1. The field around a moving charge is called

(a) gravitational field (b) electric field
(c) magnetic field (d) both electric and magnetic field

2. A current carrying wire is placed in a magnetic field. How must it be oriented so that the force on it is zero?

(a) parallel (b) perpendicular
(c) at angle of 30° (d) at an angle of 60°

3. A straight current wire produces a

(a) circular electric field
(b) a circular magnetic field
(c) magnetic field of the shape of a bar magnet
(d) none of these

4. Of the three vector in F = *I* (L x B), which pair of vectors may form any angle between them?

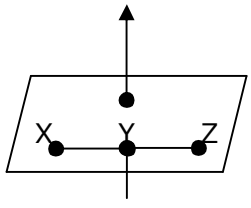
(a) **F** and **L** (b) **F** and **B**
(c) **L** and **B** (d) none of these

5. On changing the direction of L and B, the force experienced by a current carrying conductor changes its direction through

(a) 90° (b) 180°
(c) 0° (d) any possible angle

6. The diagram shows a current carrying wire passing through the centre of a sheet of paper. How do the strengths of the magnetic field at points X, Y and Z compare?

(a) equal at X, Y and Z
(b) equal at X and Z but stronger at Y
(c) equal at X and Z but weaker at Y
(d) stronger at X and Y than Z



7. SI unit of magnetic induction is

(a) Weber (b) tesla
(c) gauss (d) henry

8. 1 tesla equals

(a) 1 $NA^{-1}m^{-1}$ (b) 1 $NA^{-1}m$
(c) 1 NAm^{-1} (d) 1 NAm

9. X, Y and Z represent three wires perpendicular to the paper. Currents in X and Y are into the paper while that in Z is out of the paper. The resultant force on Y due to the current in X and Z is

(a) zero
(b) in the direction from Y to Z
(c) in the direction from Y to X
(d) in the direction dependent on the current strength

10. The SI unit of magnetic flux is

(a) weber (b) weber m^{-2}
(c) weber m^{-1} (d) tesla

11. 1 weber equals

(a) 1 Nm^{-1} A (b) 1 NmA^{-1}
(c) 1 $NA^{-1}m^{-1}$ (d) none of these

12. The relation $\frac{\Delta B}{\Delta A}$ represents

(a) magnetic field (b) magnetic flux density
(c) magnetic flux (d) magnetic induction

13. Which one of the followings is not a unit of magnetic induction?

(a) tesla (b) gauss
(c) weber (d) weber / ampere metre

14. A charged particle moving in a magnetic field experiences a force in the direction

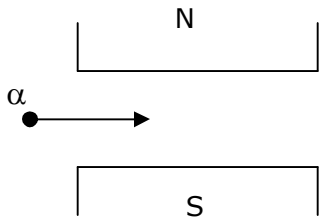
(a) of the field
(b) opposite to the field
(c) of its motion
(d) perpendicular to both field and motion

15. On changing the direction of v and B the force experienced by a charge changes its direction through

(a) 90° (b) 180°
(c) 0° (d) any possible angle

16. When a stream of α - particles passes through the magnetic field as shown, it is

(a) un-deflected
(b) deflected towards the south pole
(c) deflected towards the north pole
(d) deflected into the plane of the paper



17. A perpendicular magnetic field acts on a moving charged particle so as to change its

(a) speed only (b) energy only
(c) direction of motion only (d) velocity.

18. The force experienced by a charged particle while passing through an electric and a magnetic field is called

(a) electric force (b) magnetic force
(c) electromagnetic force (d) Lorentz force

19. A charged particle has been projected in a magnetic field. The work done by the deflecting magnetic field on the charged particle is

(a) positive (b) negative
(c) zero (d) meaning less

20. A metallic conductor of area *A* has n free electrons per unit volume each carrying a charge and moving with a drift velocity *v*. The current flowing through the conductor is

(a) *nAev* (b) *nAv/e*
(c) *nAe/v* (d) *nev/A*

21. A singly charged ion is moving in a uniform magnetic field of flux density *B* in a circle of radius *r* with speed *v*. The flux density, which would maintain a doubly charged ion of the same mass in the same circle at the same speed, would be

(a) *B*/4 (b) *B*/2

(c) B (d) $2B$

22. A particle of charge q and mass m entering a perpendicular magnetic field follows a circular path of radius r equal to

(a) $\frac{mv}{qB}$ (b) $\frac{Bv}{qm}$

(c) $\frac{mB}{qv}$ (d) $\frac{qB}{mv}$

23. A beam of electrons travelling in a horizontal direction is deflected downwards by an electric field. The beam could be returned to its original direction by applying

(a) another electric field at right angle to the directions of both the path of electrons and the original electric field
(b) a magnetic field directed vertically upward
(c) a magnetic field in the same direction as the electric field
(d) a magnetic field at right angles to the directions of both electric field and the path of electrons.

