



PHYSICS

BOOKS - PUNJAB BOARD PREVIOUS YEAR PAPERS

Electric Potential

Exercise

1. The electric potential at 0.1m from a point charge is 90V. What is the magnitude of the

charge?

Given,

$$\epsilon_0 = 8.854 \times 10^{-12} C^2 N^{-1} m^{-2}$$



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2. An electron is accelerated through a potential difference of 300 V. What is its energy in electron volts.



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3. The electric potential at 0.3m from a point charge is 30V. What is the magnitude of the charge?

Given

$$\epsilon_0 = 8.854 \times 10^{-12} C^2 N^{-1} m^{-2}$$



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4. Electric potential at a distance 9 cm from a charge is 100V. Find the magnitude of a charge..



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5. Electric potential at a distance 0.9 m from a charge is +50V. Find the magnitude and nature of the charge.



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6. Electric potential at a distance 1cm from a charge is 90V. Find the charge.



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7. Two charges $6 \times 10^{-6}C$ and $-4 \times 10^{-6}C$ are located 10 cm apart. At what points on the line joining the two charges is the electric potential zero? Take the potential at infinity to be zero.



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8. Write a relation between electric potential and electric field intensity at a point due to a point charge.



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9. Define equipotential surfaces. Show that in the region of strong electric fields, equipotential surfaces are close together and in the regions of weaker fields, they are far apart.



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10. Define the physical quantity whose unit is J/c .



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11. How many electron volt make one Joule?



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12. What would be the work done, if a point charge $+q$ is taken from a point A to a point B on the circumference of a circle drawn with another point charge $+q$ at the centre?



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13. What are equipotential surfaces?



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14. What is the shape of equipotential surface for a given point charge q .



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15. Name the physical quantity whose S.I unit is Joule $Coomb^{-1}$ Is it a scalar or vector?



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16. Explain how will you transfer the whole charge of a Conductor of another isolated Conductor?



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17. Show that electric field everywhere is normal to the equipotential surface.



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18. Prove that electric field at a point is equal to the negative gradient of electrostatic at that point $E = -d\frac{v}{d}r$



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19. Show that electric field everywhere is normal to the equipotential surface.



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20. No two equipotential intersect each other.

Why?



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21. No two equipotential intersect each other.

Why?



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22. Show that electric field everywhere is normal to the equipotential surface.



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23. Show that electric field everywhere is normal to the equipotential surface.



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24. The electric potential is Constant in a region. What can you say about electric field there?



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25. Derive an expression for electric potential at any point due to electric dipole. Show that the potential at a point on the equatorial line of an electric dipole is zero.



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26. Derive an expression for electric potential at general point of an electric dipole.



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27. Define electric potential. What is the SI unit of potential? Obtain an expression for electric potential at a distance r from isolated unit positive charge.



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28. Derive an expression for electric potential at a point due to an electric dipole with the help of diagram and hence calculate electric

potential when the point is on the axial line of electric dipole.



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29. Derive an expression for electric potential at any point due to electric dipole. Show that the potential at a point on the equatorial line of an electric dipole is zero.



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30. Define electric potential difference between two points in an electric field. Find the expression for it and also give its S.I unit of electric potential difference.



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31. Show that the line integral of electric field intensity between any two points depends only on the position of these points and its

independent of the path followed between these points.



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32. The electric potential due to an electric dipole at a point on its equatorial line is always.....



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33. Define electric potential. What is the SI unit of potential? Obtain an expression for electric potential at a distance r from isolated unit positive charge.



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34. Define electric potential difference between two points in an electric field and derive an expression for it. Also give S.I. unit of electric potential difference.





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35. Define electric potential difference between two points in an electric field. Find the expression for it and also give its S.I unit of electric potential difference.



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36. The electric potential due to an electric dipole at a point on its equatorial line is always.....



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37. What is the shape of equipotential surface for a given point charge q .



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38. Define electric potential. What is the SI unit of potential? Obtain an expression for electric potential at a distance r from isolated unit positive charge.



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39. Define electrostatic potential and its unit.

Derive relation for electric potential due to point charge.



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