltage drop in DC motors is
A. 20V
B. 10V
C. 40V
D. 2V
Ans. D

1163. To decrease the required power of system we prefer
A. Open loop system
B. Closed loop system
C. A combination of both
D. Open loop system with passive elements
Ans. A

1164. For RLC circuit at low frequency, impedance is large because
A. X_C is larger
B. X_L is large
C. X_C is smaller
D. X_L is small
Ans. A

1165. Natural frequency of a system gives information about
A. Nature of transient response
B. Overshoot
C. Oscillation
D. Speed of response
Ans. D

1166. Armature reaction of an unsaturated DC machine is
A. Non-magnetizing
B. Magnetizing
C. Cross-magnetizing
D. Demagnetizing
Ans. C

1167. What happens if relative speed between rotating flux of stator and rotor of Induction motor is zero?
A. Torque produced will be very large
B. Rotor will not run
C. Rotor will run at a very high speed
D. Slip will be 5%
Ans. B

1168. Fastest possible response without overshoot
A. Over damped response
B. Under damped response
C. Undamped response

D. Critically damped response
Ans. D

1169. Hopkinson test on a DC motor is conducted at
A. No load
B. Half load
C. Low load
D. Full load
Ans. D

1170. Usually very wide and sensitive speed control is required in case of
A. Reciprocating pumps
B. Colliery winders
C. Centrifugal blowers
D. Lathe machine
Ans. B

1171. In a parallel resonance circuit at resonance
A. Impedance is zero
B. Voltage is maximum
C. Current is maximum
D. Impedance is minimum
Ans. B

1172. A circuit that produces an output waveform without any external signal source is
A. Filter
B. Amplifier
C. Oscillator
D. Both A & B
Ans. C

1173. In a DC machine maximum losses occur due to
A. Copper
B. Iron
C. Mechanical
D. Both A & B
Ans. A

1174. The test used to determine the efficiency of two transformers at full load is
A. Open circuit test
B. Short circuit test
C. Back to back test
D. Type test
Ans. C

1175. Lenz's law corresponds to the
A. Law of conservation of momentum
B. Law of conservation of charge
C. Law of conservation of emf

D. Law of conservation of energy

Ans. A

1176. Pointer that cannot be used in register indirect addressing mode is

- A. BX
- B. BP
- C. SI
- D. DI
- E. AX

Ans. E

1177. Modulation technique in which carrier is switched between two different carrier levels (0&1) is called

- A. Amplitude shift keying
- B. On-off keying
- C. Frequency modulation
- D. Phase modulation

Ans. B

1178. Sign of charge carriers in a conductor can be experimentally found by

- A. Thomson effect
- B. Seebeck effect
- C. Hall effect
- D. Peltier effect

Ans. C

1179. Equalizer connections are required for paralleling two

- A. Compound generators
- B. Bipolar generators
- C. Shunt generators
- D. Series generators

Ans. A

1180. A DC motor can be identified by

- A. Yoke
- B. Commutator
- C. Size of conductors
- D. Windings

Ans. B

1181. The radius of curvature of path of charged particle in a uniform magnetic field is directly proportional to

- A. Flux density of field
- B. Particle's energy
- C. Particle's momentum
- D. Particle's charge

Ans. C

1182. Total load transmitted in a 3-phase transmission line is 10,000kW, power factor is 0.8 lagging, I^2R losses are 900kW. Then the efficiency of transmission line is

- A. 60%
C. 90%

- B. 95%
D. 99%

Ans. C

1183. Which comparison is correct between filament bulb and fluorescent lamp?

- A. Average life fluorescent lamp is 5 to 7 times higher
B. Fluorescent lamp produces more brightness
C. Fluorescent lamp produces more sharp shadows
D. Fluorescent lamp has higher dazzle

Ans. A

1184. Crystal frequency of 8051 based system is 16MHz. Period of machine cycle is

- A. 1.333 microseconds
B. 0.75 microseconds
C. 0.6 microseconds
D. 1.66 microseconds

Ans. B

1184. A high speed circuit breaker can complete its operation in

- A. 2 - 3 cycles
B. 6 - 12 cycles
C. 3 - 8 cycles
D. 10 - 12 cycles

Ans. C

1185. Force acting on a conductor of length 1m placed at right angles to magnetic field when 1 ampere current flows through it is called

- A. Magnetic force
B. Electric force
C. Static force
D. Lorentz force

Ans. A

1186. Oscillator whose frequency can be changed by a variable DC control voltage is

- A. Triangular wave oscillator
B. Wien bridge oscillator
C. Crystal oscillator
D. Voltage control oscillator

Ans. D

1187. Inductive circuit time constant is

- A. L/R
B. R/L
C. IL/R
D. I/RL

Ans. A

1188. Ash content of Indian coal is mostly
 A. 20% B. 5%
 C. 1% D. 10%
Ans. A
1189. A transfer instrument employed in the standardization of a polar type AC potentiometer is
 A. Electrostatic instrument B. Dynamometer instrument
 C. Thermal instrument D. Moving coil instrument
Ans. C
1190. Which of the following can be used to measure a signal of 10 mV at 25MHz?
 A. Vacuum tube voltmeter
 B. Cathode ray oscilloscope
 C. Moving iron voltmeter
 D. Digital multimeter
Ans. B
1191. Radio signals are made up of
 A. Voltage and current B. Electrons and protons
 C. Energy D. Electric and magnetic fields
Ans. D
1192. In petro thermal systems of geothermal energy there is hot dry rock but no underground water exists. In such systems, energy is obtained by
 A. Circulating compressed air
 B. Creating water wells
 C. Pumping water
 D. Both A & B
Ans. C
1193. Boiler using lignite as fuels do not use
 A. Travelling grate stoker B. Spreader stoker
 C. Underfeed stoker D. Both A & B
Ans. C
1194. Which meter is suitable for radio frequency measurement?
 A. Electrical resonance frequency meter

