



PHYSICS

BOOKS - PUNJAB BOARD PREVIOUS YEAR PAPERS

FORCE ON A CHARGE



1. An ion carrying a charge $3.2 imes 10^{-19} C$ is revolving in circular path in a magnetic field of

intensity $2 \times 10(-4)$ Tesla.Calculate the frequency of revolution if the mass of ion is 7.0×10^{-27} kg.

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2. An ion carrying a charge $3.2 \times 10^{-19}C$ is revolving in circular path in a magnetic field of intensity $2 \times 10(-4)$ Tesla.Calculate the frequency of revolution if the mass of ion is 7.0×10^{-27} kg. **3.** An ion of mass 2.8×10^{-26} kg carrying a charge $3.2 \times 10^{-19}C$ is revolving in circular path in a magnetic field of intensity 8×10^{-4} Tesla. Calculate the frequency of revolution.

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4. Find the flux density of the magnetic field to cause 62.5eV electron to move in a circular path of the radius 5cm. Given $m=9.1 imes10^{-31}$,kg, e = $1.6 imes10^{-19}C$



5. Find the ratio of radii of the circles covered by a proton and alpha particles when both enter same uniform magnetic field perpendicularly with same kinetic energy.

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6. An electron is moving with speed 10*6 ms-1 parallel to a current of 5A flowing through an

infinitely long straight wire separated by a perpendicular distance of 10 cm in air. Calculate the magnitude of the force experienced by the electron. Given $(\mu_0 = 4\pi \times 10^{-7} TmA^{-1})$

7. Under what condition is the force acting on

a charge moving through a uniform magnetic

field maximum ?

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8. What is the direction of force acting on a charged particle 'q' moving with a velocity \overrightarrow{v} in a unifom magnetic field \overrightarrow{b} ?

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9. A particle of charge 'q'moves with a velocity

v at an angle '0' to a magnetic field 'B'. What is

the force experienced by the particle ?

10. Why neutrons cannot be accelerated by cyclotron ?
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11. Why neutrons cannot be accelerated by cyclotron ?



12. How much force will be experienced by a

cahrge in a uniform magnetic field?



13. What is the magnetic force experiencedby a stationary charge exposed to a uniform magnetic field ?

14. Cyclotron is not suitable for accelerating

electrons.' Explain why.

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15. If an electron is not deflected in passing through a certain region of space, can we be sure that there is no magnetic field in that region ?



16. Withthe help of a suitable diagram, explain the construction, working and theory of cyclotron.

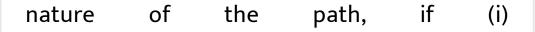


17. Withthe help of a suitable diagram, explain the construction, working and theory of cyclotron.

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19. Discuss the motion of a charged particle in uniform magnetic field, when it moves at an angle 0 with the direction of magnetic field. Prove that its path is helical.Calculate the pitch of the helical path.What will be the



$$heta=0^\circ~~{
m and}~~(ii) heta=180^\circ~?$$

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20. With the help of a suitable diagram, explain

the construction, working and theory of cyclotron.



21. Explain the principle, construction and working of a cyclotron with the help of a labelled diagram. State its two limitations.



22. Withthe help of a suitable diagram, explain

the construction, working and theory of cyclotron.



23. Explain the principle, construction and working of a cyclotron with the help of a labelled diagram. State its two limitations.

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24. Withthe help of a suitable diagram, explain the construction, working and theory of cyclotron.

25. An electric charge enters in electric field at right angles to the direction of electric field.What is the nature of the path followed ?

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26. Withthe help of a suitable diagram, explain

the construction, working and theory of cyclotron.

27. Withthe help of a suitable diagram, explain the construction, working and theory of cyclotron.



28. Cyclotron is not suitable for accelerating

electrons.' Explain why.



29. What will be the path of a charged particle moving perpendicular to a uniform magnetic field ?



30. Explain the principle, construction and working of a cyclotron with the help of a

labelled diagram. State its two limitations.



31. With the help of labelled diagram, give the

principle, construction and theory of cylotron.

