32/2015

Maximum : 100 marks

Time : 1 hour and 15 minutes

1. If a number of resistances are connected in parallel , the effective resistances will be:
   (A) Sum of the individual resistances
   (B) Sum of the reciprocal of the individual resistances
   (C) Higher than largest resistance in the circuit
   (D) Less than the lowest resistance in the circuit

2. Direction of rotation of a dc motor is determined by :
   (A) Lenz's law
   (B) Flemming's right hand rule
   (C) Flemming's left hand rule
   (D) Cork screw rule

3. Voltage of a fully charged lead acid cell is :
   (A) 2.1 V
   (B) 1.2 V
   (C) 1.8 V
   (D) 1.5 V

4. Which of the following has zero temperature coefficient of resistance?
   (A) Copper
   (B) Carbon
   (C) Manganin
   (D) Aluminium

5. Mercury vapour lamp contain :
   (A) Neon and Mercury
   (B) Argon and Mercury
   (C) Sodium and Mercury
   (D) Argon and Sodium

6. If the full load iron loss of a transformer is 50 watts, then the iron loss at half load is :
   (A) 25W
   (B) 10W
   (C) 50W
   (D) 100W

7. Specific gravity of a lead acid cell is measured using:
   (A) Hygrometer
   (B) Barometer
   (C) Cell tester
   (D) Hydrometer

8. A constant speed motor is :

(A) Synchronous motor
(B) Squirrel cage IM
(C) Universal motor
(D) Slip ring IM

9. The highest transmission volage in Kerala:

(A) 500 KV
(B) 400 KV
(C) 220 KV
(D) 110 KV

10. When the lead acid cell is fully discharged the anode becomes?

(A) $PbSO_4$
(B) Pb
(C) PbO_2
(D) PbO

11. The resistance of a wire is 2 ohm. If the diameter of the wire is reduced to half, keeping the length same, the resistance of the wire will be :

(A) 2 ohm
(B) 1 ohm
(C) 4 ohm
(D) 8 ohm

12. Equivalent binary number of a decimal number 21 is :

(A) 10101
(B) 01100
(C) 01101
(D) 01010

13. P type semiconductor is obtained by adding :

(A) Antimony to pure Germanium
(B) Boron to pure Germanium
(C) Carbon to pure Germanium
(D) Arsenic to pure Germanium

14. The motor which works on ac and dc supply is :

(A) Shaded pole motor
(B) Synchronous motor
(C) Repulsion motor
(D) Universal motor

15. Condition for maximum efficiency of a transformer is :

(A) Copper loss = Iron loss
(B) Mechanical loss = Iron loss
(C) Hysterisis loss = Eddy current loss
(D) Core loss = Iron loss

16. A 6 pole, 50Hz, slip ring Induction motor runs at full load slip of 4%, the full load speed is :

(A) 1000 rpm
(B) 1040 rpm
(C) 960 rpm
(D) 950 rpm

17. Internal barrier voltage for silicon is :

(A) 0.7 V
(B) 0.3 V
(C) 0.2 V
(D) 0.07 V

18. AND gate has an output of 1 when :

(A) both inputs are 1
(B) any one of the input is 1
(C) both inputs are 0
(D) none of the above

19. Emitter region of the transistor is :

(A) Very lightly doped
(B) Moderately doped
(C) Heavily doped
(D) Lightly doped

20. The ripple factor of a bridge rectifier is :

(A) 1.21
(B) 0.3
(C) 0.7
(D) 0.48

21. Kirchoff's law is applicable to :

(A) dc circuits
(B) ac circuits
(C) both ac and dc circuits
(D) none of the above

22. The value of coefficient of coupling is always :

(A) equal to 1
(B) greater than 1
(C) less than 1
(D) equal to 0

23. Ideal voltage source has :

(A) Zero internal impedance
(B) Infinite internal impedance
(C) Low internal impedance
(D) High internal impedance