- B. Weston frequency meter
- C. Heterodyne frequency meter
- D. Both A & B

Ans. C

1195. Overall efficiency of steam locomotive is close to
- A. 75 to 80 percent
 - B. 55 to 60 percent
 - C. 5 to 10 percent
 - D. 25 to 30 percent

Ans. C

1196. Which of the following is correct?
- A. Only finite number of differential equations can have same integrating factor
 - B. Infinitely many differential equations can have the same integrating factor
 - C. No two differential equations can have the same integrating factor
 - D. No more than two differential equations can have the same integrating factor

Ans. B

1197. A substance which can be strongly magnetized is called
- A. Paramagnetic
 - B. Diamagnetic
 - C. Ferromagnetic
 - D. Anti-ferromagnetic

Ans. C

1198. Open loop gain of an ideal Op Amp is
- A. Zero
 - B. Infinity
 - C. Very small
 - D. Very high

Ans. B

1199. Advantage of an electrodynamicometer type instrument is
- A. Low torque/weight ratio
 - B. Large operating current
 - C. Coil being air cored these instruments are free from hysteresis and eddy current losses.
 - D. No uniform scale

Ans. C

1200. Which of the following instruments are not installed in a substation?
- A. Shunt reactors
 - B. Voltage transformers

C. Exciters

D. Series capacitor

Ans. C

1201. Under commutation in a DC machine gives rise to

A. Spark at leading edge of brush

B. Spark at trailing edge of brush

C. Spark at middle of brush

D. No spark at all

Ans. B

1202. To carry current of 100rms area of aluminum bus bar must be at least

A. 25 mm²

B. 1 mm²

C. 10 mm²

D. 50 mm²

Ans. A

1202. Which of the following is true about computer software?

A. Ordered collection of instructions

B. Program or set of programs

C. Require no further elaboration

D. All of above

Ans. D

1203. Horizontal lines on S plane are lines of

A. Constant peak time

B. Constant damping ratio

C. Constant percent overshoot

D. Constant settling time

Ans. A

1204. In ---- condition no resistor or capacitor is connected from its output to its input.

A. Open loop

B. Closed loop

C. Open loop gain

D. All

Ans. A

1205. The cost of generation is/are theoretically minimum if

A. The system constraints are considered

B. The operational constraints are considered

C. Both A and B

D. The constraints are not considered

Ans. D

1206. A tuned circuit has a Q of 100 at its resonant frequency of 500kHz. Its bandwidth is

A. 4kHz

B. 5kHz

C. 6kHz

D. 7kHz

Ans. B

1207. What are normal 4 step sequence of a stepper motor if we start to move in clockwise direction with 0110 value?

A. 1100, 1001, 0011, 0110

B. 0011, 1001, 1100, 0110

C. 1001, 1100, 0110, 0011

D. 0101, 1010, 0101, 1010

Ans. B

1208. When a single phase capacitor start induction motor is running at steady speed and delivering a fixed torque then;

A. Forward flux produced by rotor current equals backward flux produced by rotor current

B. Net forward rotating flux equals the net backward rotating flux

C. Peak of forward stator mmf is equal to peak of backward stator mmf

D. Peak of forward rotor mmf is equal to peak of backward rotor mmf

Ans. B

1209. Power scale of circle diagram of an induction motor can be found from

A. Short circuit test only

B. No load test only

C. Stator resistance test only

D. Both A & B

Ans. A

1210. Normally Z_{bus} matrix is a

A. Null matrix

C. Unity matrix

B. Sparse matrix

D. Full matrix

Ans. D

Multiple Choice Questions

1211. If current sensitivity of galvanometer increases voltage sensitivity

- A. Increases
- B. Decreases
- C. Remains unaltered
- D. May increase or decrease

Ans. B

1212. Most commonly used single phase energy meters are

- A. Dynamometer type
- B. Electrostatic type
- C. Induction type
- D. Moving coil type

Ans. C

1213. Location of poles of system gives info about

- A. Peak time
- B. Percent overshoot
- C. Settling time
- D. All of above

Ans: D

SHORT QUESTIONS

1. 1 Byte equals?
Ans. 8 Bits
2. In emails BCC stands for
Ans. Blind Carbon Copy
3. Delta service transmission is economical due to
Ans. Neutral conductor is not used
4. Equations that are used to predict values of dependent variables from one or more independent variables are called
Ans. Regression equation
5. ----- may be used where the geothermal steam is very corrosive or contains excessive suspended solids.
Ans. Heat exchangers
6. Kilowatt hour is the unit of
Ans. Energy
7. Vertical line in the S plane is for
Ans. Poles
8. Vertex is also called
Ans. Node
9. The primary and secondary coils of a transformer are wound on
Ans. Core
10. Current transformer is a protection device for
Ans. Measuring
11. Power plants which run on natural gas, steam coal, etc are
Ans. Fossil fuel plants
12. A sin wave is characterized by amplitude, frequency and.....
Ans. Phase

Multiple Choice Questions

13. Induction motor rotor is Squirrel cage and.....
Ans. Wound type
14. A sinusoid is represented by amplitude and phase is called
Ans. Phasor
15. Synchronous generators are used, because they offer precise control of
Ans. Reactive power (VAR)
16. SEIMENS is unit of
Ans. Conductance
17. Which transformer is used in arc welding and high voltage discharge lamps?
Ans. Leakage transformer
18. The matrix obtained by deleting the column corresponding to the reference node in the element node incidence matrix A is called
Ans. Bus incidence matrix A
19. ----- is used for emergency stop of steam.
Ans. Throttle valve
20. Complex quantities in power system are represented by
Ans. Phasor
21. The loss in a transformer due to reversal of direction of current is called
Ans. Hysteresis loss
22. The frequency of generator depends on speed and
Ans. No of poles
23. The boiler in which tubes are placed in a horizontal cylinder is called
Ans. Fire tube
24. With reference to the transmission impairment, the ratio of signal power to the noise is called
Ans. SNR

