ELECTROMAGNETISM

Each question has four possible answers, tick (✓) the correct answer:

1. The name of the scientist who noted that a compass needle was deflected when placed near the current carrying conductor:

(a) Henry **(b)** Faraday

(c) Coloumb **(d)** Oersted

2. The sources of magnetic field are:

(a) Charges in the motion **(b)** Charges at rest

(c) Both (a) and (b) **(d)** None of above

3. A current carrying conductor placed in a magnetic field parallel to it. The force experienced by the conductor is:

(a) F = O **(b)** F = BIL

(c) F = BIL sin θ **(d)** F = BIL cos θ

4. Who discovered a relation between magnetic and electric field:

(a) Lenz **(b)** Faraday

(c) Orested **(d)** None of above

5. A changing magnetic field produces:

(a) Electric current **(b)** Electric field

(c) Magnetic field **(d)** None of above

6. The direction of magnetic lines of force are depend upon:

(a) Direction of current **(b)** Quantity of current

(c) Both (a) and (b) **(d)** None of the above

7. The force acting on one metre length of the conductor placed at right angle to the magnetic field is called:

(a) Magnetic field **(b)** Magnetic induction

(c) Force **(d)** None of the above

8. The dot product of magnetic field B and vector area A is:

(a) Magnetic flux **(b)** Magnetic induction

(c) Faraday's law **(d)** Electric flux

9. Mathematically the magnetic flux is:

(a) $\phi = BA \sin\theta$ **(b)** $\phi = B^2 A$

(c) $\phi = \vec{B} \cdot \vec{A}$ **(d)** $\phi = B.A^2$

10. Tesla is the unit for measuring:

(a) Magnetic intensity **(b)** Magnetic induction

(c) Magnetic force **(d)** None of the above

11. Weber is the unit of:

(a) Magnetic flux **(b)** Permeability

(c) Magnetic force **(d)** None of above

12. Weber has the dimensions of:

(a) volt/sec **(b)** $volt^2/sec$

(c) $volt/sec^2$ **(d)** sec/volt

13. The dimensions of magnetic flux are:

(a) $M^1L^{-2}T^1A^1$ **(b)** $MLT^{-2}A^{-1}$

(c) $ML^2T^2A^{-1}$ **(d)** $ML^2T^{-2}A^{-1}$

14. μ_o is the permeability of free space, its value is:

(a) $4\pi \times 10^{-7}$ Wb Am **(b)** $4\pi \times 10^{-7}$ Wb^{-1} m^{-1}

(c) $4\pi \times 10^{-5}$ Wb $A^{-1}m^{-1}$ **(d)** $4\pi \times 10^{-7}$ Wb $A^{-1}m^{-1}$

15. When the angle between the vector area and the magnetic field is 0° then magnetic flux is:

(a) Half **(b)** Minimum

(c) Maximum **(d)** Double

16. When some compass needles are placed on a cardboard along a circle with the center at the wire, they will:

(a) Set themselves tangential to the circle **(b)** Points in the direction of N-S

(c) Points in the direction of E.W **(d)** None of these

17. In the region surrounding a current carrying wire:

(a) A magnetic field is setup **(b)** The lines of force are elliptical

(c) Both (a) and (b) **(d)** None of these

18. Magnetic force acting on unit positive charge moving perpendicular to the magnetic field with a unit velocity is known as:

(a) Magnetic induction **(b)** Magnetic flux

(c) Magnetic field density **(d)** None of these

19. A current carrying conductor is placed in a uniform magnetic field parallel to it. The magnetic force experienced by the conductor:

(a) $F = \frac{I}{LB \sin\theta}$ **(b)** $F = 0$

(c) $F = IBL \sin\theta$ **(d)** $F = \frac{IBL}{\sin\theta}$

20. The direction of force on a current carrying conductor placed in a magnetic field is that of:

(a) $\vec{L} \times \vec{B}$ **(b)** $\vec{F} \cdot \vec{B}$

(c) Magnetic field **(d)** Length of conductor

21. Magnetic field is a:

(a) Scalar quantity **(b)** Vector quality

(c) Both (a) and (b) **(d)** None of these

22. The direction of magnetic lines of force around a current carrying conductor is given by:

(a) Coulombs law **(b)** Ampere's law

(c) Faraday's law **(d)** Right hand rule

23. The strength of magnetic field around a conductor is:

(a) Directly proportional to the square of distance from the conductor

(b) Same every where around the conductor

(c) Both (a) and (b)