24. In a cathode ray tube the electrons are produced

(a) by applying an electric field to the x-plates
(b) by heating a metal filament
(c) by ionization of the air
(d) from a fluorescent material

25. A loop of wire is placed in a uniform magnetic field with its plane perpendicular to the magnetic field. When a current is passed through the loop, it

(a) experience a torque
(b) remains stationary
(c) experiences a force perpendicular to the field
(d) experiences a force parallel to the field

26. An N turn coil of cross-section area A is placed in a uniform magnetic field with its plane parallel to B. When current I is passed through it, the torque experienced by it is

(a) BIA (b) BNA/I
(c) $BINA$ (d) BIA/N

27. The current sensitivity of a galvanometer is given by the factor

(a) $\frac{c}{BAN}$ (b) $\frac{CAN}{B}$

(c) $\frac{BAC}{n}$ (d) $\frac{BA}{nC}$

28. The sensitivity of a galvanometer can be increased by

(a) decreasing the area of the coil
(b) decreasing the number of turns of the coil
(c) increasing the magnetic field
(d) using a fine suspension

29. A dead beat galvanometer is one

(a) which has large sensitivity
(b) which has small internal resistance
(c) which has small full scale deflection current
(d) whose coil comes to rest quickly

30. For accurate measurement of current through the circuit the resistance of the ammeter should be

(a) large compared to the circuit resistance
(b) very small compared to the circuit resistance
(c) of the order of the circuit resistance
(d) none of these

31. The measure potential difference across a resistance, the voltmeter is always connected in

(a) series
(b) parallel
(c) some times in series and some times in parallel
(d) none of these

32. A galvanometer whose resistance is 15 Ω and which gives full scale deflection when the current through it is 0.005 A has a series resistance equals 985Ω. The combination forms a voltmeter, which can read up to

(a) 0.075 V (b) 1 V
(c) 4.925 V (d) 5V

33. A milliammeter reading upto 5 mA has a coil of resistance 90 Ω. A resistor of 810 Ω is connected in series with the coil. This will convert milliammeter into

(a) milliammeter reading upto 45 mA
(b) milliammeter reading upto 50 mA

(c) voltmeter reading upto 4.5 V
(d) voltmeter reading upto 5.0 V

34. A good ammeter is one which
(a) can measure both AC and DC voltages
(b) has a linear scale of measurement
(c) has a very small internal resistance
(d) has a very large internal resistance

35. The coil of a galvanometer is placed in a radial magnetic field so that its plane
(a) is always perpendicular to the magnetic field
(b) is always parallel to the magnetic field
(c) makes some angle with **B**.
(d) none of these

36. A galvanometer having 40 Ω resistance and 100 mV full scale deflection voltage is provided with a shunt resistance of 0.05 Ω. The maximum current, which this galvanometer can read, is
(a) 1 A (b) 1.5 A
(c) 2 A (d) 0.05 A

37. When a volt meter is connected in parallel with the two points whose potential difference is to be measured, then the potential difference between those two points will
(a) increase slightly (b) decrease slightly
(c) does not change (d) cannot be predicted

38. An a.c. voltmeter always measures the
(a) peak value of a.c. voltage
(b) average value of a.c. voltage
(c) root measure value of a.c. voltage
(d) mean square value of a.c. voltage

39. An avometer is a device, which can measure
(a) current only
(b) voltage only
(c) resistance only
(d) current, voltage and resistance.

40. The 0 of the ohmmeter scale corresponds to

(a) 0 of galvanometer scale (b) ∞ of galvanometer scale
(c) 0 of ammeter scale (d) 0 of voltmeter scale

Key to Test Chapter 14

1	**d**	21	**b**
2	**a**	22	**a**
3	**b**	23	**d**
4	**c**	24	**b**
5	**c**	25	**b**
6	**b**	26	**c**
7	**b**	27	**a**
8	**a**	28	**c**
9	**c**	29	**d**
10	**a**	30	**b**
11	**b**	31	**b**
12	**b**	32	**d**
13	**c**	33	**c**
14	**d**	34	**c**
15	**c**	35	**b**
16	**d**	36	**c**
17	**c**	37	**b**
18	**d**	38	**c**
19	**c**	39	**d**
20	**a**	40	**b**