25. Series capacitor in transmission line results in
Ans. Voltage controller
26. Series reactor in transmission line is used for
Ans. Current limiter
27. Force on a current carrying conductor of length 'L' placed in a magnetic field of strength 'B' depends upon
Ans. Angle between 'L' & 'B'
28. Why microcontrollers are considered as general purpose devices?
Ans. Because they are not meant to do a single work at a time.
29. Which method is used to find depreciation in equipment with usage?
Ans. Sinking method
30. Which of the following can happen in a synchronous generator?
Ans. Rotor speed is equal to the speed of stator magnetic field
31. For the surface where surface charge density is zero, the normal component of ____ is continuous.
Ans. Electric flux density
32. Diffusion is when
Ans. N type carriers come into P type region and P type carriers come into N type
33. _____ is used to record incidents that portray power system behavior during dynamic events such as low frequency oscillations and abnormal frequency or voltage excursions.
Ans. Dynamic disturbance recorders
34. Generators are produced into two basic configurations: _____ and totally enclosed.
Ans. open ventilated
35. There are two types of exciters in synchronous generators _____ and _____.
Ans. Static and rotating

Multiple Choice Questions

36. In _____ operation the voltage of generator is determined by excitation.
Ans. Island operation
37. In _____ the expansion and consequent change in the pressure of the steam occurs entirely within the nozzles which direct the steam in jets against the moving buckets.
Ans. Impulse reaction type turbine
38. The _____ performs the function of controlling the quantity of steam admitted to the turbine by throttling and acting as a quick closing emergency valve (on some governors) in impulse turbine.
Ans. Throttle valve
39. AC induction motor is also called as
Ans. Asynchronous motor
40. Synchronous speed of motor is given by the formula
Ans. $N = 120F/P$
41. _____ is the return path for the flux in the induction motor.
Ans. Stator frame
42. From the total PLC memories most of their memory parts are used as
Ans. Header Files
43. Which equipment does not supply reactive power in HVDC converter stations?
Ans. Series capacitors
44. In air blast circuit breaker arc is extinguished by
Ans. Blasting compressed air which cools the arc
45. Most effective agent for fire extinguishing involving liquid, gas and electrical equipment is
Ans. Dry powder
46. Soda Acid and CO_2 are types of
Ans. Portable fire extinguishers

47. The atomic number of silicon is 14, its valency is
Ans. 4
48. A ----- is used to cut off the output of the receiver during times when no signal is being received.
Ans. Squelch circuit
49. For an operational amplifier (OP AMP) having open loop gain A_{ol} , its output voltage is
Ans. $V_o = A_{ol} (V_+ - V_-)$
50. To move data from Port 0 to register and then from register to port 3 we use the command
Ans. `MOV C, P 0.1 MOV P 0.3, C`
51. Water is flowing into the cylindrical tank the differential equation of flow rate would be
Ans. $Q_i = A \cdot dh/dt$
52. The ideal delay system is defined by the equation
Ans. $Y[n] = x[n-nd], -\infty < n < \infty$
53. $\partial f / \partial x$ is called
Ans. Partial derivative
54. The energy efficiency of a commercial thermal power station, considered saleable energy produced as a percent of the heating value of the fuel consumed is typically
Ans. 33 -48 %
55. There are two types of induction motor: Squirrel cage and
Ans. Wound Rotor
56. ----- is known as ohmic drop of winding.
Ans. Copper losses
57. Water is heated, turns into steam and spins a steam turbine which drives an electrical generator. After it passes through the turbine, the steam is condensed in a condenser and recycled to where it was heated, this is known as.
Ans. Rankine Cycle

58. A steam ____ should be installed in the main steam line to the turbine to prevent foreign particles from being carried into the turbine with the steam.
Ans. STRAINER
59. Impulse turbine is also called as ____ and Rateau Turbine.
Ans. CURTIS
60. A generator has 60 Hz frequency and 10 poles, Find the synchronous speed
Ans. 720 RPM
61. Modulation is a process of varying one or more properties of a periodic waveform called the ____ with a modulating signal and that typically contains information to be transmitted.
Ans. CARRIER SIGNAL
62. Formula for power for 3 phase load is .
Ans. $P = \sqrt{3} V_L I_L \cos \phi$
63. A _____ is a high frequency waveform (sinusoidal usually) that is modulated with an input signal.
Ans. Carrier wave
64. CompuServe was
Ans. Online service provider
65. $2i \times (-3k) =$
Ans. $6j$
66. Number of increase in the transistor or increase in capacity of microprocessor is followed by
Ans. Moore's Law
67. Proposed calculus is also called
Ans. Sentential Logic
68. First 16-Bit multichip is
Ans. NATIONAL SEMICONDUCTOR IMP-16

MISCELLANEOUS QUESTIONS

1. China has built an artificial island to establish a military base in
A. South China Sea
B. Philippine Sea
C. East China Sea
D. West China Sea

Ans. A

2. Bahadur Shah Zafar was son of
A. Akbar 2
B. Humayun
C. Shahjehan
D. Nadir Shah

Ans. A

3. Name the highest battlefield in the world
A. Waterloo
B. Siachen
C. Siberia
D. The Arctic circle

Ans. B

4. FIFA 2022 to be hosted by
A. Qatar
B. Russia
C. United kingdom
D. Australia

Ans. A

5. The headquarters of Islamic Military Alliance Force (IMAF) is in
A. Riyadh
B. Jeddah
C. Abu Dhabi
D. Doha

Ans. A

6. Who is the present secretary general of UN?
A. Ban ki Moon
B. Kofi Anan
C. Antonio Guterres
D. None of above

Ans. C

7. First prophet who was taught the art of writing by Alfah (S.W.T)?
A. Prophet Idrees (A.S)
B. Prophet Musa (A.S)
C. Prophet Ibrahim (A.S)
D. Prophet Ayub (A.S)