(d) None of these

24. A magnetic compass will be defected if it is kept near a:

(a) Charge at rest **(b)** Charge in motion

(c) No change **(d)** Both (a) and (b)

25. A current is passed through a straight conductor, the magnetic field produced around it. The magnetic lines of force are:

(a) Straight **(b)** Circular

(c) Parabolic **(d)** None of these

26. If a current carrying conductor is placed perpendicular to the magnetic field, it will experience a force:

(a) $F = 0$ **(b)** $F = BIL \sin\theta$

(c) $F = BIL$ **(d)** None of these

27. A magnetic field:

(a) Exerts a force if a charge particle is moving perpendicular to the magnetic field

(b) Exerts a force if a charge particle is moving parallel to the magnetic field

(c) Never exerts a force on charged particle

(d) None of these

28. Which one of the following material is most suitable for making core of electrometer:

(a) Steel **(b)** Cu – Ni alloy

(c) Air **(d)** Soft iron

29. The magnetic force experienced by a charge particle moving in a magnetic field will be minimum when it moves:

(a) Parallel to magnetic field **(b)** Anti-parallel to magnetic field

(c) Perpendicular to magnetic field **(d)** None of these

30. The magnetic force experienced by a charge particle moving in a magnetic field will be maximum when it moves:

(a) Parallel to magnetic field **(b)** Anti-parallel to magnetic field

(c) Perpendicular to magnetic field **(d)** None of these

31. Vector area is vector whose direction is:

(a) Perpendicular to the surface element **(b)** Parallel to the surface element

(c) At an angle of 45° to the surface element **(d)** None of these

32. If the magnetic field is directed along the normal to the area, then magnetic flux is:

(a) Zero **(b)** Maximum

(c) Minimum **(d)** None of them

33. The unit of magnetic induction $\vec{B}$ is:

(a) Coulomb **(b)** Ampere

(c) Coulomb/ampere **(d)** Weber/m^2

34. Magnetic induction is defined as flux per unit area of the surface, which is:

(a) Perpendicular to $\vec{B}$ **(b)** Parallel to $\vec{B}$

(c) Both (a) and (b) **(d)** None of these

35. Magnetic flux density at any point due to a current carrying conductor can be computed from:

(a) Newton's law **(b)** Coulomb's law

(c) Ampere's law **(d)** Lenz's law

36. Amperean path is:

(a) Circular path **(b)** Closed path

(c) Rectangular path **(d)** Any of above

37. μ_o is called:

(a) Permeability of free space **(b)** Proportional constant

(c) Permitivity of free space **(d)** None of these

38. A solenoid is a coil of wire, which is:

(a) Short loosely wound cylindrical coil of wire

(b) Long tightly wound cylindrical coil of wire

(c) Both (a) and (b)

(d) None of these

39. The magnetic field is uniform and stronger:

(a) Outside the solenoid **(b)** Inside the solenoid

(c) At the central part of the solenoid **(d)** None of these

40. In the formula, $B = \mu_0 nI$, where n represents:

(a) Number of turns per unit length **(b)** Number of turns per unit volume

(c) Number of turns per unit area **(d)** All of above

41. The magnetic field inside the solenoid can be increased by:

(a) Increasing number of turns **(b)** Decreasing current

(c) Increasing current **(d)** Both (a) and (c)

42. The permeability of free space is measured in:

(a) wb A/m **(b)** Am/wb

(c) wb/Am **(d)** m/wbA

43. The strength of magnetic field is measured in SI units:

(a) Am/N **(b)** Nm/A

(c) N/Am **(d)** N

44. Nm/A is commonly called:

(a) Gauss **(b)** Volt

(c) Ampere **(d)** Weber

45. A long wire wound tightly on a cylindrical coil is called:

(a) Toroid **(b)** Slide wire bridge

(c) Potentiometer **(d)** Solenoid

46. If the length of the solenoid is doubled without changing the number of turns then magnetic field:

(a) is not charged **(b)** becomes half

(c) becomes double **(d)** None of these

47. If there are n charge carriers per unit volume then the number of charge carriers in a segment of wire of length L and area A is:

(a) AL/n **(b)** n A/L

(c) n AL **(d)** n L/A

48. If an electron is projected in a magnetic field with velocity V, it will experience a force:

(a) $\vec{F} = e(\vec{B} \times \vec{V})$ **(b)** $\vec{F} = e(\vec{V} \times \vec{B})$

