1. The unit of solid angle is
   A) radian
   B) steradian
   C) degree
   D) none of the above

2. What is the temperature co-efficient value of aluminum at 20° Celsius ?
   A) 40.3×10^{-4}
   B) 40.3×10^{-3}
   C) 40.3×10^{-2}
   D) 40.3×10^{-5}

3. How to increase the current range of a meter ?
   A) A low resistance connected in series
   B) A high resistance connected in series
   C) A low resistance connected in parallel
   D) A high resistance connected in parallel

4. One ampere-hour is equal to
   A) 36000 Coulombs
   B) 3600 Coulombs
   C) 360 Coulombs
   D) 36 Coulombs

5. Unit of M.M.F. is
   A) Maxwell
   B) Lambda
   C) Joule
   D) Ampere turns

6. Which of the following rule is used for find the direction of induced e.m.f. ?
   A) Fleming's left hand rule
   B) Cork screw rule
   C) Fleming's right hand rule
   D) Right hand thumb rule

7. The lifting power of a magnet is
   A) $B^2A/2\mu_0$
   B) $A^2B/2\mu_0$
   C) $B^2A/4\mu_0$
   D) $A^2B/4\mu_0$

8. Who discovered the neutron ?
   A) Faraday
   B) Franklin
   C) Rutherford
   D) Chadwick

9. The voltage of a simple voltaic cell is
   A) 1.5 V
   B) 1.08 V
   C) 1.28 V
   D) 1.4 V

10. The speed of electricity is
   A) 2,97,842 km/s
   B) 2,97,842 km/m
   C) 2,97,842 km/hr
   D) none of the above

11. Which type of M.C.B. is used in air-conditioners ?
   A) L series
   B) G series
   C) Either L series or G series
   D) Any one of the above

12. Which type of fire extinguisher is used on electrical fire ?
   A) foam type
   B) gas cartridge water filled type
   C) halon type
   D) stored pressure water filled type

13. Nichrome is widely used for
   A) circuit connections
   B) transformer windings
   C) lamp filaments
   D) heater coils

14. What is the di-electric strength in k.v./m.m. of asbestos at 20°C ?
   A) 40
   B) 42
   C) 44
   D) 46

15. Value of one kilowatt-hour is
   A) 3600000 Joules
   B) 360000 Joules
   C) 36000 Joules
   D) 3600 Joules

16. A solenoid is defined as an electromagnet
   A) having only one turn
   B) having more resistance
   C) having more axial length than diameter
   D) having less axial length than diameter

17. Two Wattmeter method is used to measure the power in _____ load.
   A) resistive load
   B) balanced load
   C) un-balanced load
   D) balanced and un-balanced load

18. Potential transformer and current transformer are
    A) power transformer
    B) instrument transformer
    C) indoor transformer
    D) outdoor transformer

19. Inter-poles are provided to
    A) generate the e.m.f.
    B) operate in overload
    C) economical basis
    D) improve commutation

20. Which of the following method is used to control the speed of shunt motor below than its rated speed ?
    A) field control
    B) armature control
    C) taped field control
    D) field and armature control

21. The starting winding is opened by a centrifugal switch when the motor has come up to about
    A) 75% of synchronous speed
    B) 100% of synchronous speed
    C) 50% of synchronous speed
    D) $1/3^{rd}$ of synchronous speed

22. Outer cage of squirrel cage motor is made up of
    A) brass
    B) copper
    C) aluminum
    D) bronze

23. In star connection the supply voltage is reduced as
    A) $\frac{1}{\sqrt{3}}$ times
    B) $\frac{1}{2}$ times
    C) $\frac{1}{3}$ times
    D) $\frac{2}{3}$ times

24. In the three-point starter the hold ON coil is connected in the
    A) armature circuit
    B) field circuit
    C) across the main supply
    D) in between the armature and field circuit

25. To magnetize a steel is difficult because of its
    A) high density
    B) high retentivity
    C) high permeability
    D) low permeability

26. One Farad is equal to
    A) Joule/volt
    B) One volt/Coulomb
    C) One Coulomb/volt
    D) Coulomb-Joule

27. The depolarizer is used in dry cell is
    A) MnO_2
    B) MnO_3
    C) Mercury sulphate
    D) NH_3

28. Two batteries each of open circuit voltage 2 v and internal resistance of 2 Ohm are connected in parallel to supply a load of 2 Ohm, the current supplied by the battery is
    A) 0.33 A
    B) 2 A
    C) 0.8 A
    D) 1 A