Ans. A

8. First woman martyred in Islam
A. Hazrat Rukayah
B. Hazrat Safia
C. Hazrat Samiyah
D. Hazrat Zainab
Ans. C
9. In the battle of Badar, Quresh army was commanded by
A. Abu Sufyan
B. Abu jahal
C. Zamzam bin 'Amr Ghafari
D. Utba
Ans. A
10. Warsac dam is constructed on ----- river.
A. Indus
B. Kabul
C. River
D. Jhelum
Ans. B
11. Zakat is the ----- pillar of Islam.
A. First
B. Second
C. Third
D. Fourth
Ans. C
12. Complete the series 15, 45, -----, 405.
A. 60
B. 150
C. 135
D. 205
Ans. C
13. 8th letter from the end of Alphabets
A. U
B. V
C. S
D. T
Ans. S
14. Which of the following titles was awarded to Allama Iqbal by the British government?
A. Sir
B. Doctor
C. Philosopher
D. None of above
Ans. A
15. Which of the following deserts are situated near Bahawalpur?
A. Thal
B. Cholistan
C. Thar
D. Rajhistan
Ans. B

16. What is the meaning of word "Soum"?
 A. Show patience
 B. Observe the principles of nature
 C. To keep Away/abstain from or observance of Fasting
 D. All of above

Ans. C

17. Holy Prophet (PBUH) was born in
 A. 571 AD
 B. 572 AD
 C. 671 AD
 D. 672 AD

Ans. A

18. Cave Hira is situated near
 A. Mecca
 B. Madina
 C. Taif
 D. Yasrab

Ans. A

19. The capital of Turkey is
 A. Istanbul
 B. Ankara
 C. Kazan
 D. None of above

Ans. B

20. The largest airport of Pakistan
 A. Allama Iqbal International Airport
 B. New Islamabad International Airport
 C. Jinnah International Airport
 D. Sialkot International Airport

Ans. C

21. Man stepped on Moon in
 A. 1959
 B. 1962
 C. 1965
 D. 1969

Ans. D

22. Which of the following rukn e islam is also referred as shield?
 A. Prayers (namaz)
 B. Fasting (Roza)
 C. Giving (Alms)
 D. Both A & B

Ans. B

23. The capital of ICELAND is
A. Reykjavik
B. Kopavogur
C. Midborg
D. Faxa Bay
Ans. A
24. Northern end of Pakistan is occupied by western range of, which of following mountain range
A. Karakoram range
B. Himalayan range
C. Koh e Suleman range
D. Koh e Hindukush range
Ans. B
25. Which "pass" connects Chitral and Gilgit?
A. Khyber pass
B. Shandoor pass
C. Muztag
D. Tochi
Ans. B
26. Which of the following is not an articulator?
A. Lip
B. Face
C. Teeth
D. Tongue
Ans. B
27. UN was founded on
A. 24 October 1944
B. 24 October 1954
C. 24 October 1945
D. 24 October 1955
Ans. C
28. Mount Everest is located between the borders of Tibet and
A. China
B. India
C. Bhutan
D. Nepal
Ans. D
29. Diamer Bhasha Dam is to be constructed on river
A. Indus
B. Chenab
C. Jehlum
D. Ravi
Ans. A
30. Baglihar dam is being constructed on river.
A. Indus
B. Chenab
C. Jehlum
D. Ravi
Ans. B

31. Mirani dam is in
 A. Azad Jammu & Kashmir
 B. Punjab
 C. Baluchistan
 D. Sindh
Ans. C
32. Gomal Zam dam is in
 A. North Waziristan
 B. South Waziristan
 C. Khyber Pakthunkhwa
 D. Khyber Valley
Ans. B
33. Gomal Zam dam was inaugurated on
 A. 12 September 2011
 B. 12 September 2012
 C. 12 September 2013
 D. 12 September 2014
Ans. C
34. Neelum Jehlum hydropower plant capacity is
 A. 969 MW
 B. 1050 MW
 C. 1150 MW
 D. 1250 MW
Ans. A
35. Kishanganga dam is in India and constructed on ----- river.
 A. Chenab
 B. Sutluj
 C. Ravi
 D. Jehlum
Ans. D
36. Which of the following "pass" is located in FATA?
 A. Khyber
 B. Shandoor
 C. Tochi
 D. None of above
Ans. C
37. Khyber Pass connects Afghanistan and Pakistan. Its length is
 A. 7 km
 B. 25 km
 C. 53 km
 D. 56 km
Ans. D
38. Sukkhur barrage is on.
 A. Arabian sea
 B. Indus River
 C. Ravi River
 D. Sutluj River
Ans. B

Multiple Choice Questions

39. Length and location of Baltoro glacier

- A. 62km; Karakoram Range
- B. 62km; Himalayan Range
- C. 52km; Karakoram Range
- D. 52km; Himalayan Range

Ans. A

40. How many barrages have been constructed on the River Indus?

- A. 1
- B. 3
- C. 6
- D. 12

Ans. C

41. River Indus originates from

- A. India
- B. China
- C. Tibet
- D. Pakistan

Ans. C

42. The oldest dam of Pakistan is

- A. Warsak dam
- B. Tarbela dam
- C. Rawal dam
- D. Gomal Zam dam

Ans. A

*Warsak dam is the oldest and constructed in year 1960

43. River Ravi originates from

- A. Himachal Pradesh in India
- B. Northern glaciers of Pakistan
- C. Indus river
- D. None of above

