2018-ME-1-13

AI24BTECH11002 - K. Akshay Teja

1) "Going by the _ _ _ _ _ , that many hands make light work, the school _ _ _ _ _ involved all the students in the task."
   The words that best fill the blanks in the above sentence are: (2018)

   a) principle, principal
   b) principal, principle

   c) principle, principle
   d) principal, principal

2) "Her _ _ _ _ _ should not be confused with miserliness; she is ever willing to assist those in need."
   The word that best fills the blank in the above sentence is: (2018)

   a) cleanliness   b) punctuality   c) frugality   d) greatness

3) Seven machines take 7 minutes to make 7 identical toys. At the same rate, how many minutes would it take for 100 machines to make 100 toys? (2018)

   a) 1   b) 7   c) 100   d) 700

4) A rectangle becomes a square when its length and breadth are reduced by 10 m and 5 m, respectively. During this process, the rectangle loses 650 m^2 of area. What is the area of the original rectangle in square meters? (2018)

   a) 1125   b) 2250   c) 2924   d) 4500

5) A number consists of two digits. The sum of the digits is 9. If 45 is subtracted from the number, its digits are interchanged. What is the number? (2018)

   a) 63   b) 72   c) 81   d) 90

6) For integers a, b, and c, what would be the minimum and maximum values respectively of $a+b+c$ if $\log |a| + \log |b| + \log |c| = 0$? (2018)

   a) -3 and 3   b) -1 and 1   c) -1 and 3   d) 1 and 3

7) Given that a and b are integers and $a + a^2b^3$ is odd, which one of the following statements is correct? (2018)

   a) a and b are both odd
   b) a and b are both even

   c) a is even and b is odd
   d) a is odd and b is even

8) From the time the front of a train enters a platform, it takes 25 seconds for the back of the train to leave the platform, while traveling at a constant speed of 54 km/h. At the same speed, it takes 14 seconds to pass a man running at 9 km/h in the same direction as the train. What is the length of the train and that of the platform in meters, respectively? (2018)
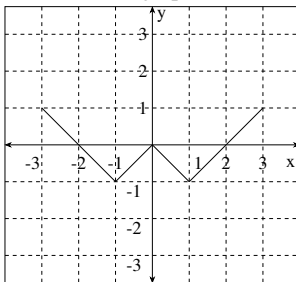
a) 210 and 140   b) 162.5 and 187.5   c) 245 and 130   d) 175 and 200

9) Which of the following functions describe the graph shown in the below figure?   (2018)

a) $y = |x| + 1 - 2$ b) $y = |x - 1| - 1$ c) $y = |x| + 1 - 1$ d) $y = |x - 1| - 1$

10) Consider the following three statements:
   (i) Some roses are red.
   (ii) All red flowers fade quickly.
   (iii) Some roses fade quickly.
   Which of the following statements can be logically inferred from the above statements?   (2018)

   a) If (i) is true and (ii) is false, then (iii) is false.
   b) If (i) is true and (ii) is false, then (iii) is true.
   c) If (i) and (ii) are true, then (iii) is true.
   d) If (i) and (ii) are false, then (iii) is false.

11) Four red balls, four green balls, and four blue balls are put in a box. Three balls are pulled out of the box at random one after another without replacement. The probability that all the three balls are red is   (2018)

   a) $\frac{1}{72}$ b) $\frac{1}{55}$ c) $\frac{1}{36}$ d) $\frac{1}{27}$

12) The rank of the matrix $\begin{bmatrix} -4 & 1 & -1 \\ -1 & -1 & -1 \\ 7 & -3 & 1 \end{bmatrix}$ is   (2018)

   a) 1   b) 2   c) 3   d) 4

13) According to the Mean Value Theorem, for a continuous function $f(x)$ in the interval $[a, b]$, there exists a value ξ in this interval such that $\int_a^b f(x)\,dx =$ (2018)

   a) $f(\xi)(b - a)$ b) $f(b)(\xi - a)$ c) $f(a)(b - \xi)$ d) 0