(c) $\vec{F} = \vec{V}(e \times \vec{B})$ **(d)** $\vec{F} = e(\vec{V} \cdot \vec{B})$

49. When the charge particle is projected at right angles to the magnetic field then force experienced will be:

(a) F = qvB **(b)** Minimum

(c) Zero **(d)** None of these

50. When the charge particle is projected in the direction parallel to the magnetic field, then force experienced will be:

(a) qvB **(b)** Maximum

(c) Zero **(d)** None of these

51. When an electric charge q is placed in an electric field, it will experienced a force:

(a) At an angle 45° to the field **(b)** Parallel to electric field

(c) Perpendicular to the field **(d)** None of these

52. If a charge is free to move in an electric field then acceleration produced in it will be:

(a) $a = \frac{qE}{m}$ **(b)** a = qEm

(c) $a = \frac{q}{Em}$ **(d)** $A = \frac{m}{qE}$

53. Lorentz force means the force acting on a particle, which is:

(a) Magnetic force only **(b)** Electric force only

(c) Sum of electric and magnetic force **(d)** None of these

54. In formula $\vec{F} = e(\vec{V} \times \vec{B})$ where $\vec{F}$ is:

(a) Parallel to $\vec{V}$ **(b)** Perpendicular to $\vec{V}$ and $\vec{B}$

(c) Parallel to $\vec{B}$ **(d)** Perpendicular to $\vec{B}$

55. When an electron enters at right angle to the magnetic field, the magnitude of velocity:

(a) Remains constant **(b)** Decreases

(c) Increases **(d)** None of these

56. When an electron is projected in a direction perpendicular to the lines of magnetic force, its path may be:

(a) Circular **(b)** Straight line

(c) Parabola **(d)** None of these

57. The e/m of an electron can be calculated if we know the value of:

(a) Magnetic Field **(b)** Velocity of electron

(c) Radius of circular path **(d)** All of above

58. The e/m of an electron can be calculated by using the formula:

(a) $\frac{e}{m} = \frac{Vr}{Br}$ **(b)** $\frac{e}{m} = \frac{2v}{B^2 r^2}$

(c) $\frac{e}{m} = \frac{2Ve}{m}$ **(d)** None of these

59. If the magnetic flux is expressed in weber, then the magnetic induction can be expressed as:

(a) Weber/m **(b)** Weber/m^2

(c) Weber/m^3 **(d)** m/Weber

60. Which one of the following is the unit of magnetic induction:

(a) Gauss **(b)** Dyne

(c) Ampere **(d)** Newton

61. The earth magnetic field always has a vertical component except at the:

(a) Magnetic pole **(b)** Magnetic equator

(c) Both (a) and (b) **(d)** None of the above

62. Magnetic field is a:

(a) Vector quantity **(b)** Scalar quantity

(c) Scalar as well as vector **(d)** None of these

63. The magnetic field at a point due to current carrying conductor is directly proportional to:

(a) Current flows through the conductor **(b)** Distance from the conductor

(c) Resistance of the conductor **(d)** Thickness of the conductor

64. The direction of the magnetic field produced by a linear current is given by:

(a) Joule's law **(b)** Ampere law

(c) Right hand rule **(d)** None of the above

65. Two free parallel wires carrying currents in opposite direction:

(a) Repel each other **(b)** Attract each other

(c) Do not effect each other **(d)** All of above

66. Ampere's law mathematically can be expressed as:

(a) $\sum_{i=1}^{N} \left(\vec{B} \cdot \vec{\Delta L}\right) = \mu_0 I$ **(b)** $\sum_{i=1}^{N} \left(\vec{B} \cdot \vec{\Delta L}\right) = \mu_0 A$

(c) $\sum_{i=1}^{N} \left(\vec{B} \cdot \vec{\Delta L}\right) = \mu_0 N$ **(d)** $\sum_{i=1}^{N} \left(\vec{B} \cdot \vec{\Delta L}\right) = \mu_0 R$

67. A current carrying conductor surrounded by:

(a) Electric field **(b)** Magnetic field

(c) Gravitational field **(d)** All of the above

68. A charged particle moving with velocity $\vec{V}$ in a magnetic field $\vec{B}$ experiences a magnetic force is:

(a) $\vec{F} = \frac{(\vec{V} \times \vec{B})}{q}$ **(b)** $\vec{F} = q(\vec{V} \cdot \vec{B})$