Ans. A

44. Timeline of first world war

- A. 1915 - 1920
- B. 1914 - 1918
- C. 1920 - 1924
- D. 1919 - 1923

Ans. B

45. Timeline of second world war

- A. 1938 - 1941
- B. 1939 - 1944
- C. 1939 - 1943
- D. 1939 - 1945

Ans. D

46. Neelum valley is in
 A. Khyber Pakhtunkhwa B. Punjab
 C. Jammu Kashmir D. Azad Kashmir
 Ans. D
47. Hunza valley is in -----; And ----- river flows in the valley.
 A. Gilgit Baltistan; Hunza B. Gilgit Baltistan; Gilgit
 C. Khyber Pakhtunkhwa; Hunza D. Azad Kashmir; Hunza
 Ans. A
48. ----- is the Switzerland of Pakistan.
 A. Murree B. Kalam
 C. Swat D. Kaghan valley
 Ans. C
49. Kailash valley is in
 A. Kaghan B. Gilgit Baltistan
 C. Azad Kashmir D. Chitral
 Ans. D
50. Chaggi mountains separate Pakistan from
 A. Baluchistan from Iran
 B. Baluchistan from Sindh
 C. Baluchistan from Afghanistan
 D. Baluchistan from KPK
 Ans. A
51. Peshawar and Chitral are connected by
 A. Tochi pass B. Khyber pass
 C. Malakand pass D. None of above
 Ans. C
52. Tochi pass connects ----- in Afghanistan with ----- in Pakistan.
 A. Kabul; Bannu B. Ghazni; Bannu
 C. Ghazni; Peshawar D. Ghazni; FATA
 Ans. B
53. Muztag pass is the highest pass in Pakistan and connects
 A. Baltistan with China B. Baltistan with Durand line

C. KPK with Afghanistan

D. Both A & B

Ans. A

54. Largest river of world is

A. Amazon

B. Nile

C. Hudson

D. Thames

Ans. A

55. Longest river of the world is

A. Amazon

B. Nile

C. Hudson

D. Thames

Ans. B

56. A fly has-----

A. 4 legs and 2 wings

B. 8 legs and 4 wings

C. 6 legs and 4 wings

D. 4 legs and 4 wings

Ans. C

57. Waleed is $\frac{1}{3}$ minus 5 of his father age. Waleed's age is 7. What is his father's age?

A. 32

B. 34

C. 35

D. 36

Ans. D

58. Which one is odd? 12,15,18,20,24,27

A. 12

B. 15

C. 18

D. 20

E. 24

Ans. D

59. Decode 6554=

A. FDDE

B. DEFE

C. FEED

D. FEDF

Ans. C

60. If FAIR is to FARE then HAIR is to?

A. HARE

B. HER

C. HEAR

D. HERE

Ans. A

61. If a person covers 8m towards north from origin, 12m towards east, 4 meter towards south and finally 12m towards east. Find final distance from origin?

A. 5m
C. 4m

B. 6m
D. 8m

Ans. C

62. Where is Attock Oil Refinery situated?

A. Attock
C. Muzzafargarh

B. Rawalpindi
D. Karachi

Ans. B

63. Where is arsenic is found in Pakistan?

Ans: Kohat (Not Sure)

A. Kohat
C. Chitral

B. Peshawar
D. Bannu

Ans. A

64. Where and when oil was discovered?

A. 1759, Saudia Arabia
C. 1759, USA

B. 1759, IRAQ
D. 1759, Canada

Ans. C

65. Coal & petroleum are found in what type of rocks?

A. Metamorphic
C. Seismic

B. Sedimentary
D. None of above

Ans. B

66. Which mineral is most found in Pakistan?

A. Diamond
C. Coal

B. Sulphur
D. Arsenic

Ans. C

67. The chief source of water in Pakistan is

A. River water
C. Sea Water

B. Underground water
D. Rain water

Ans. A

Multiple Choice Questions

68.is a heavier residual fuel oil used in a Ship's boiler.
A. Crude Oil B. Natural Gas Liquid
C. Bunker Fuel D. Heavy fuel
Ans. C
69. ----- is a renewable fuel synthesized from soybean, other oil crops or animal tallow.
A. Vegetable fat B. Bio diesel
C. Animal fat D. Vegetable oil
Ans. B
70. is a substance containing methane and carbon dioxide, produced from anaerobic decomposition of organic material in a landfill.
A. Bio gas B. Bio fuels
C. Hydrocarbons D. None of above
Ans. A
71. is a light petroleum distillate that is used in space heaters, cooking stoves, water heater and suitable for use as a source of light.
A. Gasoline B. Diesel
C. Kerosene oil D. Paraffin
Ans. C
72. Freedom movement of Muslims was based on
A. Two nation theory
B. Ideology of Islam
C. Concept of sovereign state for Muslims
D. All of above
Ans. B
73. Against Nehru's report Mohammad Ali Jinnah proposed
A. Fourteen points B. Joint resolution for separate state
C. Electoral reforms D. All of above
Ans. A
74. What is the literal meaning of word 'Qiblah'?
A. To bow down B. Suppression
C. In front of D. None of above
Ans. C

75. The ancient name of "Iran" is
 A. Constantinople
 C. Andlas
 Ans. B

B. Persia
 D. Gharnata

76. Old name of national college of arts (NCA) was-----.
 A. Mayo school of Arts
 C. Philp-John arts academy
 Ans. A

B. Scott academy of sciences
 D. Lahore arts academy

77. Association of Brazil, Russia, India, china and South Africa is _____.
 A. BRICS
 C. NATO
 Ans. A

B. SCCO
 D. G-5

78. Largest province of Pakistan by size of land is
 A. Punjab
 C. Sindh
 Ans. B

B. Balochistan
 D. KPK

79. Youm-e-Arafat is also known as
 A. Hajj day
 C. Both A & B
 Ans. A

B. Eid day
 D. None of above

80. Sun shines vertically on the equator _____.
 A. Once in a year
 C. Throughout the year
 Ans. B

B. Twice a year
 D. None of above

81. Production of rubber tree is adapted to ----- climate.
 A. Hot and dry
 C. Wet and cold
 Ans. A

B. Hot and humid
 D. Dry and cold

82. Sun's heat and light energy reaches the earth by _____.
 A. Conduction
 C. Transmission
 Ans. D

B. Convection
 D. Radiation

Multiple Choice Questions

83. The term third world refers to _____.
A. Asian countries B. African countries
C. Sub-Saharan countries D. Under developed countries
Ans. D
84. When the cease fire line was drawn in Kashmir?
A. 1948 B. 1947
C. 1949 D. 1950
Ans. C
85. Buffer state of Asia is geographical surname of _____.
A. Pakistan B. India
C. Afghanistan D. China
Ans. C
86. What is the location of Canada?
A. South America B. North America
C. Antarctica D. North pole
E. South pole
Ans. B
87. Atmospheric pressure is measured by
A. Pressure gauge B. Barometer
C. Pressure transmitters D. Both A & B.
Ans. B
88. Largest railway station in the world is
A. Grand central terminal B. Moscow subway
C. Delhi railway station D. Karachi railway station
Ans. A
89. Which prayer has no "Azan"?
A. Eid B. Namaz e Janaza
C. Jumma D. Both A & B
Ans. D

