

101/2016

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. Which one of the following fire extinguisher is suitable for electrical fire?
(A) Halon (B) Water
(C) Foam (D) Liquefied chemical
2. The least count of steel rule is :
(A) 1 mm (B) 0.5 mm
(C) 1 cm (D) 0.1 mm
3. Rawl plug tool and bit is used for :
(A) Making holes in wood
(B) Making pilot holes in wood
(C) Making holes in metal sheets
(D) Making holes in bricks and concrete wall
4. In an atom the number of proton is :
(A) Equal to the number of electrons (B) Equal to the neutron
(C) Equal to the nucleus (D) Equal to zero
5. The flow of electrons is called :
(A) Current (B) Voltage
(C) Resistance (D) Inductance
6. The value of one mega ohm is :
(A) $10^3 \Omega$ (B) $10^{-6} \Omega$
(C) $10^6 \Omega$ (D) $10^{-3} \Omega$
7. Which of the following equation is correct according to Ohm's law?
(A) $R = \frac{I}{V}$ (B) $R = \frac{V}{I}$
(C) $I = \frac{R}{V}$ (D) $V = \frac{R}{I}$

8. Which meter is used to measure the power?
(A) Power factor meter (B) Ammeter
(C) Watt meter (D) Multimeter
9. In a parallel circuit the total resistance is :
(A) The sum of individual resistances
(B) Equal to highest resistance value
(C) More than the smallest resistance
(D) Less than the smallest resistance of the combination
10. If the area of cross section of a wire with a given length is doubled it's resistance will :
(A) Be doubled (B) Be halved
(C) Remain same (D) Be four times more
11. Heat developed in a conductor is proportional to the:
(A) Square of the power (B) Square of the time
(C) Square of the current (D) Square of the resistance
12. Which of the following has negative temperature coefficient of resistance?
(A) Copper (B) Aluminium
(C) Gold (D) Carbon
13. A substance that has low retentivity cannot be used for the manufacturer of :
(A) Electro magnet (B) Permanent magnet
(C) Temporary magnet (D) Paramagnets
14. The initial function of a choke in a tube light circuit is to :
(A) Limit the starting current (B) Heat up the filament
(C) Induce high voltage (D) Keep the voltage same
15. Which one of the following is unit of inductance?
(A) Henry (B) Mho
(C) Ohm (D) Kwh
16. The formulae for Calculating power in R-L circuit is:
(A) $V \times I$ (B) $I^2 Z$
(C) $V I \cos \theta$ (D) $V I \sin \theta$

17. If the frequency changes from 50Hz to 100Hz keeping voltage constant, the inductive reactance of the coil connected to supply :
- (A) remains same (B) become doubled
(C) become half (D) become four times
18. In a capacitive AC circuit the :
- (A) Current leads the voltage (B) Voltage leads current
(C) Current and voltage in phase (D) Current lags voltage
19. The power factor of an AC circuit is given by :
- (A) Cosine of the phase angle (B) Tangent of the phase angle
(C) The ratio of $\frac{R}{X}$ (D) The ratio of $\frac{XL}{Z}$
20. The capacity of a cell is measured in :
- (A) Watt-hour (B) Watts
(C) Amperes (D) Ampere-hour
21. In a 3 phase star connected balanced load, the current in the neutral wire is :
- (A) 2I_{ph} (B) 3I_L
(C) Zero (D) I_L
22. In a 3 phase Delta connected circuit :
- (A) The line voltage is equal to phase voltage
(B) The line voltage is equal to $\sqrt{3}$ phase voltage
(C) The line voltage is equal to $\frac{\text{Phase voltage}}{\sqrt{3}}$
(D) The line voltage is equal to zero
23. The meter installed at your house to measure electrical energy is an example of :
- (A) Indicating type instrument
(B) Recording type instrument
(C) Indicating as well as recording type instrument
(D) Integrating type instrument
24. Dynamo meter type instruments are used to measure :
- (A) Only AC quantities (B) Both AC and DC
(C) DC only (D) AC only

