



BOARD QUESTION PAPER : MARCH 2015

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

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

Q.P. SET CODE**A****1. Attempt any five of the following subquestions:****[5]**

- i. State whether the following sequence is an A.P. or not?
1, 4, 7, 10,
- ii. A card is drawn from the pack of 25 cards labelled with numbers 1 to 25. Write the sample space for this random experiment.
- iii. Find the value of $x + y$, if
 $12x + 13y = 29$ and
 $13x + 12y = 21$
- iv. For a sequence if $S_n = \frac{n}{n+1}$, then find the value of S_{10} .
- v. Verify whether 1 is the root of the quadratic equation:
 $x^2 + 3x - 4 = 0$.
- vi. If $x + y = 5$ and $x = 3$, then find the value of y .

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

- i. Solve the following quadratic equation by factorization method
 $x^2 - 7x + 12 = 0$.
- ii. Find the term t_{10} of an A.P. :
4, 9, 14,
- iii. If the point A(2, 3) lies on the graph of the equation $5x + ay = 19$, then find a.
- iv. A die is thrown. If A is an event of getting an odd number then write the sample space and event A in set notation.
- v. For a certain frequency distribution, the value of Mean is 101 and Median is 100. Find the value of Mode.
- vi. If one root of the quadratic equation $kx^2 - 7x + 5 = 0$ is 1, then find the value of k.

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

- i. Area under different crops in a certain village is given below. Represent it by a pie diagram:

Crop	Area in Hectares
Jowar	40
Wheat	60
Sugarcane	50
Vegetables	30

- ii. If two coins are tossed, then find the probability of the event that at the most one tail turns up.
- iii. Solve the following simultaneous equations using graphical method :
 $x + y = 7$;
 $x - y = 5$.



- iv. There is an auditorium with 35 rows of seats. There are 20 seats in the first row, 22 seats in the second row, 24 seats in the third row and so on. Find the number of seats in the twenty second row .
- v. Solve the following quadratic equation by completing square method:
 $x^2 + 11x + 24 = 0$

4. Attempt any two of the following subquestions:

[8]

- i. Two digit numbers are formed using the digits 0, 1, 2, 3, 4, 5 where digits are not repeated.
 P is the event that the number so formed is even.
 Q is the event that the number so formed is greater than 50.
 R is the event that the number so formed is divisible by 3
 Then write the sample space S and events P, Q, R using set notation.
- ii. The following table shows ages of 300 patients getting medical treatment in a hospital on a particular day :

Age (in years)	No. of Patients
10 – 20	60
20 – 30	42
30 – 40	55
40 – 50	70
50 – 60	53
60 – 70	20

Find the median age of the patients.

- iii. If $\alpha + \beta = 5$ and $\alpha^3 + \beta^3 = 35$, find the quadratic equation whose roots are α and β .

5. Attempt any two of the following subquestions :

[10]

- i. Babubhai borrows ₹ 4,000 and agrees to repay with a total interest of ₹ 500 in 10 instalments, each instalment being less than the preceding instalment by ₹ 10. What should be the first and the last instalment?
- ii. On the first day of the sale of tickets of a drama, in all 35 tickets were sold. If the rates of the tickets were ₹ 20 and ₹ 40 per ticket and the total collection was ₹ 900. Find the number of tickets sold of each rate.
- iii. Given below is the frequency distribution of driving speeds (in km/hour) of the vehicles of 400 college students :

Speed (in km/hr)	No. of Students
20–30	6
30–40	80
40–50	156
50–60	98
60–70	60

Draw Histogram and hence the frequency polygon for the above data.



BOARD QUESTION PAPER : JULY 2015

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

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

Q.P. SET CODE**A****1. Attempt any five of the following subquestions:****[5]**

- i. Find the first two terms of the following sequence:
 $t_n = n + 2$.
- ii. Write the quadratic equation $3y^2 = 10y + 7$ in the standard form
 $ax^2 + bx + c = 0$
- iii. Find the value of the following determinant: $\begin{vmatrix} 4 & 3 \\ 2 & 7 \end{vmatrix}$
- iv. Write the sample space if two coins are tossed.
- v. State whether the following sequence is an A.P. or not.
1, 3, 6, 10, ...
- vi. The perimeter of a rectangle is 36 cm. Write the equation for this statement using two variables.