SHORT QUESTIONS

Multiple Choice Questions

1. What are the total numbers of ASEAN member states?
Ans. 10
2. Where is the headquarter of ASEAN?
Ans. Jakarta
3. Who is India's current Chief Justice?
Ans. Justice Ranjan Gogoi. He is the 46th chief justice of India.
4. When was NAB (National Accountability Bureau) formed?
Ans. 16th November 1999
5. Who is current Brexit Minister (British Secretary of State for Exiting the European Union)?
Ans. Stephen Barclay
6. Vilnius is the capital of which Baltic state?
Ans. Lithuania (its currency is Euro)
7. On 27th October 2017, CAREC, Central Asian Republics Regional Economic Cooperation Ministerial meeting (16th) was held in?
Ans. Dushanbe (Capital of Tajikistan)
8. CAREC (established in 1997) has total membership as?
Ans. 11 Countries (Afghanistan, Azerbaijan, China, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Tajikistan, Turkmenistan, Uzbekistan) and 6 multilateral institutions
9. Who is the current Kenyan President?
Ans. Uhuru Kenyatta
10. By UN investigators, who was held responsible for Sarin gas attacks in Sheikhoun (Idlib)?
Ans. Syrian Govt. (not rebels)
11. Who will be the host of FIFA world Cup 2022?
Ans. Qatar

Multiple Choice Questions

12. Current President of FIFA (Federation Internationale De Football Association) is?
Ans. Gianni Infantino
13. In Kashmir, which day was observed as Black Day?
Ans. 27 October (because India illegally occupied Kashmir on 27th October 1947)
14. Motorway projects, which have currently been completed, cover how much length?
Ans. 760 km
15. Which country has currently agreed to grant duty free access to Pakistan products?
Ans. Italy (Pakistan's trade with Italy has increased 1.6 billion Euros in 2016)
16. Current ambassador of Tunisia to Pakistan is:
Ans. Adel Elarbi
17. First multinational anti-terrorism air exercises (between Pak, Turkey, Saudi Arabia) have been concluded in Pakistan, on 29th October. These exercises were named as
Ans. ACES MEET 2017
18. Who was the first chief of air staff?
Ans. Zafar Chaudhry (1972-1974) before 1972, this position was named as Commander-in-Chief of PAF; So first C-in-C PAF was Allan Perry while first Muslim C-in-C was Asghar
19. Iraq's current PM is:
Ans. Adil Abdul-Mahdi
20. Total members of EU (European Union) area:
Ans. 28 (EU was established on 1st November 1993 as a result of Maastricht Treaty) its HQ is at Brussels
21. Egypt's currently appointed chief of army Staff is:
Ans. M. Farid Hegazy

22. EU foreign policy chief.
Ans. **Federica Mogherinisk**
23. Join Comprehensive Plan of Action the accord with Iran agreed in:
Ans. **14 July 2015 in Vienna**
24. Spain's Deputy Prime Minister.
Ans. **Soraya Saenz de Santamaria**
25. Current Secretary Election Commission of Pakistan is:
Ans. **Babar Yaqoob Fateh**
26. Pakistan's High Commissioner designate to Sri Lanka is:
Ans. **Maj. Gen (R) Shahid Ahmed Hashmat**
27. Under China-Pakistan Economic Corridor, how many energy projects have been completed?
Ans. **5 Projects (with an installed capacity of 2,520 megawatt of electricity) (1) 320 MW Shaiwal Coal Power Project (2) Hydro China Dawood and (3) Sachal Energy Development wind power projects with 50 MW; (4) 100 MW wind power project in Jhimper, Thatta (5) Quaid-i-Azam Solar Power Park of 300 MW out of 1000 MW**
28. Pakistan's current ambassador to China is:
Ans. **Masood Khalid**
29. Who has been appointed as Indian Government's interlocutor on Jammu and Kashmir?
Ans. **Dineshwar Sharma**
30. Current head of Iran's Paramilitary Revolutionary Guard is:
Ans. **Mohammad Ali Jafari**
31. Current Russian Prime Minister is:
Ans. **Dmitry Medvedev**
32. When was ASEAN (Association of Southeast Asian Nations) formed?
Ans. **8 August 1967**

Multiple Choice Questions

33. Pakistan is _____ most populous country of the world.
Ans. 6th
34. In 2019, birth anniversary of Guru Nanak will be celebrated on?
Ans. 23 November (currently 549th)
35. Current Palestinian Prime Minister is:
Ans. Rami Al-Hamdallah
36. When will Britain leave the European Union formally?
Ans. 29 March 2019
37. Current Director Planning State Earthquake Rehabilitation and Reconstruction Authority is:
Ans. Abid Ghani Mir
38. Which committee has currently been operationalized by Senate?
Ans. Ethics Committee of the Upper House
39. What, according to the delimitation bill, will be the status of overall seats of National Assembly?
Ans. 272, but number of seats by Punjab has been reduced by 9, (7 general seats and 2 reserved), KPK will be given new 5 more seats (4 general + 1 reserved) Balochistan will be given 3 more seats (2 general + 1 reserved) and 1 more seat will be given to Islamabad capital territory; In this 9 seats from Punjab has been shifted to these provinces; while seats of Sindh Assembly will remain same.
40. Pakistan's current ambassador to Bahrain is:
Ans. Javed Malik
41. Independence date of Gilgit Baltistan is
Ans. 1 November 1947
42. Famous poet Tanveer Naqvi died on.
Ans. 01 November 1972
43. Israel's current chief of ground forces is:
Ans. Major General Yakov Barak (who currently visited India)