25. The unit of commercial electrical energy is measured in :
- (A) KW (B) KVA
(C) KWH (D) Volt ampere
26. When the disc of an energy meter is rotating even without connecting any load, the error is called?
- (A) Creeping error (B) Phase error
(C) Friction error (D) Temperature error
27. An electrical circuit that has infinity resistance shown in megger is called a _____ circuit.
- (A) an open (B) short
(C) a ground (D) closed
28. For pipe earthing the minimum internal diameter of galvanized iron or steel pipe required is :
- (A) 12.5mm (B) 16 mm
(C) 18 mm (D) 38 mm
29. The heat proof insulating material used for heater base is :
- (A) Mica (B) Porcelain
(C) Asbestos (D) Glass wool
30. The thermostat in an automatic electric iron will :
- (A) Reduce the current to control temperature
(B) Change the current flow through element
(C) Regulate the heat by switching ON-OFF
(D) Switch ON and OFF the indicating lamp
31. What type of motor is used in a food mixer?
- (A) DC shunt motor (B) Universal motor
(C) Capacitor start motor (D) Permanent capacitor
32. If the voltage applied at the terminals of 230V single phase 1200 mm sweep ceiling fan is 120V then the fan :
- (A) Will not run (B) Will run at normal speed
(C) Will be heated (D) Will run slowly
33. The sweep of the ceiling fan is determined by :
- (A) Length of the blade from fan centre
(B) The diameter of the circle formed by the blade tips of the fan
(C) Breadth of the blades
(D) The distance between adjacent blade tips

34. The unit of luminous intensity is :
- (A) Candela (B) Steradian
(C) Lux (D) Lumen
35. The potential difference that causes the break down of insulation is called :
- (A) Dielectric strength (B) Insulation resistance
(C) Break down voltage (D) Ampacity
36. The possible minimum reading which can be taken by 0-25 mm out side micrometer is :
- (A) 0.1 mm (B) 0.5 mm
(C) 1 mm (D) 0.01 mm
37. Britannia joint is used in :
- (A) Under ground cables (B) Conduit wiring
(C) Concealed wiring (D) O.H. Lines
38. Soldering is done on joints to improve :
- (A) Tensile strength (B) Resistivity
(C) Conductivity (D) Ductility
39. Switch board is fixed at a height of :
- (A) 2 meters (B) 1.5 meters
(C) 2.5 meters (D) 2.75 meters
40. The load on each power sub circuit shall be restricted to :
- (A) 5000W (B) 500W
(C) 3000W (D) 1000W
41. The number of light points admissible in a circuit is :
- (A) 10 points (B) 15 points
(C) 4 points (D) 20 points
42. A fuse rating is expressed in terms of :
- (A) Voltage (B) Current
(C) KVA (D) VAR
43. Fusing factor of HRC fuses will be :
- (A) 1.4 (B) 1.6
(C) 1.1 (D) 1.7

44. In which of the following wiring, to operate three lamps in all we require six, two way switches?
- (A) Godown wiring (B) Tunnel wiring
(C) Corridor wiring (D) Hostel wiring
45. Fleming's right hand rule is used to identify the :
- (A) Direction of flux (B) Direction of induced e.m.f.
(C) Direction of current in a motor (D) Magnetic flux
46. The armature core is laminated to minimize the :
- (A) Iron loss (B) Eddy current loss
(C) Hysteresis loss (D) Friction loss
47. A DC generator works on the principle of:
- (A) Faraday's laws of electromagnetic induction
(B) Faradays' laws of electrolysis
(C) Mutual induction
(D) Fleming's left hand rule
48. In an 8 pole simplex wave winding armature, the number of parallel paths are :
- (A) 4 (B) 8
(C) 6 (D) 2
49. In a 250 V.D.C. Machine, shunt field resistance is found to be 500 ohms. The shunt field current will be:
- (A) 2 A (B) 0.2 A
(C) 5 A (D) 0.5 A
50. The current in the armature of a D.C. shunt generator can be determined by the formulae :
- (A) $\frac{V-E}{R_a}$ (B) $\frac{E_b}{R_a}$
(C) $I_L + I_{sh}$ (D) $I_L - I_{sh}$
51. Which one of the following generator is used for charging batteries with constant voltage?
- (A) Compound generator (B) Series generator
(C) Alternator (D) Shunt generator