24. Armature reaction in dc motor results in :

(A) decrease in speed
(B) increase in speed
(C) short circuit
(D) open circuit

25. Which of the following device is used for Power factor correction?

(A) Inductor (B) Resistor

(C) Diode (D) Capacitor

26. An instantaneous voltage change is not possible in :

(A) Resistor (B) Inductor

(C) Capacitor (D) Current source

27. When resonance occurs in an electric circuit, the power factor is?

(A) Zero (B) One

(C) Less than one (D) Greater than one

28. Which of the following is an example of active component?

(A) Resistor (B) Capacitor

(C) UJT (D) Inductor

29. Star —Delta starter is used for starting :

(A) DC motor (B) Squirrel cage induction motor

(C) Universal motor (D) Synchronous motor

30. A lap wound 4 pole DC motor has 460 conductors. Find the number of parallel paths between the conductors :

(A) 4 (B) 2

(C) 6 (D) Data not sufficient

31. The efficiency of half wave rectifier is :

(A) 81.2% (B) 40.6%

(C) 98% (D) 48%

32. Which of the following is used as voltage regulator?

(A) Gun Diode (B) Varactor Diode

(C) Zener Diode (D) SCR

33. Which of the following is a bi-directional Device?

(A) SCR (B) DIAC

(C) UJT (D) FET

34. Donor type impurities :

(A) Have 5 valence electrons
(B) Create excess free electrons
(C) Used to make n-type semiconductor
(D) All of the above

35. The current controlled device is :

(A) BJT
(B) TRIAC
(C) SCR
(D) FET

36. The armature resistance of DC motor is generally of the range :

(A) 0.1 Ohm
(B) 0.5 Ohm
(C) 50 Ohm
(D) 1 Ohm

37. What is the Unit of inductance?

(A) Farad
(B) Henry
(C) Weber
(D) Tesla

38. Which of the following motor is used in ceiling Fan?

(A) Universal Motor
(B) PSC Motor
(C) Synchronous Motor
(D) Stepper Motor

39. The decimal equivalent of Binary 10111 is :

(A) 22
(B) 20
(C) 23
(D) 24

40. In exclusive OR gate the output is Zero when the inputs are :

(A) 0,1
(B) 1,0
(C) 1, X
(D) 1,1

41. Which region of the transistor characteristic is used for amplification?

(A) Active
(B) Passive
(C) Saturation
(D) Cutt off

42. n-type semiconductor :

(A) Has excess negative charge
(B) Have excess positive charge
(C) Is electrically neutral
(D) None of the above

43. Creeping error is occurred in :

(A) Energymeter (B) Wattmeter

(C) Voltmeter (D) Ammeter

44. The CPU of a computer consists of :

(A) Memory and ALU (B) Input and output unit

(C) Memory and control unit (D) ALU and control unit

45. Which of the following is used for serial access storage only?

(A) RAM (B) Magnetic tape

(C) Magnetic disk (D) Core memory

46. Maximum load that can be connected in a sub circuit :

(A) 200 W (B) 100 W

(C) 800 W (D) 1000 W

47. The length of the earth pipe used in pipe earthing :

(A) 2.5 m (B) 2 m

(C) 1.5 m (D) 1 m

48. Insulation resistance can be measured using :

(A) Ohmmeter (B) Earth tester

(C) Megger (D) Ammeter

49. Maximum load that can be connected to a single phase domestic connection:

(A) 2,000 W (B) 10,000 W

(C) 5,000 W (D) 3,000 W

50. Inductor stores energy in :

(A) Magnetic field (B) Electrostatic field

(C) Core (D) None

51. A capacitor :

(A) allows dc to pass and blocks ac (B) blocks ac

(C) allows ac to pass and blocks dc (D) allows ac and dc to pass

52. Fuse wire is made up of :

(A) Copper and lead
(B) Lead and tin
(C) Nichrome
(D) Tin and copper

53. Transformer capacity is specified in :

(A) KW
(B) KWH
(C) KWA
(D) KVA

54. Which of the following is used as Universal gate?

(A) NOR
(B) OR
(C) NAND
(D) Both (A) and (C)