44. Which daughter of Quaid-e-Azam has died (on 2nd November 2017) in New York?
Ans. Dina Wadia (98 years)
45. Who is the current spokesperson of foreign office?
Ans. Dr. Muhammad Faisal
46. Which publication has currently been launched by ex-PM Shahid Khaqan?
Ans. "Pakistan Energy Outlook 2017" (which aims at encompassing existing and future energy scenarios of the country)
47. Interfax news agency belongs to?
Ans. Russia
48. International Court of Justice (ICJ- formed in 1945 under UN charter) has how many seats of Judges?
Ans. 15 Judges (9 years is term of each judge)
49. Current President of ICJ is:
Ans. Abdulqawi Ahmed Yusuf (Somalia)
50. Where is the headquarters of ICJ?
Ans. Hague, Netherland
51. Kazakhstan's President is:
Ans. Nursultan Nazarbayev
52. The Silk Road Economic Belt (the Landbased) and the 21st-century Maritime Silk Road (the oceangoing path) are known as: the
Ans. One Belt and One Road Initiative (OBOR), OR
Currently the Belt and Road Initiative (BRI)
53. China's the Belt & Road Initiative consists of how many corridors?
Ans. 6 Corridors + 1 Maritime
54. Corridors, which are part of the Belt and Road Initiative, are?
Ans. a. China-Pakistan Economic Corridor

Multiple Choice Questions

- b. New Eurasian Land Bridge (from Western China + Kazakhstan + Western Russia)
- c. China – Mongolia – Russia Corridor
- d. China-Central Asia-West Asia Corridor (China + Turkey)
- e. China – Indochina Peninsula Corridor (Southern China + Singapore)
- f. China – Myanmar – Bangladesh – India Corridor (Southern China + Myanmar)
- Maritime Silk Road (Chinese Coast + Singapore + Mediterranean)

55. Ex-CM Balochistan is Nawab Sanaullah Khan Zehri. Who was first CM of Balochistan?

Ans. Ataulah Menal (1972-73).

Balochistan was given status of full-fledged status of province in 1969

56. Urban population has gone up from 28.3% to:

Ans. 32.5%

57. The urban population growth rate is 3.45%, whereas the rural population growth rate is:

Ans. 2.24%

58. According to the 1998 Census, the total population of Pakistan is 130.5 million. It was _____ in 1981

Ans. 64.2million

59. The population of Punjab has risen from 47.2 in 1981 to in 1998.

Ans. 72.5 million

60. The population of NWFP has gone up from 11 million in 1981 to in 1998:

Ans. 17.5million

61. The NWFP growth rate has declined from 3-32% to:

Ans. 2.75%

62. The Balochistan population has increased from 4.3m in 1981 to _____ in 1998.

Ans. 6.5million

63. EATA population increased from 2.1 m to _____ in 1998.
Ans. 3.1 m

64. Which river crosses the equator twice _____?
Ans. Congo

65. The Headquarters of Asian Development Bank (ADB) is located at _____.
Ans. Manila

66. Night blindness is caused by lack of Vitamin _____.
Ans. A

67. Who is the conqueror of central Asia _____?
Ans. Qutayba bin Muslim

68. According to 1998 Census, 67% of people live in rural areas, down from _____ in 1981.
Ans. 71%

69. The proportion of urban population shows an increase from 28% in 1981 to _____ in 1998:
Ans. 32%

70. According to the 1998 Census, almost 43% of the country's population is below _____.
Ans. 15 years

71. The share of urban populations has increased from 28.3% in 1981 to 32.5% in 1998 or by _____.
Ans. 4.2%

72. The population NWFP has increased from 13.1% in 1981 to _____ in 1998.
Ans. 13.4%

73. The population of Sindh has increased from 22.6% in 1981 to _____ in 1998.
Ans. 23%

Multiple Choice Questions

74. The population of Islamabad has increased from 0.4% in 1981 to _____ in 1998.

Ans. 0.6%

75. According to 1998 Census Islamabad is the most urbanized area with an urban population share of:

Ans. 65.6%

76. According to 1998 Census FATA is the least urbanized area with an urban population share of:

Ans. 2.7%

77. Sindh is the most urbanized province 48.9%, followed by Punjab _____:

Ans. 31.3%

78. According to 1998 Census, the three big cities of Sindh; Karachi, Hyderabad, and Sukkur account for 73.1% of the total urban population and _____ of the total population of the province:

Ans. 5.7%

79. According to 1998 Census, the average household size has declined marginally from 6.7 persons in 1981 to _____ persons in 1998:

Ans. 6.6%

80. According to 1998 Census, the Balochistans population growth rate fall down to 2.42%, which was _____ in 1981:

Ans. 7.09%

81. Infant mortality rate in Pakistan is

Ans. 95 per 1000.

