

<p>1. Davy and Faraday proved that (A) Diamond is a form of carbon (B) The bond lengths of carbon containing compounds are always equal (C) The strength of graphite is minimum compared to platinum (D) Graphite is very hard</p>	<p>10. For a given surface the Gauss's law is stated as $\oint \mathbf{E} \cdot d\mathbf{s} = 0$. From this we can conclude that (A) E is necessarily zero on the surface (B) E is perpendicular to the surface at every point (C) The total flux through the surface is zero (D) The flux is only going out of the surface</p>
<p>2. A crystalline solid have (A) Long range order (B) Short range order (C) Disordered arrangement (D) None of these</p>	<p>11. $\cot^{-1} \left[\frac{\sqrt{1-\sin x} + \sqrt{1+\sin x}}{\sqrt{1-\sin x} - \sqrt{1+\sin x}} \right] =$ (A) $\pi - x$ (B) $2\pi - x$ (C) $\frac{x}{2}$ (D) $\pi - \frac{x}{2}$</p>
<p>3. Among solids the highest melting point is established by (A) Covalent solids (B) Ionic solids (C) Pseudo solids (D) Molecular solids</p>	<p>12. The principal value of $\sin^{-1} \left[\sin \left(\frac{2\pi}{3} \right) \right]$ is (A) $-\frac{2\pi}{3}$ (B) $\frac{2\pi}{3}$ (C) $\frac{4\pi}{3}$ (D) None of these</p>
<p>4. To get a n- type semiconductor, the impurity to be added to silicon should have which of the following number of valence electrons (A) 1 (B) 2 (C) 3 (D) 5</p>	<p>13. If $\theta = \tan^{-1} a, \phi = \tan^{-1} b$ and $ab = -1$, then $\theta - \phi =$ (A) 0 (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{2}$ (D) None of these</p>
<p>5. Which of the following is an example of metallic crystal solid? (A) C (B) Si (C) W (D) AgCl</p>	<p>14. If $\tan(\cos^{-1} x) = \sin \left(\cot^{-1} \frac{1}{2} \right)$, then $x =$ (A) $\pm \frac{5}{3}$ (B) $\pm \frac{\sqrt{5}}{3}$ (C) $\pm \frac{5}{\sqrt{3}}$ (D) None of these</p>
<p>6. A cylinder of radius R and length L is placed in a uniform electric field E parallel to the cylinder axis. The total flux for the surface of the cylinder is given by (A) $2\pi R^2 E$ (B) $\pi R^2 / E$ (C) $(\pi R^2 - \pi R) / E$ (D) Zero</p>	<p>15. If $\sin^{-1} x = \frac{\pi}{5}$ for some $x \in (-1, 1)$, then the value of $\cos^{-1} x$ is (A) $\frac{3\pi}{10}$ (B) $\frac{5\pi}{10}$ (C) $\frac{7\pi}{10}$ (D) $\frac{9\pi}{10}$</p>
<p>7. Electric field at a point varies as r^0 for (A) An electric dipole (B) A point charge (C) A plane infinite sheet of charge (D) A line charge of infinite length</p>	
<p>8. An electric charge q is placed at the centre of a cube of side a. The electric flux on one of its faces will be (A) $\frac{q}{6\epsilon_0}$ (B) $\frac{q}{\epsilon_0 a^2}$ (C) $\frac{q}{4\pi\epsilon_0 a^2}$ (D) $\frac{q}{\epsilon_0}$</p>	
<p>9. Total electric flux coming out of a unit positive charge put in air is (A) ϵ_0 (B) ϵ_0^{-1} (C) $(4\pi\epsilon_0)^{-1}$ (D) $4\pi\epsilon_0$</p>	

Answers	
Q. No.	Ans.
1	A
2	A
3	B
4	D
5	C
6	D
7	C
8	A
9	B
10	C
11	D
12	D
13	C
14	B
15	A