

# 08 BOARD QUESTION PAPER MARCH 2014

Time: 2 Hours

Max. Marks: 40

**Note:**

- i. All questions are compulsory.
- ii. Use of calculator is not allowed.

**1. Attempt any five subquestions from the following:****[5]**

- i. For an A.P.  $t_3 = 8$  and  $t_4 = 12$ , find the common difference  $d$ .
- ii.  $(x + 5)(x - 2) = 0$ , find the roots of this quadratic equation.
- iii. The following data give the number of students using different modes of transport:

Modes of Transport	Number of Students
Bicycle	140
Bus	100
Walk	70
Train	40
Car	10

From this table, find the central angle ( $\theta$ ) for the Mode of Transport 'Bus'.

- iv. 'A coin is tossed', write the sample space 'S'.
- v. If  $\sum f_i x_i = 75$  and  $\sum f_i = 15$ , then find the mean  $\bar{x}$ .
- vi. Write the following quadratic equation in a standard form:  
 $3x^2 = 10x + 7$ .

**2. Attempt any four subquestions from the following:****[8]**

- i. State whether the following sequence is an A.P. or not:  
1, 4, 7, 10, .....
- ii. Solve the following quadratic equation by factorization method:  
 $4x^2 - 9 = 0$ .
- iii. If the point  $(a, 3)$  lies on the graph of the equation  $5x + 2y = -4$ , then find  $a$ .
- iv. If  $7x + 5y = 11$  and  $5x + 7y = 13$ , find  $x + y$ .
- v. A die is thrown, then write the sample space (S) and number of sample points  $n(S)$  and also write event A of getting numbers multiple of 3 on the upper face and write  $n(A)$ .
- vi. For a certain frequency distribution, the value of mean is 15 and mode is 9. Find the value of median.

**3. Attempt any three of the following subquestions:****[9]**

- i. Solve the equation  
 $4x^2 + 7x + 2 = 0$   
by using formula method.
- ii. Solve the following simultaneous equations by using Cramer's rule:

$$3x + 2y = -11$$

$$7x - 4y = 9$$

- iii. Two coins are tossed simultaneously. Write the sample space 'S' and the number of sample points n(S). Write the following events using set notation and mention the total number of elements in each of them:

- A is the event of getting at most one tail.
- D is the event of getting no head.

- iv. Below is given the distribution of money (in Rs.) collection by students for Flood Relief Fund:

Money (in Rs.)	No. of Students
0 – 10	5
10 – 20	7
20 – 30	5
30 – 40	2
40 – 50	6

Find mean of money (in Rs.) collected by a student by using 'Assumed Mean Method'.

- v. Represent the following data by Histogram:

Price of Sugar per kg (in Rs.)	Number of Weeks
18 – 20	4
20 – 22	8
22 – 24	22
24 – 26	12
26 – 28	8
28 – 30	6

**4. Attempt any two subquestions from the following:**

**[8]**

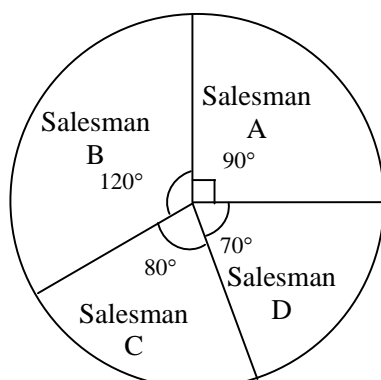
- i. A farmer borrows Rs. 1,000 and agrees to repay with a total interest of Rs. 140 in 12 instalments, each instalment being less than the preceding instalment by Rs. 10. What should be his first instalment?

- ii. There are three boys and two girls. A committee of two is to be formed.

Find the probability of events that the committee contains:

- at least one girl
- one boy and one girl
- only boys.

- iii. The sales of salesmen in a week are given in the pie diagram. Study the diagram and answer the following questions. If the total sale due to salesman A is Rs. 18,000 then:



- Find the total sale.
- Find the sale of each salesman.
- Find the salesman with the highest sale.
- Find the difference between the highest sale and the lowest sale.

5. Attempt any *two* of the following subquestions:

[10]

- If  $m$  times  $m^{\text{th}}$  term of an A.P. is equal to  $n$  times its  $n^{\text{th}}$  term, then show that  $(m + n)^{\text{th}}$  term of the A.P. is zero.
- The product of four consecutive natural numbers which are multiples of five is 15,000. Find those natural numbers.
- Draw the graphs representing the equations  $4x + 3y = 24$  and  $3y = 4x + 24$  on the same graph paper. Write the co-ordinates of the point of intersection of these lines and find the area of the triangle formed by these lines and the X-axis.