52. The direction of rotation of a DC motor is determined by :
- (A) Fleming's right hand rule (B) Fleming's left hand rule
(C) Right hand grip rule (D) Maxwell's cork screw rule
53. The back e.m.f. of a D.C motor depends on :
- (A) Shape of conductors (B) Field flux
(C) Type of commutator (D) Brush material
54. The main function of starter of the DC Motor is to :
- (A) Limit the starting current (B) Limit the back e.m.f.
(C) Increase the field circuit resistance (D) Decrease armature resistance
55. The speed of DC shunt motor has to be controlled through the field, the most suitable starter for this purpose is :
- (A) D.O.L starter (B) 2 point starter
(C) 3 point starter (D) 4 point starter
56. The speed of a DC motor is :
- (A) Directly proportional to the back e.m.f. and inversely proportional to the flux
(B) Inversely proportional to back e.m.f and directly proportional to flux
(C) Directly proportional to the e.m.f as well as the flux
(D) Directly proportional to current
57. Insulation resistance is measured in :
- (A) Mega watts (B) Kilo ohms
(C) Mega ohms (D) Kilo volts
58. The running speed of a 3 phase squirrel cage induction motor is :
- (A) Synchronous speed (B) More than synchronous speed
(C) Double synchronous speed (D) Less than synchronous speed
59. For 3 HP, 3phase 415V, 50 Hz squirrel cage induction motor started through a D.O.L starter, the back up fuse rating will be :
- (A) 15 Amps (B) 10 Amps
(C) 6 Amps (D) 4 Amps
60. When remote 'ON' and OFF are used in a D.O.L starter, the remote 'ON' button should be connected with the existing 'ON' button in :
- (A) Series (B) Series and parallel
(C) Bridge circuit (D) Parallel

61. When a 3 phase induction motor is switched to star position through a star delta starter :
- (A) $\sqrt{3}$ times the torque produced than the delta position
 - (B) 3 times torque produced than the delta position
 - (C) $\frac{1}{\sqrt{3}}$ times the torque produced than the delta position
 - (D) $\frac{1}{3}$ times torque produced than the delta position
62. In a manual star delta starter, the stop button connection is in series with the :
- (A) No volt coil
 - (B) Over load relay contact
 - (C) No volt coil and over load relay contacts
 - (D) No volt coil and start button
63. A High starting torque is obtained in a slip ring induction motor by using a :
- (A) Rotor rheostat starter
 - (B) Star delta starter
 - (C) 4 point starter
 - (D) D.O.L starter
64. We can identify a wound rotor induction motor by seeing :
- (A) Direction of rotation
 - (B) Slip rings
 - (C) Six terminals
 - (D) Size of machine
65. A poly phase induction motor is usually :
- (A) Self starting
 - (B) Slow starting
 - (C) Not self starting
 - (D) High starting
66. For ceiling fan generally which type of motor is used?
- (A) Split phase
 - (B) Capacitor
 - (C) Permanent capacitor
 - (D) Universal motor
67. The maximum efficiency of transformer is obtained when :
- (A) Copper loss is maximum
 - (B) Copper loss is equal to iron loss
 - (C) Iron loss is maximum
 - (D) Running without loss
68. Buchhol'z relay is a device related with :
- (A) Alternator
 - (B) Synchronous motor
 - (C) Auto transformer
 - (D) Transformer

69. Auto transformer works on the principle of :
- (A) Mutual induction (B) Self induction
(C) Conduction (D) Electron fusion
70. Which one of the following, is the e.m.f equation of transformer?
- (A) $\frac{EP}{ES} = \frac{IP}{IS} = \frac{VS}{VP}$ (B) $E = 4.44 \phi_m fN$ Volts
(C) $E = \frac{\phi ZNP}{6\phi \times A}$ (D) $V = I \times R$
71. The main source of hydro electric power station is :
- (A) Water (B) Coal
(C) Nuclear (D) Diesel
72. Which insulator is used on dead ends of medium voltage line?
- (A) Egg type (B) Pin type
(C) Shackle type (D) Disc type
73. Which type of guarding is provided on a railway line crossing?
- (A) Cage type (B) Cradle type
(C) Bird type (D) Bead type
74. In a transmission line which type of insulators are used :
- (A) Pin type (B) Shackle type
(C) Egg type (D) Suspension type
75. MCCB stands for :
- (A) Metal Close Circuit Breaker (B) Main Current Circuit Breaker
(C) Moulded Case Circuit Breaker (D) Miniature Circuit Breaker
76. For a given line current and line voltage the power taken by the delta connected load is _____ the power taken by the star connected load.
- (A) More than (B) Less than
(C) Equal to (D) No comparison to
77. The series type Ohm meter will have zero reading at the :
- (A) Centre of the scale (B) Left hand end of scale
(C) Anywhere in meter (D) Right hand end of scale