

## Solution of the day Aug 23, 2018

### 6<sup>th</sup> Class

➤ **Mathematics:**

Sol: Sum of ratio term =  $(5 + 3) = 8$

∴ First part = Rs.  $\left(672 \times \frac{5}{8}\right) = \text{Rs.}420;$

Second part = Rs.  $\left(672 \times \frac{3}{8}\right) = \text{Rs.}252.$

➤ **Physics:** Ans: (B)

➤ **Chemistry:** Ans: i-c, ii-d, iii-b, iv-a

➤ **Biology:** Ans: (C)

### 7<sup>th</sup> Class

➤ **Mathematics:** Ans: (B)

➤ **Physics:**

Sol:

(i) What is 1 M.S.D. for given height gauge?

The formula for L.C. of an apparatus  $1 \text{ M.S.D.} - 1 \text{ V.S.D.} = \frac{1 \text{ M.S.D.}}{N}$

What is the value of L.C. of given instrument?

Then what is the number of divisions present on vernier scale?

Then the value of  $1 \text{ V.S.D.} = 1 \text{ M.S.D.} - \text{L.C.}$

If the value of N is 50, and  $1 \text{ M.S.D.} = 1 \text{ mm}$ , then what is the value of L.C.?

(ii) Minimum length of the vernier scale = 9.9 cm

(iii) Least count = 0.02 mm

➤ **Chemistry:** Ans: (B)

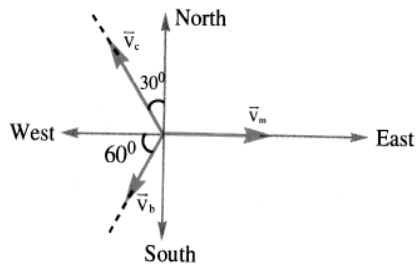
➤ **Biology:** Ans: (A)

## 8<sup>th</sup> class

➤ **Mathematics:** Ans: (A)

➤ **Physics:**

Sol:



From the diagram the angle between velocity vector of man and car is  $90^\circ + 30^\circ = 120^\circ$

The angle between velocity vector of car and bus is  $60^\circ + 60^\circ = 120^\circ$

The angle between velocity vector of bus and man is  $30^\circ + 90^\circ = 120^\circ$

➤ **Chemistry:** Ans: (B)

➤ **Biology:** Ans: (C)

## 9<sup>th</sup> Class

### ➤ Mathematics:

Sol:  $8\sin\theta = 4 + \cos\theta$

$$8\sin\theta - 4 = \cos\theta$$

$$8\sin\theta - 4 = \sqrt{(1 - \sin^2\theta)}$$

Squaring both sides

$$16(4\sin^2\theta + 1 - 4\sin\theta) = 1 - \sin^2\theta$$

$$65\sin^2\theta - 64\sin\theta + 15 = 0$$

$$65\sin^2\theta - 39\sin\theta - 25\sin\theta + 15 = 0$$

$$13\sin\theta(5\sin\theta - 3) - 5(5\sin\theta - 3) = 0$$

$$(13\sin\theta - 5)(5\sin\theta - 3) = 0$$

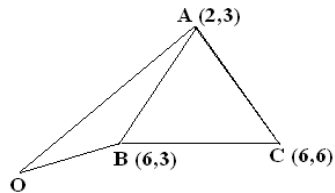
Now either  $(13\sin\theta - 5) = 0$  then  $\sin\theta = 5/13$

$5\sin\theta - 3 = 0$  then  $\sin\theta = 3/5$

➤

### ➤ Physics:

Sol: Let O be the origin. Then  $\vec{OA} = 2\hat{i} + 3\hat{j}$  and  $\vec{OB} = 6\hat{i} + 3\hat{j}$



So,  $\vec{AB} = \vec{AO} + \vec{OB} = \vec{OB} - \vec{OA}$

$$= (6\hat{i} + 3\hat{j}) - (2\hat{i} + 3\hat{j}) = 4\hat{i}$$

Similarly

$\vec{BC} = 3\hat{j}$  It is clear that  $\vec{AB}$  and  $\vec{BC}$  are perpendicular to each other so ABC is a right angled triangle.

### ➤ Chemistry: (B)

### ➤ Biology: Ans: (C)

## 10<sup>th</sup> class

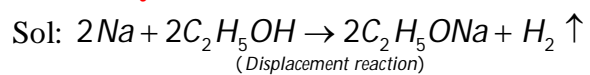
### ➤ Mathematics:

Hint: Put  $\alpha = 45^\circ$

### ➤ Physics:

$$\begin{aligned}\text{Sol: } H &= 1 \times \frac{1}{2} \times 50 + 1 \times 540 + 1 \times 1 \times 50 \\ &= 540 + 75 = 615 \text{ kcal}\end{aligned}$$

### ➤ Chemistry:



### ➤ Biology:

Ans: (A)

### ➤ Reasoning :

Ans: (B)