82. For 100,000 live births, women die of pregnancy are:

Ans. 350 to 500

83. The reasons of high fertility rate in Pakistan are

Ans. Early Marriages, Desire for Larger Families & Low use of Contraception

84. The legal age for male marriage in Pakistan is:

Ans. 18 years

85. The legal age for female marriage in Pakistan is:
Ans. 16 years
86. A census of US population has been conducted every ten years since:
Ans. 1790
87. Generally Pakistan conducts a population census every:
Ans. 10 years
88. The interdisciplinary study of human population is called:
Ans. Demography
89. Demography includes statistical analysis of:
Ans. Births, Deaths and Migrations
90. In Pakistan, first population census was conducted in:
Ans. 1951
91. In 1998 census: the population density i.e., persons per square kilometer is:
Ans. 116
92. The sex ratio i.e. males per 100 females is
Ans. 108.5
93. The current population of Pakistan is:
Ans. 207,774,520
94. The percentage of male population is:
Ans. 52.03%
95. Islamabad's area is 906 sq.km. What is its population density (persons per sq.km)?
Ans. 888
96. Our national language Urdu is the mother tongue of _____ people.
Ans. 7.57%

97. Punjabi is the mother tongue of _____ people.

Ans. 44.15%

98. What percentage of our population is divorced?

Ans. 0.36%

99. What percentage of our population is widowed?

Ans. 5.40%

100. Muslim population of KPK is

Ans. 99.4%

101. Sindhi is the mother language of _____ population.

Ans. 14.1%

102. Pushto is the mother tongue of _____ people.

Ans. 15.42%

103. Which is the largest minority in Sindh?

Ans. Hindus (Jati)

104. Saraiki is the mother tongue of _____ people.

Ans. 10.53%

105. What part of population (15 years and above) is currently married?

Ans. 63%

106. Which is the fourth largest city of Pakistan according to population size?

Ans. Rawalpindi

107. Which one is the largest city population wise?

Ans. Faisalabad

108. Battle of Pilasy was between Siraj-ud-Daula &

Ans. Lord Clive

109. Muslim League was founded in:

Ans. Dhaka

110. Durand line treaty was between Sir Mortimer Durand &
Ans. **Abdur Rahman Khan, Emir of Afghanistan**
111. Lion's share of UNO's budget is spent on:
Ans. **Peace Keeping**
112. American Plan "Great Initiative Plan" was for:
Ans. **Democracy**
113. Tsunami hit 12 countries in 2004. Its epicenter was:
Ans. **Sumatra**
114. Muslim country with lowest per capital income is
Ans. **Somalia**
115. First country which issued currency notes was:
Ans. **China**
116. Spratly island are disputed between China &
Ans. **Vietnam**
117. The 2nd country with more inventions after USA
Ans. **Germany**
118. Khanki head-works is situated on the river:
Ans. **Chenab**
119. Braille Educational System was invented for:
Ans. **Blinds**
120. Ghulam Muhammad Barrage is also called:
Ans. **Kotri Barrage**
121. Kremlin is a fortress for government offices of:
Ans. **Russia**
122. Which Desi month is called brother of march?
Ans. **Chate**

Multiple Choice Questions

123. The Capital of Taiwan:
Ans. Taipei
124. Olympic airways belongs to:
Ans. Greece
125. Bosphorous strait connects Black Sea with:
Ans. Marmara
126. Abel Tasman discovered:
Ans. New Zealand
127. Longest river of Asia is
Ans. Yangtze
128. ATM stands for:
Ans. Automated Teller Machine
129. Playground of Europe is:
Ans. Switzerland
130. Naira is currency of:
Ans. Nigeria
131. 2nd largest ethnic group in Afghanistan
Ans. Tajik
132. "The idea of Pakistan" was written by
Ans. Stephen Cohen
133. Religion "Shintoism" is followed by:
Ans. Japan
134. "Clash of Civilizations" was written by:
Ans. Huntington
135. Oldest organization of human right:
Ans. Anti-Slavery International

136. What was the magnitude of earthquake in 2005?
Ans. 7.6
137. Which country sent more paramedical aid to Pakistan after earthquake 2005?
Ans. Cuba
138. Largest producer of solar energy:
Ans. Germany
139. Who came to Pakistan as UNO's special representative after earthquake 2005?
Ans. Bush Senior
140. Country with unwritten constitution is:
Ans. UK
141. Holocaust means:
Ans. Killing of Jews During World War II
142. Antara is news agency of:
Ans. Indonesia
143. Word "Tsunami" belongs to which language:
Ans. Japanese
144. UNO has declared 2004-2014 as the decade of:
Ans. Education For Sustainable Development
145. "War & Peace" was written by:
Ans. Leo Tolstoy
146. Gandhara Civilization was situated between:
Ans. Indus And Jhelum
147. Main cause of France's riots in 2005:
Ans. Changes In Employment Rules

148. Second biggest natural gas field of Pakistan is:
Ans. Mari (Sindh)
149. Babri Mosque was situated in:
Ans. Ayudhya (UP)
150. President of UK during World War-I was:
Ans. Woodrow Wilson
151. Largest army is of:
Ans. China
152. English poet who died in young age:
Ans. John Keats
153. "Paradise lost" was written by:
Ans. John Milton
154. The most famous brand of the world is:
Ans. Coca Cola
155. Oldest disease is:
Ans. Leprosy
156. Continent without any glacier is:
Ans. Africa
157. What is 'Ikebana' _____?
Ans. Japanese art of flower arrangement
158. Gestapo was the secret police organization of:
Ans. Germany
159. Which flower is the national floral symbol of Pakistan _____?
Ans. Jasmine, Chambeli
160. Diabetes is a disease of _____
Ans. Pancreas

161. Which of the following colors are primary colors _____?
Ans. Red, Blue, Green
162. Which of the following wonders of world is situated in Iraq _____?
Ans. Hanging Gardens
163. What is the main cause of failure of Pakistan India Iran gas pipeline project _____?
Ans. High price demanded by Iran
164. What is Pariah state _____?
Ans. A state which is not acceptable to the world and is avoided by every country
165. The term Track-II Diplomacy is used for _____:
Ans. Managing relations between two countries using unofficial channels
166. Which is the oldest stock exchange of the world _____?
Ans. Amsterdam Stock Exchange
167. Pakistan State Bank started working on July 1948 with a reserve of _____ rupees.
Ans. 30 Millions
168. Al-Hilal newspaper is associated with _____.
Ans. Maulana Abul al Kalam Azaad
169. Which of the following country gave the right of monarchy to women by amending the constitution recently _____.
Ans. Japan
170. Which of the following inventions is the oldest _____:
Ans. Clock
171. In the equation $E = mc^2$, what is C _____?
Ans. Velocity of Light
172. Myopia is a defect of vision of _____.
Ans. Distant objects