(c) $\vec{F} = q(\vec{V} \times \vec{B})$ **(d)** $\vec{F} = \frac{\vec{V} \cdot \vec{B}}{q}$

69. The energy resides in a current carrying conductor in the form of:

(a) Magnetic field **(b)** Electrostatic field

(c) Gravitational field **(d)** All of above

70. If a moving electron deflected side ways on passing through a certain region of space, can we predict the presence of a magnetic field:

(a) No **(b)** Yes

(c) Maximum **(d)** None of above

71. The magnetic force experienced by a charged particle moving in a magnetic field will be maximum when it moves:

(a) Perpendicular to the field **(b)** Parallel to the field

(c) Anti parallel to the field **(d)** All of above

72. A compass needle will be deflected if it is kept near:

(a) Charged body in motion **(b)** A negatively charged body at rest

(c) A positively charged body at rest **(d)** none of the above

73. Ampere based his circuital law on the findings of:

(a) Ampere himself **(b)** Laplace

(c) Biot-sarvant **(d)** Maxwell

74. The total number of magnetic lines of force passing normally through a given area is called:

(a) magnetic flux **(b)** flux density

(c) self induction **(d)** mutual induction

75. Magnetic flux and flux density are related by:

(a) Flux density = Flux × Area **(b)** Flux density = $\frac{\text{Flux}}{\text{Area}}$

(c) Flux = $\frac{\text{Flux density}}{\text{Area}}$ **(d)** None of the above

76. Which one of the following quantities can be replaced by magnetic induction:

(a) Flux density **(b)** Magnetic flux

(c) Magnetic field intensity **(d)** All of above

77. Charge to mass ratio (e/m) of a charged particle is also called:

(a) Specific force **(b)** Specific charge

(c) Both (a) and (b) **(d)** None of the above

78. The SI unit of permeability μ_o is:

(a) Weber –m/A **(b)** Weber/A.m

(c) Weber –A/m **(d)** None of the above

79. A long tightly wound cylindrical coil of wire is called:

(a) Capacitor **(b)** Resistance

(c) Inductor **(d)** Solenoid

80. The magnetic field at the middle of the solenoid is:

(a) Uniform and strong **(b)** Uniform

(c) Strong **(d)** Weak

81. The magnetic field out of the solenoid is:

(a) Negligible weak **(b)** Uniform

(c) Uniform and strong **(d)** All of above

82. Ampere's circuital law is $\sum_{i=1}^{N} \left(\vec{B} \cdot \vec{\Delta L}\right)_i =$

(a) $\mu_o I$ **(b)** $\mu_o A$

(c) $\mu_o B$ **(d)** None of the above

83. Force on the current carrying conductor placed in a uniform magnetic field is:

(a) $I\vec{L} \times \vec{B}$ **(b)** $\vec{Iq} \times \vec{B}$

(c) $\frac{IL}{B}$ **(d)** $\vec{IL} \times \vec{V}$

84. Which one is suitable for circular trajectory of a charged particle:

(a) Magnetic field **(b)** Electric field

(c) Conservative field **(d)** Gravitational field

85. In particle velocity method, the selected speed is equal to:

(a) $V = BE$ **(b)** $V = \frac{E}{B}$

(c) $V = \frac{E}{F}$ **(d)** None of the above

86. One tesla is equal to:

(a) 1 Gauss **(b)** 10^4 Gauss

(c) 10 Gauss **(d)** 10^{-4} Gauss

87. Magnetic flux density at a point due to the current carrying conductor determined by:

(a) Faraday's law **(b)** Ampere's law

(c) Flemming's law **(d)** Gauss's law

88. When a charged particle q is moving with velocity $\vec{V}$ in a region where there is an electric field $\vec{E}$ and magnetic field $\vec{B}$ then the total electric and magnetic force on the particle is:

(a) $F = qE + q\,VB$ **(b)** $F = qBV$

(c) $F = qVB - qE$ **(d)** $F = BIL$

89. The expression for torque acting on a current carrying coil placed in a uniform magnetic field is equal to:

(a) $\tau = BIA \cos \alpha$ **(b)** $\tau = BA \cos \alpha$

(c) $\tau = BIA \sin \alpha$ **(d)** $\tau = IB \cos \alpha$

90. A device used for the measurement and detection of current is called:

(a) Ammeter **(b)** Galvanometer

(c) Voltmeter **(d)** All of the above

91. In case of galvanometer, the magnitude of the deflecting torque is given as:

(a) $BINA \cos \alpha$ **(b)** $BIN \cos \alpha$

(c) $NIA \cos \alpha$ **(d)** none of above

92. The sensitivity of the galvanometer can be increased by increasing the:

(a) Area of the coil **(b)** Strength of magnetic field

(c) Number of turns of the coil **(d)** All of these

93. The sensitivity of a galvanometer depends upon the factors:

(a) $\frac{C}{BAN}$ **(b)** $\frac{BAN}{C}$

(c) $\frac{BC}{AN}$ **(d)** None of these

94. Cathode ray oscilloscope works by deflecting a beam of:

(a) Positrons **(b)** Electrons

(c) Protons **(d)** Both electrons and protons

95. A sensitive galvanometer measures currents:

(a) In milli amperes **(b)** In nano amperes

(c) In amperes **(d)** In divisions of angle of twist

96. A moving coil galvanometer can be converted into ammeter by connecting:

(a) A low resistance in series **(b)** A low resistance in parallel

(c) A high resistance in series **(d)** None of these

97. A galvanometer can be converted into a voltmeter by connecting a:

(a) High resistance in series **(b)** Low resistance in parallel

(c) High resistance in parallel **(d)** None of these

98. The strength of magnetic field produced inside the solenoid when it has n terns per unit length and current I is:

(a) $B = \mu_o n^2 I^2$ **(b)** $B = \mu_o NI$

(c) $B = \mu_o nI$ **(d)** $B = \mu_o \frac{N}{l}$

99. The expression for charge to mass ratio of an electron is determined by:

(a) $\frac{e}{m} = \frac{r}{VB}$ **(b)** $\frac{e}{m} = \frac{V}{B^2 r^2}$

(c) $\frac{e}{m} = \frac{v}{r}$ **(d)** $\frac{e}{m} = \frac{B}{rv}$

100. The device used for displaying the waveform of given voltage is:

(a) A.C generator **(b)** Cathode ray oscilloscope

(c) D.C generator **(d)** Galvanometer

101. The force which deflects the coil of the galvanometer is called:

(a) Deflecting torque **(b)** Ordinary torque

(c) Reflecting torque **(d)** None of these

102. CRO works by deflecting the beam of electron as they pass through:

(a) Uniform magnetic field

(b) Uniform electric field between two sets of parallel plates

(c) Non-uniform magnetic field

(d) None of these

103. Indirectly heated cathode means that the:

(a) Filament heats the cathode **(b)** Cathode heat, the filament

(c) Grid heats the filament **(d)** None of these

104. The anode in CRO are at:

(a) Lower potential w.r.t cathode **(b)** Higher potential w.r. to cathode

(c) Same potential as cathode **(d)** None of these

105. The grides in CRO is at:

(a) Negative potential w.r.to anode **(b)** Positive potential w.r.to anode

(c) Negative potential w.r.to cathode **(d)** Both (a) and (b)

106. In CRO, there are:

(a) Power deflecting plates **(b)** Two sets of deflecting plates

(c) Three sets of deflecting plats **(d)** None of these

107. The voltage applied across Y-plate deflects the beam:

(a) Vertically on the screen **(b)** Horizentically on the screen

(c) Both (a) and (b) **(d)** None of these

108. The voltage applied across X-plats deflects the beam:

(a) Vertically or the screen **(b)** Horizentically on the screen

(c) Both (a) and (b) **(d)** None of these

109. In CRO, the output waveform of time base generator is:

(a) Circular **(b)** Square

(c) Sinusoidal **(d)** Saw-toothed

110. Saw toothed waveform means that its voltage:

(a) Decreases linearly with time

(b) Increases linearly with time

(c) Increases linearly with time and then drops to zero

(d) None of these

111. By means of waveform displayed on the screen of CRO, we can measure:

(a) Frequency of voltage **(b)** Voltage

(c) Phase of voltage **(d)** All of above

112. An instrument which can measure potential without drawing any current is called:

(a) Voltmeter **(b)** Potentiometer

(c) CRO **(d)** Ammeter

113. The cathode ray oscilloscope is useful for:

(a) A volt meter

(b) Wave shape of rapidly charging lubricants

(c) Measuring time interval between electrical plates

(d) All of the above

114. What is emitted by the hot metal filament in a cathode ray oscilloscope:

(a) Electron **(b)** X-plates

(c) Protons **(d)** Y-plates

115. How are the electrons produced in a cathode ray oscilloscope:

(a) By heating a metal filament **(b)** By ionization of the air

(c) By applying an electric field **(d)** None of these

116. The function of grid in cathode ray oscilloscope is:

(a) To control the number of electrons accelerated by anode

(b) To control the brightness of spot formed on the screen

(c) Both (a) and (b)