29. The density of the acid in lead acid battery gives of an indication of
    A) the e.m.f. of the battery
    B) the level of the acid
    C) the charge of the battery
    D) damages caused to the plates

30. The minimum insulation resistance of a water heater is
    A) 2 mega Ohm
    B) 1 mega Ohm
    C) 0.5 mega Ohm
    D) 0.25 mega Ohm

31. When the generator is loaded
    A) Brushes are kept in M.N.A. for sparkles commutation
    B) Brushes are kept in G.N.A. for sparkles commutation
    C) M.N.P. and G.N.P. are same and brushes are kept at right angles to it
    D) Brushes are kept at any position on the commutator and gives sparkles commutation

32. A 24 Ohm and 8 Ohm resistors are in parallel have a combined resistance of
    A) 32 Ohm
    B) 24 Ohm
    C) 12 Ohm
    D) 60 Ohm

33. The percentage of carbon in high speed steel is
    A) 0.1 to 0.2%
    B) 0.2 to 0.3%
    C) 0.75 to 1%
    D) 2 %

34. The control force employed in an indicating instrument, which can be kept in any position is

A) gravity control
B) eddy current control
C) fluid friction control
D) spring control

35. The deflecting control of a moving iron instrument is directly proportional to the

A) current
B) voltage
C) square root of the current
D) square of the current

36. If the meter constant mentioned in the meter is 1500 revolution/K.W.H., in one revolution, the energy consumption is

A) 40 watt-minutes
B) 60 watt-minutes
C) 100 watt-minutes
D) 50 watt-minutes

37. An unknown D.C. voltage is to be measured, which measuring range will you select first ?

A) 500 V
B) 50 V
C) 1.5 V
D) 0.5 V

38. In three phase circuits the formula for calculating power factor by two wattmeter method is

A) $\cos\phi = \frac{KW}{3VI}$
B) $\tan\phi = \frac{\sqrt{3}(w_1 - w_2)}{w_1 + w_2}$
C) $\tan\phi = \frac{\sqrt{3}\,(w_1 + w_2)}{w_1 - w_2}$
D) $\cos\phi = \frac{KVA}{KW}$

39. The resistance of the starting winding

A) is same as of running winding
B) is less than the running winding
C) is higher than the running winding
D) can be any value and there is no relationship

40. The purpose of the capacitor in a fan is to be
    A) increase the speed
    B) protect the fan when fault occurs
    C) control the speed
    D) give phase shift

41. A H.P.M.V. lamp gives
    A) 10 lumens/watt
    B) 20 lumens/watt
    C) 50 lumens/watt
    D) 60 lumens/watt

42. At the time of starting the sodium vapor lamp gives the color of light is
    A) natural day light
    B) reddish color
    C) greenish color
    D) yellowish light

43. Centre tapping of the high voltage transformer must be earthed to
    A) limit the operative current
    B) reduce the operative voltage
    C) provide safety of operator
    D) eliminating inference

44. The possible minimum reading which can be taken by 0·25 m.m. of an outside micrometer is
    A) 0.01 m.m.
    B) 0.1 m.m.
    C) 0.5 m.m.
    D) 1.0 m.m.

45. The bending angle of the hard drawn bare copper conductor for britannia joint should be
    A) 60°
    B) 90°
    C) 45°
    D) 180°

46. In soldering aluminum cables with a ferrule joint it is advisable to use
    A) an aluminium ferrule
    B) a copper ferrule
    C) a tin ferrule
    D) an in-oxidisable steel ferrule

47. The distance between clips in horizontal runs shall not exceed
    A) 10 c.m.
    B) 15 c.m.
    C) 20 c.m.
    D) 25 c.m.

48. For pipe earthing the minimum internal diameter of galvanized iron or steel pipe required is

A) 12.5 m.m.
B) 16 m.m.
C) 18 m.m.
D) 38 m.m.

49. According to I. E. rules the leakage current in an installation should not exceed one by _____ th part of the maximum current supplied to the installation.