55. The electrolyte used in lead acid cell is :

(A) dil HCL
(B) dil H_2SO_4
(C) dil HNO_3
(D) lead peroxide

56. The tidal project in Kerala :

(A) Vizhinjam
(B) Idamalayar
(C) Pallivasal
(D) Brahmapuram

57. The power factor of incandescent lamp is :

(A) zero
(B) 0.8 lag
(C) 0.8 lead
(D) unity

58. Which of the following is incorrect?

(A) SI unit of frequency is Hertz
(B) SI unit of charge is coulomb
(C) SI unit of potential difference is Volt
(D) SI unit of temperature is degree centigrade

59. The motor which has highest starting torque :

(A) dc compound
(B) dc series
(C) ac series
(D) universal motor

60. 1 HP is equal to :

(A) 856 W (B) 1000 W

(C) 746 W (D) 800 W

61. Voltmeter is connected in :

(A) Series (B) Parallel

(C) Series or Parallel (D) Series and parallel

62. Which of the following is an indicating instrument?

(A) Watthour meter (B) Amperehour meter

(C) Ammeter (D) Both (A) and (B)

63. In an RLC series circuit the impedence is purely resistive when :

(A) XL = XC (B) XL > XC

(C) XL < XC (D) XL ≠ XC

64. Form factor of alternating quantity is :

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

(C) Average Value/Max value (D) Max value/ Average value

65. Unit of illumination:

(A) Candela (B) Lumen

(C) Lux (D) Light year

66. In a dc shunt motor the direction of rotation of motor will reverse when :

(A) Either the field terminals are reversed or armature terminals are reversed

(B) Only armature terminals are reversed

(C) Only field terminals are reversed

(D) None of the above

67. What is the necessity of copper brushes in a dc motors?

(A) To absorb mechanical shocks produced during running condition

(B) To convert alternating supply electric current to direct current

(C) To increase the flux cutting by the rotor

(D) None of these

68. The transformer cores are laminated :

(A) to reduce hysteresis losses
(B) to reduce mechanical losses
(C) to reduce eddy current losses
(D) to reduce copper losses

69. The shaft torque of a dc motor is less than the electromagnetic torque because of :

(A) mechanical losses
(B) hysteresis losses
(C) ohmic losses
(D) stray losses

70. The collector current of a transistor is always :

(A) less than emitter current
(B) equal to emitter current
(C) greater than emitter current
(D) equal to base current

71. An amplifier can be converted to an oscillator using :

(A) Positive feedback
(B) Negative feedback
(C) Zero feedback
(D) Null feedback

72. Damping torque in an indicating instrument is always :

(A) opposite to deflecting torque
(B) in the same direction as the controlling torque
(C) opposite to the direction of motion of the moving system
(D) opposite to the controlling torque

73. Moving iron instruments can be used for measuring :

(A) direct currents and voltages
(B) alternating currents and voltages
(C) radio frequency currents
(D) both (A) and (B)

74. The reactance offered by a capacitor to alternating current of frequency 50Hz is 10 ohm. If frequency is increased to 100Hz, then the reactance becomes ———— ohms.

(A) 20
(B) 5
(C) 2.5
(D) 40

75. The average value of alternating current is :

(A) 0.707 Im
(B) 0.637 Im
(C) 0.5 Im
(D) 0.4 Im

76. Mutual Inductance between two magnetically coupled coils depends on :

(A) The number of their turns

(B) Permeability of the core

(C) Cross sectional area of their common core

(D) All of the above

77. In a pure inductive circuit :

(A) active power consumed is zero (B) reactive power consumed is zero

(C) apparent power consumed is zero (D) none of these

78. Transformer is used to change the values of :

(A) voltage (B) frequency

(C) power (D) power factor

79. The armature winding of series motor is excited :

(A) resistively (B) conductively

(C) inductively (D) both (A) and (C)

