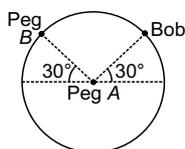




## ACHIEVERS SECTION

7. A bob is attached to one end of a string and other end of which is fixed at peg A. The bob is taken to a position where string makes an angle of  $30^\circ$  with the horizontal. On the circular path of the bob in vertical plane, there is peg B at a symmetrical position with respect to the initial position of bob as shown in the figure. If  $v_c$  and  $v_a$  be the minimum speeds in clockwise and anticlockwise directions respectively, given to bob in order to hit the peg B, then ratio  $v_c : v_a$  is equal to



- (A) 1 : 1  
 (B)  $1 : \sqrt{2}$   
 (C) 1 : 2  
 (D) 1 : 4

8. A natural gas was containing mixture of methane and ethane only. On complete combustion of 10 litres of gas at STP, the heat evolved was 474.6 kJ. Assuming  $\Delta H_{\text{comb}} \text{CH}_4(g) = -894 \text{ kJ/mol}$  and  $\Delta H_{\text{comb}} \text{C}_2\text{H}_6(g) = -1500 \text{ kJ/mol}$ , the percentage of  $\text{CH}_4$  and  $\text{C}_2\text{H}_6$  will be respectively  
 (A) 30%, 70%  
 (B) 22%, 78%  
 (C) 72%, 28%  
 (D) 70%, 30%.

## MATHEMATICS

9. Out of 800 boys in a school, 224 played Cricket, 240 played Hockey and 336 played Basketball. Of the total, 64 played both Basketball and Hockey; 80 played Cricket and Basketball; 40 played Cricket and Hockey and 24 played all the three games. The number of boys who did not play any game is \_\_\_\_\_.  
 (A) 128 (B) 216  
 (C) 240 (D) 160

10. The value of

$$\cos \frac{\pi}{15} \cos \frac{2\pi}{15} \cos \frac{3\pi}{15} \cos \frac{4\pi}{15} \cos \frac{5\pi}{15} \cos \frac{6\pi}{15} \cos \frac{7\pi}{15}$$

is  
 (A)  $\frac{1}{164}$  (B)  $\frac{1}{138}$   
 (C)  $\frac{1}{60}$  (D)  $\frac{1}{128}$

## BIOLOGY

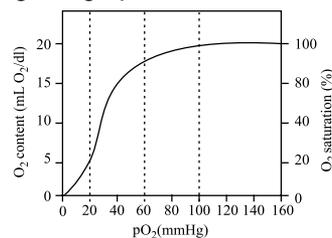
9. Read the given statements and select the correct option.

**Statement 1 :** Chloroplasts and mitochondria are semi-autonomous bodies.

**Statement 2 :** Chloroplasts and mitochondria have their own DNA and protein synthesising machinery.

- (A) Both statements 1 and 2 are correct and statement 2 is the correct explanation of statement 1.  
 (B) Both statements 1 and 2 are correct but statement 2 is not the correct explanation of statement 1.  
 (C) Statement 1 is correct and statement 2 is incorrect.  
 (D) Both statements 1 and 2 are incorrect.

10. Refer to the given graph.



Under normal conditions, how much oxygen is transported to the tissues by blood on passing from lungs to tissues?

- (A) 15 mL of  $\text{O}_2$ /100 mL of blood  
 (B) 10 mL of  $\text{O}_2$ /100 mL of blood  
 (C) 5 mL of  $\text{O}_2$ / 100 mL of blood  
 (D) 20 mL of  $\text{O}_2$ / 100 mL of blood

-----  
 SPACE FOR ROUGH WORK

## ANSWERS

- NSO – (PHYSICS AND CHEMISTRY) 1. (D) 2. (B) 3. (B) 4. (A) 5. (C) 6. (C) 7. (C) 8. (C)  
 (MATHEMATICS) 9. (D) 10. (D)  
 (BIOLOGY) 9. (A) 10. (C)