

Solution of the day/Sep-19, 2018

6th Class

- **Mathematics:** Ans: $-3a^3 + 3a^2 - 2a + 9$
- **Physics:** Ans: (A)
- **Chemistry:** Ans: Crystallisation
- **Biology:** Ans: (A)

7th Class

- **Mathematics:** Ans: (C)
- **Physics:** Ans: (A)
- **Chemistry:** Ans: (D)
- **Biology:** Ans: (D)

8th class

- **Mathematics:**

$$\begin{aligned}\text{Sol: LHS} &= (\operatorname{cosec} \theta - \cot \theta)^2 = \left(\frac{1}{\sin \theta} - \frac{\cos \theta}{\sin \theta} \right)^2 = \left(\frac{1 - \cos \theta}{\sin \theta} \right)^2 \\ &= \frac{(1 - \cos \theta)^2}{\sin^2 \theta} = \frac{(1 - \cos \theta)(1 - \cos \theta)}{(1 - \cos^2 \theta)} \quad [\because \sin^2 \theta = (1 - \cos^2 \theta)] \\ &= \frac{(1 - \cos \theta)(1 - \cos \theta)}{(1 + \cos \theta)(1 - \cos \theta)} = \frac{(1 - \cos \theta)}{(1 + \cos \theta)} = \text{RHS} \therefore \text{LHS} = \text{RHS}.\end{aligned}$$

- **Physics:** Ans: (D)
- **Chemistry:** Ans: (C)
- **Biology:** Ans: (C)

9th Class

- **Mathematics:**

$$\begin{aligned}\text{Sol: (B)} \quad \cos^2 \theta &= \sin \theta \tan \theta \Rightarrow \cos^3 \theta = \sin^2 \theta = 1 - \cos^2 \theta \Rightarrow \cos^3 \theta + \cos^2 \theta = 1 \\ &\Rightarrow \cos^9 \theta + \cos^6 \theta + 3\cos^5 \theta = 1 \quad [\text{Taking cube of the both the sides}]\end{aligned}$$

➤ **Physics:** Ans: (D)

➤ **Chemistry:** Ans: (B, C, D)

➤ **Biology:** Ans: (D)

10th class

➤ **Mathematics:**

Sol: On substituting the values of various t-ratios, in

$$4 \cot^2 45^\circ - \sec^2 60^\circ + \sin^2 90^\circ + \cos^2 90^\circ$$
$$= 4 \times (1)^2 - (2)^2 + \left(\frac{\sqrt{3}}{2}\right)^2 + (0)^2 = 4 - 4 + \frac{3}{4} + 0 = \frac{3}{4}$$

➤ **Physics:** Ans: (C)

➤ **Chemistry:** Ans: (B)

➤ **Biology:** Ans: (C)

➤ **Reasoning :**

Sol : (a) Add 5, 10, 15, 20, 25 to get the next term.

$$\therefore ? = 25 + 54 = 79$$