

Chapter :- **MOVING CHARGES AND MAGNETISM**

Assignment 1

Class 12

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| **Class : XIIth Subject : PHYSICS**  **Date : DPP No. : 1** |

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| **Topic :-** **MOVING CHARGES AND MAGNETISM** |

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| 1. | Four charged particles are projected perpendicularly into the magnetic field with equal. Which will have minimum frequency? | | | | | | | |
|  | a) | Proton | b) | Electron | c) |  | d) |  |
|  |  |  |  |  |  |  |  |  |
| 2. | A circular coil carrying a certain current produces a magnetic field at its centre. The coil is now rewound so as to have 3 turns and the same current is passed through it. The new magnetic field at the centre is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
|  |  |  |  |  |  |  |  |  |
| 3. | A proton of energy enters the magnetic field of . If direction of field is from south to north and motion is upward, the force acting on it will be | | | | | | | |
|  | a) | Zero | b) |  | c) |  | d) |  |
|  |  |  |  |  |  |  |  |  |
| 4. | Magnetic fields at two points on the axis of a circular coil at a distance of and 0.2 from the centre are in the ratio 8:1. The radius of the coil is | | | | | | | |
|  | a) | 1.0 | b) | 0.1 | c) | 0.15 | d) | 0.2 |
|  |  |  |  |  |  |  |  |  |
| 5. | A circular coil of 20 turns and radius 10 cm is placed in uniform magnetic field of 0.10 T normal to the plane of the coil. If the current in coil is 5 A, then the torque acting on the coil will be | | | | | | | |
|  | a) | 31.4 Nm | | | | | | |
|  | b) | 3.14 Nm | | | | | | |
|  | c) | 0.314 Nm | | | | | | |
|  | d) | zero | | | | | | |
| 6. | A vertical circular coil of radius 0.1 m and having 10 turns carries a steady current. When the plane of the coil is normal to the magnetic meridian, a neutral point is observed at the centre of the coil. If the current in the coil is | | | | | | | |
|  | a) | 0.5 A | b) | 0.25 A | c) | 2 A | d) | 1 A |
| 7. | A current flows in a circular coil of radius . If the coil is placed in a uniform magnetic field with its plane parallel to the field, magnitude of the torque that acts on the coil is | | | | | | | |
|  | a) | Zero | b) |  | c) |  | d) |  |
|  |  |  |  |  |  |  |  |  |
| 8. | Two identical bar magnets are fixed with their centres at a distance d apart. A stationary charge is placed at in between the gap of the two magnets at a distance from the centre as shown in the figure    The force on the charge is | | | | | | | |
|  | a) | Zero | | | b) | Directed along | | |
|  | c) | Directed along | | | d) | Directed perpendicular to the plane of paper | | |
| 9. | The proton is energy 1 MeV describes a circular path in plane at right angles to a uniform magnetic field of The mass of the proton is The cyclotron frequency of the proton is very nearly equal to | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 10. | A particle of mass *m* and charge *q* is placed at a rest in a uniform electric field and then released. The kinetic energy attained by the particle after moving a distance y is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 11. | Two particles of equal charges after being accelerated through the same potential difference enter a uniform transverse magnetic field and describe circular path of radii respectively. Then the ratio of their masses is | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 12. | A charge moving around a circle with a frequency of produces a magnetic field 6.28 tesla at the centre of the circle. The radius of the circle is | | | | | | | |
|  | a) | 2.25 | b) | 0.25 | c) | 13.0 | d) | 1.25 |
| 13. | Two particles having equal charges, after being accelerated through the same potential difference, enter a region of uniform magnetic field and describes circular path of radius respectively. The ratio of mass of | | | | | | | |
|  | a) |  | b) |  | c) |  | d) |  |
| 14. | The deflection in a moving coil galvanometer is | | | | | | | |
|  | a) | Directly proportional to the torsional constant | | | b) | Directly proportional to the number of turns in the coil | | |
|  | c) | Inversely proportional to the area of the coil | | | d) | Inversely proportional to the current flowing | | |
| 15. | A microammeter has a resistance of 100 and full scale range of A. It can be used as a voltmeter of as a higher range ammeter provided a resistance is added to it. Pick the correct range and resistance combinations | | | | | | | |
|  | a) | 50 V range with 10 k resistance in series | | | b) | 10 V range with 200 k resistance in series | | |
|  | c) | 10 mA range with 1 resistance in parallel | | | d) | 10 mA range with 0.1 resistance in parallel | | |
| 16. | A straight section of a circuit lies along the *X*-axis from and carries a steady current The magnetic field due to the section at a distance will be | | | | | | | |
|  | a) | Proportional to | b) | Proportional to 1/ | c) | Proportional to | d) | Zero |
|  |  |  |  |  |  |  |  |  |
| 17. | A vertical wire carrying a current in the upward direction is placed in horizontal magnetic field directed towards north. The wire will experience a force directed towards | | | | | | | |
|  | a) | North | b) | South | c) | East | d) | West |
| 18. | A direct current flows along the length of an infinitely long straight thin walled pipe, then the magnetic field is | | | | | | | |
|  | a) | Uniform throughout the pipe but not zero | | | | | | |
|  | b) | Zero only along the axis of the pipe | | | | | | |
|  | c) | Zero at any point inside the pipe | | | | | | |
|  | d) | Maximum at the centre and minimum at the edge | | | | | | |
| 19. | A current of is passed through a straight wire of length . The magnetic field at a point in air at a distance of from either end of wire and lying on the axis of wire will be | | | | | | | |
|  | a) |  | b) |  | c) |  | d) | Zero |
| 20. | When a positively charged particle enters a uniform magnetic field with uniform velocity, its trajectory can be  (1) a straight line  (2) a circle  (3) a helix | | | | | | | |
|  | a) | (1) only | | | b) | (1) or (2) | | |
|  | c) | (1) or (3) | | | d) | Any one of (1), (2) and (3) | | |