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

- i. If one root of the quadratic equation, $x^2 - 7x + k = 0$ is 4, then find the value of k.
- ii. Find the eighteenth term of the A.P. 7, 13, 19, 25, ...
- iii. A die is thrown. Write the sample space. If P is the event of getting an odd number, then write the event P using set notation.
- iv. If $D_x = 18$, $D_y = 15$ and $D = 3$ are the values of the determinants for certain simultaneous equations in x and y , then find the values of x and y .
- v. Form the quadratic equation if its roots are 5 and 7.
- vi. If for a certain frequency distribution, Median = 156 and Mode = 180, find the value of the Mean.

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

- i. Solve the quadratic equation $2x^2 + 5x + 2 = 0$ using formula method.
- ii. There are 30 tickets numbered from 1 to 30 in box and a ticket is drawn at random. If A is the event that the number on the ticket is a perfect square, then write the sample space S, $n(S)$, the event A and $n(A)$.
- iii. Obtain the sum of the first 56 terms of an A.P. whose 18th and 39th terms are 52 and 148 respectively.
- iv. Draw the graph of the equation $3x - y = -6$ and write the points of intersection of the graph with X-axis and Y-axis.

**BOARD QUESTION PAPER : MARCH 2016****Time: 2 Hours****Max. Marks: 40****Note:**

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

Q.P. SET CODE**C****1. Attempt any five of the following subquestions:****[5]**

- i. Write the first two terms of the sequence whose n^{th} term is $t_n = 3n - 4$.
- ii. Find the value of a, b, c in the following quadratic equation:
 $2x^2 - x - 3 = 0$
- iii. Write the quadratic equation whose roots are -2 and -3 .
- iv. Find the value of the determinant:
$$\begin{vmatrix} 4 & -2 \\ 3 & 1 \end{vmatrix}$$
- v. Write the sample space for selecting a day randomly of the week.
- vi. Find the class mark of the classes $20 - 30$ and $30 - 40$.

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

- i. If for an A.P. the first term is 11 and the common difference is (-2) , then find first three terms of A.P.
- ii. Solve the following quadratic equation using factorization method:
 $x^2 + 11x + 24 = 0$.
- iii. If the value of determinants $\begin{vmatrix} x & -5 \\ 3 & 4 \end{vmatrix}$ is 31 , then find the value of x .
- iv. A die is thrown, then find the probability of the following events:
A is an Event : getting a number divisible by 3 .
B is an Event : getting a number less than 5 .
- v. Below is the given frequency distribution of words in an essay:

Number of Words	600 – 800	800 – 1000	1000 – 1200	1200 – 1400	1400 – 1600
Number of Candidates	14	22	30	18	16

Find the mean number of words written.

- vi. The marks obtained by a student in an examination are given below:

Subject	Marathi	Hindi	English	Mathematics	Total
Marks	95	90	95	80	360

Represent the data using pie diagram.

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

- i. Solve the following quadratic equation using formula method:
 $6x^2 - 7x - 1 = 0$.
- ii. There are three boys and two girls. A committee of two is to be formed. Find the probability of the following events:
Event A : The committee contains at least one boy.
Event B : The committee contains one boy and one girl.



- iii. The measurements (in mm) of the diameters of the head of the screws are given below:

Diameter (in mm)	33 – 35	36 – 38	39 – 41	42 – 44	45 – 47
No. of screws	9	21	30	20	18

Calculate mean diameter of head of a screw by 'Assumed Mean Method'.

- iv. The marks scored by students in Mathematics in a certain examinations are given below:

Marks Scored	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
Number of students	3	8	15	17	7

Draw histogram for the above data.

- v. Draw a frequency polygon for the following frequency distribution:

Rainfall (in mm)	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50
No. of Years	2	5	8	12	10	7

4. Attempt any two of the following subquestions:

[8]

- i. The 11th term and the 21st term of an A.P. are 16 and 29 respectively then find:

- The first term and common difference.
- The 34th term.
- 'n' such that $t_n = 55$.

- ii. Solve the following simultaneous equations:

$$\frac{7}{2x+1} + \frac{13}{y+2} = 27, \quad \frac{13}{2x+1} + \frac{7}{y+2} = 33$$

- iii. In a certain race there are three boys A, B, C. The winning probability of A is twice than B and the winning probability of B is twice than C. If $P(A) + P(B) + P(C) = 1$, then find the probability of each boy.

5. Attempt any two of the following subquestions :

[10]

- The divisor and quotient of the number 6123 are same and the remainder is half the divisor. Find the divisor.
- Find the sum of all numbers from 50 to 350 which are divisible by 6. Hence find the 15th term of that A.P.
- A three digit number is equal to 17 times the sum of its digits. If 198 is added to the number, the digits are interchanged. The addition of first and third digit is 1 less than middle digit. Find the number.