1. A straight wire carrying a 9.0 A current is in a uniform magnetic field oriented at right angles to the wire. When 75 cm of wire is in the field, the force on the wire is 1.2 N. What is the strength of the magnetic field (B)? HINT: F=I.L.B
2. .8N b. .18T c. .18cm d. .18

1. The magnetic field at a perpendicular distance 𝑟

from a long, straight current-carrying wire is directly

proportional to \_\_\_\_\_\_.

1. 1/r b. r c. r^2 d. 1/r^2
2. The current-carrying loop inside the magnetic field rotate due to the
3. current acting on the coil
4. torque acting on the coil
5. couple acting on the coil
6. light acting on the coil
7. Hall potential is inversely proportional to magnetic flux density

True

False

5. Hall Effect is clearly visible in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a) Pure conductors  
b) Semiconductors  
c) Super conductors  
d) Metals

6. Find the force between 2C and -1C separated by a distance 1m in air(in newton).

a) 18 X 106  
b) -18 X 106  
c) 18 X 10-6  
d) -18 X 10-6

7. Two charges 1C and -4C exists in air. What is the direction of force?

1. Away from 1C  
   b) Away from -4C  
   c) From 1C to -4C  
   d) From -4C to 1C

8. Find the force between two charges when they are brought in contact and separated by 4cm apart, charges are 2nC and -1nC, in μN.

a) 1.44  
b) 2.44  
c) 1.404  
d) 2.404

9. Two small diameter 10gm dielectric balls can slide freely on a vertical channel. Each carry a negative charge of 1μC. Find the separation between the balls if the lower ball is restrained from moving.

a) 0.5  
b) 0.4  
c) 0.3  
d) 0.2

f=mg, then r=find

10. For a charge Q1, the effect of charge Q2 on Q1 will be

a) F1 = F2  
b) F1 = -F2  
c) F1 = F2 = 0  
d) F1 and F2 are not equal

11. For a test charge placed at infinity, the electric field will be

a) Unity  
b) +∞  
c) Zero  
d) -∞

12. Which of the following correctly states Gauss law?

a) Electric flux is equal to charge  
b) Electric flux per unit volume is equal to charge  
c) Electric field is equal to charge density  
d) Electric flux per unit volume is equal to volume charge density

**13. A Gaussian sphere closes an electric dipole within it. Then the total flux through the sphere is**

|  |
| --- |
| 1 : half that due to a single charge |
| 2 : double due to a single charge |
| 3 : zero |
| 4 : dependent of the position of the dipole |

**14. A Gaussian encloses a positive charge Q placed at its center. Then electric intensity**

|  |
| --- |
| 1 : at very point on the surface is different |
| 2 : is zero everywhere |
| 3 : at every point on the surface is same but it acts radially outwards |
| 4 : is same and acts radially inwards |

**15. The total electric flux over any closed surface is**

|  |
| --- |
| 1 : εo |
| 2 : q2/εo |
| 3 : εo/q |
| 4 : q/εo |

**16. Electric flux lines due to an infinite sheet of charge is**

|  |
| --- |
| 1 : converging |
| 2 : radial |
| 3 : uniform and perpendicular to the sheet |
| 4 : uniform and parallel to the sheet |

17.  Find the force of interaction between 60 stat coulomb and 37.5 stat coulomb spaced 7.5cm apart in transformer oil(εr=2.2) in 10-4 N,

a) 8.15  
b) 5.18  
c) 1.518  
d) 1.815

18. A charge of 2 X 10-7 C is acted upon by a force of 0.1N. Determine the distance to the other charge of 4.5 X 10-7 C, both the charges are in vacuum.

a) 0.03  
b) 0.05  
c) 0.07  
d) 0.09

19. A beam of electrons travels at 6.0×106 m/s through a uniform magnetic field of   6.5×10−1 T at right angles to the field. How strong is the force acting on each electron?

  a) 6.25×10−13 N

1. −6.25×10−13 N
2. −6.25×10−10 N
3. −6.25×10−13 M

20. What areas of a magnet have the strongest magnetic effect?

a) the middle

b) the poles

 c) the sides

d)the magnetic field lines

**21. What does the following represent?  
⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙  
⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙  
⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙⊙**

A crowd with binoculars

A bunch of coaxial cables

Uniform magnetic field directed into the screen away from you

Uniform magnetic field directed out of your screen at you

**22. What does the following represent?  
⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗  
⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗  
⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗⊗**

Multiplied by a billion

A piece of modern art

Uniform magnetic field directed into the screen away from you

Uniform magnetic field directed out of your screen at you

**23. A straight wire of length 70 cm carries a current of**

**50 A and makes an angle of 60° with a uniform**

**magnetic field. If the force on the wire is 1.0 N what is**

**the magnitude of B?**

20mT

22mT

30mT

33mT

**24. What is magnetic field?**

a measurement of the total magnetic field which passes through a given area

a region around a charged particle or object within which a force would be exerted on other charged particles or objects.

a region around a magnet where a magnetic force can be experienced .

Defined as the magnetic flux per unit area across an area at right angles to the magnetic field

**25. An electron and a proton are both initially moving with the same speed and in the same direction at 90˚ to the same uniform magnetic field. They experience magnetic forces, which are initially:**

identical

equal in magnitude but opposite in direction

in the same direction and differing in magnitude by a factor of 1840

in opposite directions and differing in magnitude by a factor of 1840

26. **What is a magnetic field?**

purple lines with arrows

area of magnetic force around a magnet

it's like a really big football field

area of a magnet around a magnetic force