A) 100
B) 500
C) 1000
D) 5000

50. The conductors of the armature windings are soldered at the commutator

A) segment internally
B) brushes
C) riser
D) segment directly

51. A simple method of increasing the voltage of a D.C. generator is

A) decrease the speed of rotation
B) increase the speed of rotation
C) decrease the air gap of flux density
D) decrease the length of the armature

52. The existence of residual magnetism is not important if the D.C. generator is not connected as a

A) series generator
B) shunt generator
C) compound generator
D) separately excited generator

53. The sodium vapor lamp operates in best efficiency at

A) 300° C
B) 200° C
C) 400° C
D) 450° C

54. Large value of air gap in an induction motor results in

A) providing better cooling
B) increased over load capacity
C) reducing the pulsation loss
D) reducing the noise

55. Which type capacitor is used for starting of a single phase motor ?
    A) ceramic capacitor
    B) paper capacitor
    C) mica capacitor
    D) electrolytic capacitor

56. No-load current of an induction motor is approximately
    A) 30% of the full load current
    B) 40% of full load current
    C) 60% of the full load current
    D) 90% of the full load current

57. Chatter in an A.C. relay magnet can be eliminated by using
    A) lamination
    B) U shaped magnetic core
    C) matching fixed and movable magnetic limbs
    D) shading coil

58. Which kind of bearing is used when a motor is to be mounted horizontally ?
    A) radial
    B) thrust
    C) anti-friction
    D) angular

59. The rotor of a motor runs at 1410 R. P.M. and the synchronous speed is 1500 R.P.M. What is the slip of the motor ?
    A) 90 R.P.M.
    B) 3
    C) 4
    D) 6

60. Turbo alternators usually have
    A) 2 poles
    B) 6 poles
    C) 8 poles
    D) 12 poles

61. A three phase, 50 Hz. Induction motor has 8 poles and full load slip is 2.5% find rotor speed
    A) 750 R.P.M.
    B) 741 R.P.M.
    C) 735 R.P.M.
    D) 731 R.P.M.

62. Salient pole type rotor construction is usually provided in alternators used in
    A) nuclear power stations
    B) thermal power stations
    C) hydro power stations
    D) all the above

63. Flow from a reciprocating pump will be
    A) pulsating
    B) continuous
    C) low pressure high volume
    D) high pressure low volume

64. In practice earth is chosen as a place of zero potential because
    A) is non-conducting
    B) keeps losing and gaining electric charge every day
    C) is easily available
    D) has almost constant potential

65. Any charge given to the battery when taken off the vehicle is called
    A) bench charge
    B) step charge
    C) trickle charge
    D) float charge

66. The most efficient form of damping employed in electrical instruments is
    A) air friction
    B) fluid friction
    C) eddy current
    D) none of the above

67. The reactance offered by a capacitor to alternating current of frequency of 50 Hz is 10 Ohm if frequency is increased to 100 Hz the reactance becomes _____ Ohm.
    A) 2.5 Ohm B) 5 Ohm C) 20 Ohm D) 40 Ohm

68. Power factor of high speed motor compared to a low speed motor will be
    A) high
    B) low
    C) same
    D) may be high or low

69. The normal size of circular sheet steel discs of an armature core of D.C. generator is
    A) 0.25 m.m. B) 0.4 m.m. C) 0.5 m.m. D) 0.6 m.m.

70. A 750 watts load is given to the three phase energy meter for 15 minutes and the meter constant is 1200 revolutions/K.W.H. Calculate the number of revolutions
    A) 200 B) 205 C) 215 D) 225

71. What is the metal used to prevent the burning of the make and brake point of thermostat in an electric iron ?
    A) silver B) copper C) brass D) bronze

72. Maxwell-Wein bridge is used for measuring
    A) capacitance
    B) dielectric loss
    C) inductance
    D) phase angle

73. The decibel is a measure of
    A) voltage
    B) current
    C) power
    D) power level

74. Non-sinusoidal waveforms are made up of
    A) different sinusoidal waveforms
    B) fundamental and even harmonics
    C) fundamental and odd harmonics
    D) even and odd harmonics only

75. There are no transients in pure resistive circuits because they
    A) offer high resistance
    B) have no stored energy
    C) obey Ohm's law
    D) are linear circuits

76. An unbalanced system of three-phase voltages having RYB sequence actually consists of
    A) a positive-sequence component
    B) a negative-sequence component
    C) a zero-sequence component
    D) all of the above