(d) None of these

117. The electron gun in cathode ray oscilloscope consists of:

(a) Grid **(b)** Three anodes

(c) Indirectly heated cathode **(d)** All of the above

118. The current passing through the coil of galvanometer is directly proportional to:

(a) Angle of deflection **(b)** Magnetic field

(c) Number of turns **(d)** Resistance of the coil

119. What is the current in a wire of 10 cm long at right angle to a magnetic field of 0.5 T when force acting on the wire is 5 N:

(a) I = 10 A **(b)** I = 50 A

(c) I = 500 A **(d)** I = 100 A

120. When a charged particle moves through a magnetic field, the field changes the particle:

(a) Mass **(b)** Energy

(c) Speed **(d)** Direction of motion

121. Which one of the following particles moving in the magnetic field cannot be deflected:

(a) Neutron **(b)** α-particle

(c) β-particle **(d)** Proton

122. The working of galvanometer depends upon:

(a) Material of the coil **(b)** Torque exerted on the coil

(c) Magnetic force exerted on the coil **(d)** None of the above

123. For accurate measurement of current through a circuit, the resistance of ammeter should be:

(a) Very small **(b)** Very high

(c) Neither small nor high **(d)** None of the above

124. To convert a galvanometer into an ammeter, the shunt resistance is given by:

(a) $R_S = \frac{IgRg}{I + Ig}$ **(b)** $R_S = \frac{IgRg}{I - Ig}$

(c) $R_S = \frac{I - Ig}{I} \times Rg$ **(d)** $RS = (I - Ig)\, Rg$

125. To convert a galvanometer into a voltmeter, a high resistance R_h connected in series with the galvanometer is given by:

(a) $R_h = \frac{V}{Rg} - Ig$ **(b)** $R_h = \frac{R_g}{V} - Ig$

(c) $R_h = \frac{V}{Ig} - Rg$ **(d)** $R_h = \frac{V}{Rg} + Ig$

126. To measure potential difference across a resistor, voltmeter is always connected in:

(a) Parallel

(b) Series

(c) Some times in series and some times in parallel

(d) None of the above

127. A device which can measure current, potential difference and resistance accurately is called:

(a) Ammeter **(b)** Voltmeter

(c) AVO meter **(d)** Ohm meter

128. In CRO when beam of electrons falls on a screen it makes a visible spot because the screen is:

(a) Rough **(b)** Fluorescent

(c) Polished **(d)** Clear

129. In CRO when cathode is heated by a filament it emits:

(a) Protons **(b)** Electrons

(c) Rays **(d)** Radiation

130. Force on a moving charge in magnetic field is maximum when angle between velocity and magnetic field is:

(a) $\theta = 90°$ **(b)** $\theta = 270°$

(c) $\theta = 180°$ **(d)** $\theta = 360°$

131. The force on a moving charge in magnetic field is zero when angle between velocity and magnetic field is:

(a) $\theta = 0°$ OR $180°$ **(b)** $\theta = 90°$

(c) $\theta = 270°$ **(d)** $\theta = 45°$

132. The unit of magnetic force is:

(a) Tesla **(b)** Gauss

(c) Newton **(d)** Ampere

133. The galvanometer usually consists of a:

(a) Coil placed in a magnetic field **(b)** Coil placed in an electric field

(c) Coil and a scale only **(d)** None of these

134. The coil of a galvanometer is suspended between the poles of a U-shaped magnet which are:

(a) Concave shaped **(b)** Convex shaped

(c) Plane-shaped **(d)** Spherical shaped

135. The rectangular coil of a galvanometer is made of:

(a) Enameled steel wire **(b)** Copper wire

(c) Enameled copper wire **(d)** None of these

136. To make the field stronger near the coil of the galvanometer, we place inside the coil a:

(a) Soft iron cylinder **(b)** Soft steel cylinder

(c) Soft copper cylinder **(d)** None of these

137. A moving coil galvanometer is based on the following effect of current:

(a) Chemical effect **(b)** Magnetic effect

(c) Heating effect **(d)** All

138. While construction a galvanometer, the enameled copper wire is wound on:

(a) Magnetic material **(b)** An insulator

(c) A conductor **(d)** Non-magnetic material

139. Redial magnetic field is used in a galvanometer so that the galvanometer scale is:

(a) Exponential **(b)** Circular

(c) Linear **(d)** None of these

140. In lamp and scale arrangement for measures the angle of deflection, the scale is:

(a) Translucent **(b)** Mass scale

(c) Transparent **(d)** None of these

141. In a pivoted type galvanometer, the coil is pivoted between two:

(a) Bearings **(b)** Jewels

(c) Jewelled bearings **(d)** All are correct

142. Such a galvanometer in which the coil comes to rest quickly after the current passed through it is called:

(a) Stable galvanometer **(b)** Sensitive galvanometer

(c) Both (a) and (b) **(d)** None of these

143. A moving coil galvanometer can be converted into:

(a) Voltmeter **(b)** Ohmmeter

(c) Ammeter **(d)** All of above

144. An AVO meter is also called:

(a) A mullti meter **(b)** An ammeter

(c) An ohmmeter **(d)** None of these

145. To convert a galvanometer into an ammeter, we connect with it a:

(a) Shunt resistance **(b)** Low value parallel

(c) Low value by pass resistor **(d)** All of above

146. To convert a galvanometer into a voltmeter, we connect with it a:

(a) Shunt resistance **(b)** A high value series resistance

(c) Parallel resistance **(d)** None of these

147. The resistance of shunt is:

(a) Verge large **(b)** Very small

(c) Both (a) and (b) **(d)** None of these

148. An AVO meter can measure:

(a) Potential difference in volt **(b)** Current in Ampere

(c) Resistance in ohms **(d)** All of above

149. When the ohmmeter measures the infinite resistance, its pointer lies at:

(a) Center of the scale **(b)** Left end of the scale

(c) Right end of the scale **(d)** None of these

150. A proper combination of a galvanometer and a series resistance acts as:

(a) Voltmeter **(b)** Ammeter

(c) Ohmmeter **(d)** None of these

151. The relation between current I and angle of deflection in a moving coil galvanometer is:

(a) $I \times \frac{1}{\theta}$ **(b)** $I \times \cos\theta$

(c) $I \times \theta$ **(d)** $I \times \sin\theta$

152. Which of the following is correct?

(a) $1\ T = 10^3\ G$ **(b)** $1\ T = 10^4\ G$

(c) $1\ T = 10^{-4}\ G$ **(d)** None of these

153. Two parallel wires carrying current in opposite direction:

(a) Repel each other **(b)** Attract each other

(c) No effect on each other **(d)** None of these

154. Which one of the following is not deflected by magnetic field?

(a) α-particle **(b)** β-particle

(c) Neutrons **(d)** None of these

155. If an electron enters the magnetic field at right angle from left and $\vec{B}$ is into paper, electron will be deflected:

(a) Upward **(b)** Downward

(c) No deflection **(d)** None of these

156. A solenoid 15 cm, long has 300 turns, I = 5A, B =

(a) $1.3 \times 10^{-2}\ wbm^{-2}$ **(b)** $1.3 \times 10^{2}\ wb\ m^{-2}$

(c) $1.3 \times 10^{-2}\ G$ **(d)** $1.3 \times 10^{-2}\ wb$

157. The sensitvity of galvanometer can be increased by decreasing:

(a) Area of coil **(b)** Magnetic field

(c) Number of turns of coil **(d)** Torsional constant

158. Pole pieces of magnet in galvanometer are made concave to make field:

(a) Radial **(b)** Strong

(c) Both (a), (b) **(d)** Weaker

159. In a velocity selector, particle pass through it if:

(a) $\vec{F}_e = \vec{F}_B$ **(b)** $\vec{F}_e = \vec{F}_g$

(c) $\vec{Fe} = \vec{F}_B^2$ **(d)** $\vec{F}_e = -\vec{F}_B$

160. Unit of permeability of free space is:

(a) $wbA^{-1}m^{-1}$ **(b)** NmA^{-1}

(c) $Nm^{o}A^{-2}$ **(d)** None of these

161. Magnetic field inside a solenoid is:

(a) Zero **(b)** Minimum

(c) Maximum **(d)** None of these

162. In finding the value of e/m, apparatus used is:

(a) Cavendish **(b)** Teltron tube

(c) Mass spectrograph **(d)** None of these

163. In finding the value of e/m, velocity of electron can be calculated by using:

(a) Potential difference **(b)** Velocity selector

(c) Both (a), (b) **(d)** None of these

164. In case of torque on a current carrying coil α is angle between:

(a) $\vec{B}$ and $\vec{A}$ **(b)** $\vec{B}$ and coil

(c) $\vec{B}$ and plane of coil **(d)** None of these

165. A galvanometer in which magnet rotates is:

(a) Moving coil **(b)** Tangent

(c) Ballistic **(d)** None of these

166. We define sensitivity (current) of a galvanometer as the current in μA required to produce ———— deflection on a scale placed one metre away from mirror of galvanometer.

