Maximum : 100 marks

Time : 1 hour and 15 minutes

1. Which one of the materials of the atom contains only 4 free electrons?

   (A) Copper (B) Gold

   (C) Germanium (D) Mica

2. Which factor does not depend on the resistance of the conductor among the following factors?

   (A) Length (B) Material

   (C) Voltage (D) Temperature

3. Which material is having the negative temperature co-efficient among the following?

   (A) Copper (B) Aluminium

   (C) Tungsten (D) Carbon

4. The equivalent resistance of the parallel circuit is ———— than the smallest single resistance.

   (A) Greater (B) Smaller

   (C) Equal (D) Half

5. Size of the wires can be measured normally by standard wire gauge. Which instrument must be used for accurate measurement of wire size?

   (A) Verniercaliper (B) Depth gauge

   (C) Fuel gauge (D) Micrometer

6. What type of flux is suitable for electrician's solder?

   (A) Zinc chloride (B) Tallow

   (C) Hydrochloric acid (D) Resin

7. An industry has 100 nos of light points each 60W and 50 H.P. power load. The above light load used 6 hours per day and power load used 10 hours per day. What is the unit consumption per day?

   (A) 536 (B) 409

   (C) 475 (D) 309

8. What is the name of the instrument used to measure the specific gravity of a battery?

(A) Pyrometer (B) Hydrometer

(C) Lactometer (D) Fuel Gauge

9. Which type of winding is wound with many turns of thin wire in D.C generator?

(A) Series field winding (B) Armature winding

(C) Shunt field winding (D) Compensating winding

10. Which type of D.C. generator is used for welding generator set?

(A) Cumulative compound generator (B) Shunt generator

(C) Differential compound generator (D) Series Generator

11. What is the purpose of starter in D.C motor?

(A) To maintain constant speed of the motor

(B) To protect the motor from the faulty

(C) To reduce the starting current and also protect the motor

(D) To control the speed of the motor

12. Which method of speed control is used in D.C. series fan motor?

(A) Field diverter method (B) Field tapping method

(C) Series parallel method (D) Supply voltage control

13. Which type of joint is used in over head lines for extending the length of wire?

(A) Rat tail Joint (B) Married joint

(C) Western union joint (D) Arial Tap joint

14. What is the colour of the neutral wire in a single phase or 3 phase circuit?

(A) Red (B) Black

(C) Green (D) Blue

15. Which of the following place is used for the plate electrode earthing?

(A) Building (B) Generating station

(C) Computer room (D) Electrical Appliances

16. If the frequency is 50 Hertz. What is the time taken to complete one cycle?

(A) 0.2 second
(B) 0.02 second
(C) 2 second
(D) 0.002 second

17. All A.C. voltage and current are measured by meters. Which of the following value is indicated by measuring instruments?

(A) Average value
(B) Maximum value
(C) R.M.S value
(D) Peak value

18. A coil has an inductance of 0.1 Henry and it connected to the 230V, 50Hz. A.C supply. What is the value of inductive reactance?

(A) 31.04 ohm
(B) 23.04 ohm
(C) 2300 ohm
(D) 3.1 ohm

19. In a three phase system voltage across phase to phase is called :

(A) EMF
(B) Terminal Voltage
(C) Phase voltage
(D) Line Voltage

20. What is the relation between frequency, speed and number of poles in an alternator?

(A) f=120/PN
(B) f=N/120
(C) N=120/f
(D) f=PN/120

21. How many number of slip rings are required for a rotating field type 3 phase alternator?

(A) 6
(B) 2
(C) 3
(D) 8

22. What is the feature of salient pole rotor used in an alternator?

(A) Smaller in length and larger in diameter
(B) Smaller in diameter and larger in length
(C) Smaller in diameter and smaller in length
(D) Larger in diameter and larger in length

23. What is the working principle of two winding, transformer?

(A) Self induction
(B) Mutual induction
(C) Principle of motor
(D) Lenz's law

24. Which type of transformer winding has no ohmic resistance and no magnetic leakage resulting in no losses?

(A) Distribution transformer
(B) Power transformer
(C) Ideal Transformer
(D) Instrument transformer

25. Which of the following speed is called synchronous speed in a 3 phase induction motor?

(A) Speed of the rotating magnetic field
(B) Speed of the rotor
(C) Speed of the flux produced in the rotor
(D) Speed of the stator

26. When a 3 phase motor is stationary, the frequency of the rotor current is :

(A) Same as supply frequency
(B) Less than supply frequency
(C) More than supply frequency
(D) Zero frequency

27. A 3 phase induction motor takes a current of 120 A from 400 V, 50 Hz supply. Determine the power factor :

(A) 0.82
(B) 0.8
(C) 0.87
(D) 0.9

28. Which part of the magnetic over load relay is cause to lift the plunger in the upward direction?

(A) Magnetic coil
(B) Plunger
(C) Relay contact lever
(D) Insulated bracket

29. Which type of single phase motor is having wound rotor?

(A) Split phase motor
(B) Universal motor
(C) Capacitor motor
(D) Shaded pole motor

30. Which of the following motor does not have a winding or commutator or brush in its rotor?

(A) Slip ring induction motor
(B) Stepper motor
(C) Universal motor
(D) Induction motor

31. The size of the winding wires are specified in SWG numbers. The diameter of 36 SWG, SE copper wire is :

(A) 0.19 mm
(B) 1.9 mm
(C) 0.019 mm
(D) 19 mm

32. For a full pitch 3 phase winding, what will be the coil throw, if the coil pitch is 12?

(A) 24 (B) 6

(C) 10 (D) 12

33. The range of 1 milliampere meter is changed to a 10 mA meter. The moving coil of a meter have a resistance of 36 ohm. What is the value of resistance to be connected in parallel?