80. In squirrel cage induction motor, the rotor slots are given a slight skew :

(A) to increase the tensile strength of the rotor bars and hence strength

(B) to reduce the magnetic hum and locking tendency of the rotor

(C) to accommodate more rotor conductors

(D) to reduce the mechanical losses

81. The biggest port of India :

(A) Visakhapatanam (B) Bombay

(C) Kandla (D) Kolkata

82. Which one of the following states of India has the highest rank in the human development index?

(A) Punjab (B) Delhi

(C) Karnataka (D) Kerala

83. The largest soil group of India :

(A) Alluvial soil (B) Red soil

(C) Black soil (D) Laterite soil

84. Which one of the following states, groundwater utilization is very high?

(A) Kerala (B) Chattisgarh

(C) Punjab (D) Orissa

85. The volunteer brigade khudaikhidmatgars organised by :

(A) Nawab salimullah (B) Khan Abdul Gaffar Khan

(C) Rani Gaidiliu (D) Muhammed Ali Jinnah

86. At Lucknow the revolt of 1857 led by :

(A) Rani Lekshmi Bai (B) Kunwar Singh

(C) Begum Hazarat mahal (D) Nana saheb

87. Gandhiji's first great experiment in satyagraha came in 1917 is :

(A) Champaran (B) Bardoli

(C) Ahamedabad (D) Kheda

88. The great poet and humanist Rabindranath Tagore gave up his knight hood in protesting :

(A) Partition of Bengal (B) Chauri chaura incident

(C) Wagon tragedy (D) Jallianwala Bagh massacre

89. Which one is not an indicators of social empowerment?

(A) Freedom from bondage (B) Freedom from politics

(C) Freedom from hunger (D) Freedom from ignorance

90. The site 'Overbury's Folly' situates at :

(A) Thalassery (B) Bekal

(C) Kochi (D) Kapad

91. Who was the owner of the newspaper Swedesabhimani?

(A) P.K. Ramakrishna Pillai (B) K.Kelappan

(C) Vaikkam Abdul Khadir Maulavi (D) E.V. Ramaswami Naiker

92. The founder of Atmavidya sangam was :

(A) Swami Anandatheertha (B) Chattampiswami

(C) Brahmanda Sivayogi (D) Vagbhatananda

93. Which one of the following incidents, Gandhiji haild it as "a miracle of modern times and a Smrithi which is the people's charter of spiritual emancipation"?

(A) Abolition of Slavery in Travancore
(B) Temple entry proclamation
(C) Vaikom Satyagraha
(D) Guruvayoor Satyagraha

94. Who was the founder of Sadhujana paripalana yogom?

(A) Kumara Guru
(B) Padit Karuppan
(C) Ayyan Kali
(D) Sree Narayana Guru

95. One of the highlights of the Vaikom satyagraha was the savarna jatha organised under the leadership of :

(A) K.P.Kesavamenon
(B) A.K. Gopalan
(C) T.K. Madhavan
(D) Mannath padmanabhan

96. Who was selected as the goodwill ambassador of national games 2015?

(A) Amitabachan
(B) P.T. Usha
(C) I.M. Vijayan
(D) Sachin Tendulkar

97. Who among the following selected for Jnanapith award 2013?

(A) Kedar Nath Singh
(B) Ravuri Bharadhwaja
(C) Chandra Shekhara kambara
(D) Prathibha Ray

98. The highest goal scorer in FIFA world cup history :

(A) Ronaldo
(B) Pele
(C) Miroslav Klose
(D) Gerd Muller

99. The Dada saheb phalke award for 2014 has been conferred on :

(A) Amirkhan
(B) Gulzar
(C) Anand Gandhi
(D) Asha Bhonsle

100. 40th G–7 summit 2014 held at :

(A) Hugue
(B) Brussels
(C) Tokyo
(D) London