(a) 1 mm **(b)** 2 mm

(c) 1 cm **(d)** 1 m

167. In lamp and scale arrangement, mirror used is:

(a) Convex mirror **(b)** Convex lens

(c) Concave mirror **(d)** None of these

ANSWERS

1.	(d)	**2.**	(a)	**3.**	(a)	**4.**	(c)	**5.**	(a)
6.	(c)	**7.**	(b)	**8.**	(a)	**9.**	(c)	**10.**	(b)
11.	(a)	**12.**	(a)	**13.**	(d)	**14.**	(d)	**15.**	(c)
16.	(a)	**17.**	(c)	**18.**	(a)	**19.**	(b)	**20.**	(a)
21.	(b)	**22.**	(d)	**23.**	(b)	**24.**	(b)	**25.**	(b)
26.	(b)	**27.**	(a)	**28.**	(d)	**29.**	(a)	**30.**	(c)
31.	(a)	**32.**	(b)	**33.**	(d)	**34.**	(a)	**35.**	(c)
36.	(a)	**37.**	(a)	**38.**	(b)	**39.**	(c)	**40.**	(a)
41.	(d)	**42.**	(c)	**43.**	(c)	**44.**	(d)	**45.**	(d)
46.	(b)	**47.**	(c)	**48.**	(b)	**49.**	(a)	**50.**	(c)
51.	(b)	**52.**	(a)	**53.**	(c)	**54.**	(b)	**55.**	(a)
56.	(a)	**57.**	(d)	**58.**	(b)	**59.**	(b)	**60.**	(a)
61.	(a)	**62.**	(a)	**63.**	(a)	**64.**	(c)	**65.**	(a)
66.	(a)	**67.**	(b)	**68.**	(c)	**69.**	(a)	**70.**	(b)
71.	(a)	**72.**	(a)	**73.**	(c)	**74.**	(a)	**75.**	(b)
76.	(a)	**77.**	(b)	**78.**	(b)	**79.**	(d)	**80.**	(a)
81.	(a)	**82.**	(a)	**83.**	(a)	**84.**	(a)	**85.**	(b)
86.	(b)	**87.**	(b)	**88.**	(a)	**89.**	(a)	**90.**	(b)
91.	(a)	**92.**	(d)	**93.**	(a)	**94.**	(b)	**95.**	(d)
96.	(b)	**97.**	(a)	**98.**	(c)	**99.**	(b)	**100.**	(b)
101.	(a)	**102.**	(a)	**103.**	(a)	**104.**	(b)	**105.**	(c)
106.	(b)	**107.**	(a)	**108.**	(b)	**109.**	(d)	**110.**	(c)
111.	(d)	**112.**	(b)	**113.**	(b)	**114.**	(a)	**115.**	(a)
116.	(c)	**117.**	(d)	**118.**	(a)	**119.**	(d)	**120.**	(d)
121.	(c)	**122.**	(b)	**123.**	(a)	**124.**	(b)	**125.**	(c)
126.	(a)	**127.**	(c)	**128.**	(b)	**129.**	(b)	**130.**	(a)
131.	(a)	**132.**	(c)	**133.**	(a)	**134.**	(a)	**135.**	(c)
136.	(a)	**137.**	(b)	**138.**	(d)	**139.**	(c)	**140.**	(a)
141.	(c)	**142.**	(b)	**143.**	(d)	**144.**	(a)	**145.**	(c)
146.	(b)	**147.**	(b)	**148.**	(d)	**149.**	(b)	**150.**	(a)
151.	(c)	**152.**	(b)	**153.**	(a)	**154.**	(c)	**155.**	(b)
156.	(b)	**157.**	(d)	**158.**	(c)	**159.**	(d)	**160.**	(a)
161.	(c)	**162.**	(b)	**163.**	(c)	**164.**	(c)	**165.**	(b)
166.	(a)	**167.**	(c)						