(A) 4 ohm (B) 3 ohm

(C) 10 ohm (D) 36 ohm

34. What is the name of the chemical used to get green colour light in neon sign lamp?

(A) Cadmium borate (B) Cadmium silicate

(C) Zinc silicate (D) Phosphor

35. Which is not the passive components from the following?

(A) Resister (B) Capacitor

(C) Transistor (D) Inductor

36. Which one of the following is the LDR's applications?

(A) For switching operation (B) Used for voltage stabilization

(C) Temperature measurement (D) For measuring the intensity of light

37. What is the barrier potential for silicon diode?

(A) 0.3 V (B) 0.4 V

(C) 0.6 V (D) 0.7 V

38. Which of the following value is appeared in the screen of the CRO, when measuring AC voltage?

(A) R.M.S. value (B) Average value

(C) Peak to peak value (D) Instantaneous value

39. What is the application of Triac?

(A) It is used for triggering

(B) It is used for controlling A.C. in either direction

(C) It is used to square pulse

(D) It is used as inverter, converting A.C to D.C

40. What is the abbreviation of PILC cable?

(A) Paper insulated length core
(B) Polymer insulated lead core
(C) Paper insulated lead covered
(D) Ploy insulated lead core

41. Trysquare is used to check up an angle of :

(A) 90°
(B) 60°
(C) 30°
(D) 15°

42. A revet is specified by the diameter of its :

(A) Tail
(B) Head
(C) Shank
(D) Flange

43. A cutting tool used to cut outside threads is called:

(A) Die
(B) Tap
(C) Drill
(D) File

44. The main functions of brake fluid is :

(A) Cooling of brake chamber
(B) Lubrication
(C) Power transmission
(D) None of these

45. The inner end of axle shaft is splined to the :

(A) Planet gear
(B) Crown wheel
(C) Star gear
(D) Sun gear

46. Piston rings are made up of :

(A) Cast iron
(B) Brass
(C) Cobalt
(D) Platinum

47. Formula of compression ratio is :

(A) IHP-BHP
(B) $2\pi NT/4500$
(C) Plan /4500
(D) Total volume/clearance volume

48. Which tool is used to enlarged large drilled holes?

(A) Twist drill
(B) Boring tool
(C) Hand shear
(D) Shaper

49. The S.I unit of pressure is :

(A) Pascal (B) Jule

(C) Newton (D) None of these

50. The pressure in an engine cylinder is less than the atmospheric pressure when the engine is working ———— stoke.

(A) Suction (B) Compression

(C) Exhaust (D) None of these

51. A fully charged lead acid battery has specific gravity of :

(A) 1.609 (B) 2.10

(C) 1.110 (D) 1.290

52. Why splined slip joint is attached to the propeller shaft?

(A) Proper torque transmission (B) Proper lubrication

(C) To accommodate change of length (D) None of these

53. The Ratio between B.H.P and I.H.P is called :

(A) Thermal efficiency (B) Mechanical efficiency

(C) Relative efficiency (D) None of these

54. In diesel engine fuel is ignited by :

(A) Spark plug (B) Glow plug

(C) Injector (D) Temperature of compressed air

55. Which of the following is not a part of engine exhaust system?

(A) Valves (B) Air filter

(C) Muffler (D) Tail pipe

56. Supercharger in an engine is also called :

(A) Cleaning (B) Heating

(C) Cooling (D) Boosting

57. Which one of the following suspension springs also acts as a means for locating the axle?

(A) Leaf
(B) Helical
(C) Tortion bar
(D) Rubber

58. Thermal efficiency of 2-stroke engine is ———— 4-stroke engine.

(A) Less than
(B) Greater than
(C) Equal to
(D) None of these

59. The device used to measure the clearance between the valve and tappet of I.C engine is :

(A) Feeler gauge
(B) Micro meter
(C) Tappet gauge
(D) None of these

60. If the compression ratio in I.C engine increases, then its thermal efficiency will :

(A) Remain same
(B) Increase
(C) Decrease
(D) No change

61. The heat transfer from coolent to air in the radiator of an automobile engine takes place by :

(A) Convention
(B) Radiation
(C) Convention and radiation
(D) Conduction

62. Combustion in C.I engine is :

(A) Homogeneous
(B) Laminar
(C) Turbulent
(D) Hetrogeneous

63. Petrol is distilled at a temperature in range of :

(A) 20-40°
(B) 70-220°
(C) 240-360°
(D) 360-400°

64. The valve overlap in 4-stroke petrol engine is approximately :

(A) 130°
(B) 90°
(C) 20°
(D) 2°

65. The power to weight ratio of diesel engine compared to petrol engine is :

(A) Low
(B) High
(C) Same
(D) None of these