77. Transformer oil serves the functions of
    A) insulation and cooling
    B) only insulation
    C) only lubrication
    D) only cooling

78. In scott connections the teuser transformer has tapping on
    A) 58% of primary
    B) 58% of secondary
    C) 86% of primary
    D) 86% of secondary

79. The line voltage of a delta-connected three-phase circuit is 415 V. The phase voltage is
    A) 220 V
    B) 230 V
    C) 240 V
    D) 415 V

80. To keep the frequency constant on increased loads the speed of the alternator should be
    A) remains constant
    B) adjust the field
    C) decreased
    D) increased

81. The Constitution of India borrowed the idea of Directive Principles from
A) Britain B) Germany C) France D) Ireland

82. The Indian Constitution has been divided in to
A) 16 Chapters B) 22 Chapters C) 24 Chapters D) 25 Chapters

83. Which of the following words were added to the preamble through an amendment in the Constitution carried out during emergency in 1976 ?
A) Socialist and Secular
B) Socialist and Republic
C) Secular and Democratic
D) Sovereign and Democratic

84. The Panchayat Raj was introduced in India in
A) 1950 B) 1957 C) 1959 D) 1961

85. Which one of the following subjects is in the Concurrent List ?
A) Defence
B) Police
C) External affairs
D) Criminal laws

86. Who started CMS Press in 1821 ?
A) Benjamin Baily
B) Dr. Herman Gundert
C) Gonsalves
D) Dr. Anjelo Francis

87. The First Keralite who had participated with the activities of Indian National Congress was
A) C. Sankaran Nair
B) C. Karunakara Menon
C) G.P. Pillai
D) K. Kelappan

88. The famous play 'Pattabakki' was written by
A) Thoppil Basi
B) K. Damodaran
C) Kesava Dev
D) V.T. Bhatta Thirippadu

89. Who moved a resolution requesting the Congress leadership to take the initiative to work for eradication of untouchability in Kerala at 'Kakinada' Session of 1923 ?
A) K. Kelappan
B) Dr. T.M. Nair
C) K. Achutha Menon
D) T.K. Madhavan

90. Ayyankali started Sadhujanaparipalanasangham in
A) 1916 B) 1906 C) 1908 D) 1914

91. 'The Wagon Tragedy' of the Malabar rebellion took place in
A) 10 September 1921
B) 10 October 1921
C) 10 November 1921
D) 10 December 1921

92. The 'Pattini Jatha' was organised by
    A) A.K. Gopalan and K. Kelappan
    B) A.K. Gopalan and K.P.R. Gopalan
    C) A.K. Gopalan and P. Krishna Pillai
    D) EMS Namboodiripad and A.K. Gopalan

93. Who among the following is associated with 'Keezhariyur Bomb Case' of 1942 ?
    A) K.B. Menon
    B) K.K. Raghavan
    C) M.C.S. Mani
    D) Mandodi Kannan

94. Who among the following participated in Dandi March of 1930 with Mahatma Gandhi ?
    A) K. Kelappan
    B) Dr. John Mathai
    C) Krishnan Nair
    D) None of these

95. The poem 'Jatikkummi' is written by
    A) Thycaud Ayya
    B) Sree Narayana Guru
    C) Poikayil Yohanan
    D) Pandit Karuppan

96. Shortly before the general election in 1951, Dr. B.R. Ambedkar decide to contest the election under the banner of
    A) Kisan Mazdoor Praja Party
    B) Scheduled Caste Federation
    C) Socialist Party
    D) Ram Rajya Parishad

97. Name the military operation of Israel against Gaza in 2014.
    A) Operation pillar of defence
    B) Operation cast lead
    C) Operation inherent resolve
    D) Operation protective edge

98. The Govt. of Tamil Nadu decided to celebrate A.P.J. Abdul Kalam's birthday as
    A) Students Day
    B) Youth Renaissance Day
    C) Youth Empower Day
    D) Students Science Day

99. Who is known as 'Mellisai Mannan' ?
    A) Ilayaraja
    B) A.R. Rehman
    C) M.S. Viswanathan
    D) None of these

100. Christopher Lee is associated with
    A) Cinema
    B) Sports
    C) Politics
    D) Philosophy