



BOARD QUESTION PAPER : MARCH 2017

Time: 2 Hours**Max. Marks: 40****Note:**

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

Q.P. SET CODE

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

- State whether the following sequence is an Arithmetic Progression or not:
3, 6, 12, 24,.....
- If one root of the quadratic equation is $3 - 2\sqrt{5}$, then write another root of the equation.
- There are 15 tickets bearing the numbers from 1 to 15 in a bag and one ticket is drawn from this bag at random. Write the sample space (S) and n(S).
- Find the class mark of the class 35 - 39.
- Write the next two terms of A.P. whose first term is 3 and the common difference is 4.
- Find the values of a, b, c for the quadratic equation $2x^2 = x + 3$ by comparing with standard form $ax^2 + bx + c = 0$.

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

- Find the first two terms of the sequence for which S_n is given below: $S_n = n^2(n + 1)$.
- Find the value of discriminant (Δ) for the quadratic equation: $x^2 + 7x + 6 = 0$.
- Write the equation of X-axis. Hence, find the point of intersection of the graph of the equation $x + y = 5$ with the X-axis.
- For a certain frequency distribution, the values of Assumed mean (A) = 1300, $f_1d_1 = 900$ and $f_1 = 100$. Find the value of mean \bar{x} .
- Two coins are tossed simultaneously. Write the sample space (S), n(S), the following event A using set notation and n(A), where 'A is the event of getting at least one head.'
- Find the value of k for which the given simultaneous equations have infinitely many solutions:
 $kx + 4y = 10$;
 $3x + 2y = 5$.

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

- How many three digit natural numbers are divisible by 5?
- Solve the following quadratic equation by factorization method:
 $3x^2 - 29x + 40 = 0$.
- Solve the following simultaneous equations by using Cramer's rule:
 $3x - y = 7$; $x + 4y = 11$.
- Two dice are thrown. Find the probability of the event that the product of numbers on their upper faces is 12.
- The following is the frequency distribution of waiting time at ATM centre; draw histogram to represent the data:

Waiting time (in seconds)	Number of Customers
0 - 30	15
30 - 60	23
60 - 90	64
90 - 120	50
120 - 150	5



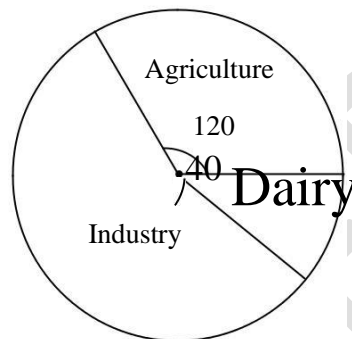
4. Attempt any two of the following subquestions:

[8]

- i. Three horses A, B and C are in a race, A is twice as likely to win as B and B is twice as likely to win as C. What are their probabilities of winning?
- ii. The following is the distribution of the size of certain farms from a taluka (tehasil):

Size of Farms (in acres)	Number of Farms
5 – 15	7
15 – 25	12
25 – 35	17
35 – 45	25
45 – 55	31
55 – 65	5
65 – 75	3

- iii. The following pie diagram represents the sectorwise loan amount in crores of rupees distributed by a bank. From the information answer the following questions:



- a. If the dairy sector receives ₹20 crores, then find the total loan disbursed.
- b. Find the loan amount for agriculture sector and also for industrial sector.
- c. How much additional amount did industrial sector receive than agriculture sector?

5. Attempt any two of the following subquestions :

[10]

- i. If the cost of bananas is increased by ₹10 per dozen, one can get 3 dozen less for ₹600. Find the original cost of one dozen of bananas.
- ii. If the sum of first p terms of an A.P. is equal to the sum of first q terms, then show that the sum of its first $(p + q)$ terms is zero where $p \neq q$.
- iii. Solve the following simultaneous equations:

$$\frac{1}{3}x - \frac{1}{4}y + 1 = 0;$$

$$\frac{1}{5}x - \frac{1}{2}y = 15^4.$$