ELECTROMAGNETISM

½ Mark Questions

1.What is the unit of magnetic field strength?

2. **X:** Electric motors which involves magnetic effects of electric current
   Y: Electric generator which involves electric effects of moving magnets
   Which statement is correct?

3.What is the importance of Oersted experiment?

4. **Assertion (A):** A magnetic field exists in the region surrounding a bar magnet.
   Reason (R): A magnetic field is characterized by strength and direction.
   A) Both A, R are correct, R is correct explanation of A
   B) Both A, R are correct, R is not correct explanation of A
   C) A is correct, R is incorrect D) A is incorrect, R is correct

5.Which instrument is used to determined the direction of the magnetic field?

6.Choose the correct statement?
   i) Magnetic field lines are imaginary lines
   ii) Magnetic field lines are curved lines
   iii) Magnetic field lines are closed lines
   iv) With the help of magnetic field lines, we can understand the nature of the field.
   A) i, ii B) ii, iii C) I, ii, iv D) i,ii,iii,iv

7.Choose the correct statement
   A) The field is strong when lines are crowded
   B) The field is weak when lines are spaced apart
   C) In the uniform magnetic field both strength and direction are constant throughout the field
   D) In the non-uniform magnetic field, strength or direction changes from point to point

8.What is the symbol of magnetic flux?

9.The ratio of $\frac{\phi}{A}$ is equal to ?

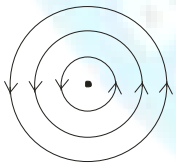
10.Write the unit of magnetic flux density.

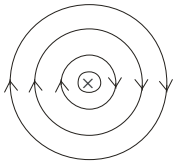
11.What is the flux through the plane taken parallel to the field?

12.What is the formula when magnetic flux making some angle between magnetic field and normal to the plane.

13.What is the flux through unit area perpendicular to field?

14.Are the current carrying wire produces magnetic field.

15.  From the figure, what is the direction of the current?

16.  From the figure, what is the direction of the current?

17. **Statement-I :** If the current flows is vertically upwards, the field lines are in anti clockwise direction
   Statement-II: If the current flows is vertically downward, the field lies are in clockwise direction.
   Which statement is correct?

18. "If you grab the current carrying wire with your right hand in such way that thumb is in the direction of current, then the curled figures show the direction of the magnetic field"- What is this rule?
19. Which rule is helpful to determine the direction of field lines?
20. Which rule is useful to determined the direction of the field due to coil or solenoid?
21. Find odd one
    A) A solenoid is a long wire wound in a close packed helix
    B) The direction of the field due to solenoid is determined by using right hand rule
    C) Solenoid behaves as a bar magnet
    D) The direction of the field due to solenoid is determined by using ampere left hand rule
22. What is the formula of magnetic force on a charge "q" moves with a velocity "V" perpendicular to the magnetic field "B"
23. What is the value of magnetic force on a charge "q" move with a velocity "V" parallel to the magnetic field "B"
24. What is the formula of magnetic force on a charge "q" moves with a velocity "V" making "θ" angle to the magnetic field "B"
25. **X:** The magnetic force is maximum when a charge move with velocity perpendicular to the magnetic field.
    Y: The magnetic force is minimum when a charge moves with velocity making some angle to the magnetic field.
    Which statement is correct?
26. Which rule is used, to known the direction of magnetic force, magnetic field and current.
27. Write the relation between magnetic force (F), current (I) and magnetic field (B)?
28. Choose the suitable answers of section-B with section-A

Section-A	**Section-B**
1) F=ILB	p) The wire is parallel to the magnetic field
2) F=O	q) The wire is perpendicular to the magnetic field
3) F=ILB Sinθ	r) The wire is making some angle to the magnetic field
	s) The wire is making 45^0 to the magnetic field

29. Which device converts electrical energy into mechanical energy?
    A) Motor B) Battery C) Generator D) Switch
30. Which device convert mechanical energy into electrical energy?
    A) Motor B) Battery C) Generator D) Switch
31. By which phenomenon we get induced current?
32. Faraday's law is consequence of _____
    A) Conservation of charge B) Conservation of Energy
    C) Conservation of mass D) None of these
33. What are used to change the direction of current flowing through the coil in an electric motor?
34. Match the following

A) ϕ =	p) BIL
B) F=	q) BA
C) P=	r) BIlv
D) E=	s) Blv

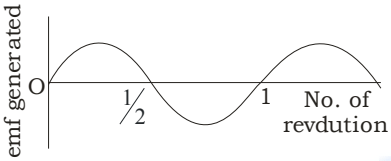
35. Match the following

A) Electric generator (AC)	p) Electromagnetic induction
B) Solenoid	q) Two slip rings
C) Dynamo	r) Two half slip rings
D) Electric generator (DC)	s) Soft iron core

36. Which of the following law stated the induced e.m.f generated in a closed loop is equal to the rate of change of magnetic flux passing through it?

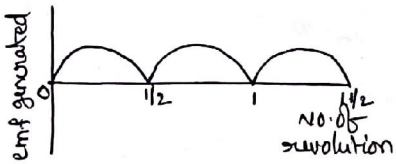
A) Kirchhoff's law B) Ohm's law

C) Oersted law D) Faraday's law

37. 

The given figure represents _____

A) Electric motor B) AC Generator C) DC Generator D) All of these

38. 

The give figure represents _____

A) Electric motor B) AC Generator C) DC Generator D) All of these

39. "The induced current sep up in the coil is in such a direction that it opposes the changes in the flux"_____ What is this law?

40. An induction stove works on the principle of

A) Electric current B) Magnetic field

C) Induction D) Electro Magnetic induction

41. Name the law behind the making of generator

42. What type of current is generated in electric power station?

43. Which is more dangerous "AC" or "DC"?

44. On what factors does the magnetic induction at the centre of coil depend?

A)Current B) Number of turns C)Radius of Coil D)All of these

45. If the current in the coil is in anti-clock wise direction, then what would be the face of the oil?

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KEY

1) Oersted 2) Both
3) Current carrying wire produced a magnetic field 4) A
5) Compass 6) D 7) D 8) ϕ
9) B 10) $weber/m^2\,(or)\,Tesla$ 11) Zero
12) $\phi = BA\,Cos\,\theta$ 13) $\phi = BA$ 14) Yes 15) Out of the page
16) Into the page 17) Both 18) Right hand rule (or) Ampere right hand rule
19) Ampere right hand rule 20) Right hand rule 21) D
22) F=qVB 23) F=0 (or) Zero 24) $F = qvB\sin\theta$ 25) X is correct
26) Fleming right hand rule 27) F=ILB 28) 1-Q, 2-P, 3-R
29) A 30) C 31) Electromagnetic induction 32) B
33) Split rings 34) A-Q, B-P, C-R, D-S 35) A-Q, B-S, C-P, D-R 36) D
37) B 38) C 39) Lenz's Law 40) D
41) Faraday's law 42) Alternative current 43) AC 44) D
45) It behaves as North Pole

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