

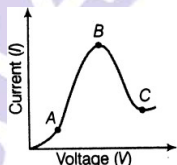
NEW STANDARD ACADEMY

DPP -03

NEET - JEE
CLASS : 12TH

PHYSICS

- What is the advantage of using thick metallic strips to join wires in a potentiometer?
- Sometimes balance point may not be obtained on the potentiometer wire. Why?
- Are Kirchhoff's rules applicable to both AC and circuits?
- The graph shown in the figure represents a plot of current versus voltage for a given semiconductors. Identify the region, if any, over which the semiconductor has a negative resistance.



- Choose the correct alternative :
(a) Alloys of metals usually have (greater/less) resistivity than that of their constituent metals.
(b) The resistivity of a typical insulator (e.g., amber) is greater than that of a metal by a factor of the order of $(10^{22} / 10^{23})$.
- Name the current carriers in solid conductors, liquids and gases.
- Define current density. Tell whether it is a scalar or a vector quantity. Also give its S.I. unit.
- How does the relaxation time of electrons in the good conductor varies with temperature?
- What is the composition of materials used in the fuse wire?
- Sketch a graph showing variation of resistivity of carbon with temperature.

CHEMISTRY

- How is the unit of molar conductivity arrived at?
- Explain the term limiting conductivity.
- What is a fuel cell?
- What is the electrolyte used in dry cell?
- Define corrosion.
- Mention the reaction occurring at (i) anode (ii) cathode during working of mercury cell.
- In galvanic cell, what is the polarity of anode?
- What is emf of the cell?

- Write Nernst equation for single electrode potential.
- Rusting of iron is quicker in saline water than in ordinary water. Why?

BIOLOGY

- Can a child have blood group O if his parents have a blood group A and B explain?
- "Gene is contain the information that is required to express a particular trait:explain.
- What is the relationship between the recombination and linkage explain it?
- what is the outbreeding devices?
- Draw the structure for orthotropous ovule?
- Give the name of male gametophyte in flower?
- What is the difference between xenogamy and gitnogamy
- Draw the structure of T.S .of anther.
- What is a ubisch body? Give its function.
- What is the apocorpus condition of pistal,give the example?

MATHS

- If $A = \begin{bmatrix} 2 & 1 & 4 \\ 4 & 1 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & -1 \\ 2 & 2 \\ 1 & 3 \end{bmatrix}$. Write the orders of AB and BA .
- If $A = \begin{bmatrix} \cos x & \sin x \\ -\sin x & \cos x \end{bmatrix}$, find x satisfying $0 < x < \frac{\pi}{2}$ when $A + A^T = I$
- If $A = [a_{ij}]$ is a skew – symmetric matrix, then write the value of $\sum_i a_{ii}$.
- If B is a symmetric matrix, write whether the matrix ABA^T is symmetric or skew-symmetric.
- If A is a skew symmetric and $n \in N$ such that $(A^n)^T = \lambda A^n$, write the value of λ .
- If $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} \begin{bmatrix} 3 & 1 \\ 2 & 5 \end{bmatrix} = \begin{bmatrix} 7 & 11 \\ k & 23 \end{bmatrix}$, then write the value of k.
- If a matrix has 5 elements, write all possible orders it can have.

8. Find x if $\begin{bmatrix} x^2 \\ 9 \end{bmatrix} - 3 \begin{bmatrix} x \\ 9 \end{bmatrix} = \begin{bmatrix} -2 \\ -18 \end{bmatrix}$

9. Let $A = \begin{bmatrix} 2 & 3 \\ -1 & 2 \end{bmatrix}$ and $f(x) = x^2 - 4x + 7$.

Then show that $f(A) = O$. use this result to find A^5 .

10. If $A = \begin{bmatrix} 1 & -1 \\ 2 & -1 \end{bmatrix}$, $B = \begin{bmatrix} a & -1 \\ b & -1 \end{bmatrix}$ and $(A+B)^2 = A^2 + B^2$, find a and b .

