BOARD QUESTION PAPER: July 2019

Maths Part - I

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

Note:

i. *All* questions are compulsory.

ii. Use of calculator is not allowed.

iii. Figures to the right of questions indicate full marks.

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1. (A) Solve the following questions (Any four): **[4]**

i. If $|7| \times |-4| = a$, then find the value of a.

ii. If $x + y = 5$ and $x - y = 1$, then find the value of x.

iii. Find the median of the scores 7, 10, 5, 8, 9.

iv. Write the degree of Polynomial $5x^2 + 2x + 3x^4 + 4$.

v. If A = {1, 2, 3, 4, 5} and B = {1, 3, 7}, then $A \cap B = ?$

vi. Find out the ratio of 1 mm to 1 cm.

(B) Solve the following questions (Any two): **[4]**

i. Find the factors of the Polynomial $3x^2 - 2x - 1$.

ii. □ABCD is a parallelogram. The ratio of measures of $\angle A$ and $\angle B$ is 5 : 4. Find the measure of $\angle B$.

iii. Alka spends 90% of the money that she gets every month and saves ₹120. How much money does she get monthly?

2. (A) Choose the correct alternative: **[4]**

i. Find the value of $\begin{vmatrix} 5 & 3 \\ -7 & -4 \end{vmatrix}$

(A) –1 (B) –41 (C) 41 (D) 1

ii. Out of the following equations which one is not a quadratic equation?

(A) $x^2 + 4x = 11 + x^2$ (B) $x^2 = 4x$

(C) $5x^2 = 90$ (D) $2x - x^2 = x^2 + 5$

iii. If $n(A) = 2$, $p(A) = \frac{1}{5}$, then $n(S) = ?$

(A) 10 (B) 2 (C) 5 (D) 20

iv. For a given A.P., $a = 3.5$, $d = 0$, then $t_n =$ _____

(A) 0 (B) 3.5 (C) 103.5 (D) 104.5

(B) Solve the following questions (Any two): **[4]**

i. Find the value of k, if $x = 3$ is a root of the equation $kx^2 - 10x + 3 = 0$

ii. Market value of a share is ₹ 200. If the brokerage rate is 0.3%, then find the purchase value of the share.

iii. The following table shows the number of students and the time they utilized daily for their studies. Find the mean time, spent by students for their studies:

Time (hrs.)	No. of Students
0 – 2	8
2 – 4	14
4 – 6	18
6 – 8	10
8 – 10	10

3. (A) Complete the following activities (Any two): **[4]**

i. There are 9 tickets in a box, each bearing one of the numbers from 1 to 9. One ticket is drawn at random from the box.
Event A: Ticket shows an even number.
Complete the following activity from the given information:
Activity:

S = {☐}

n(S) = ☐

A = {☐}

n(A) = ☐

ii. Complete the following activity to form a quadratic equation.
Activity:

I am a quadratic equation

↓

My standard form in ☐

↓

My roots are 3 and 4.

↓

∴ Sum of my roots = ☐

and product of my roots = ☐

↓

∴ My equation is ☐

iii. Complete the following activity to find the number of natural numbers between 1 and 171, which are divisible by 5:
Activity

From 1 to 171, natural numbers divisible by 5 are

↓

5, 10, 15, _____, 170

↓

In this A.P.

a = ☐ , d = ☐ , $t_n = 170$

↓

$t_n = a + (n - 1)d$

↓

$170 = 5 + (n - 1) \times$ ☐

↓

n = ☐

(B) Solve the following questions (Any two): **[4]**

i. Solve the following simultaneous equations:
$4x + 3y = 11; 3x + 4y = 10$

ii. Find the 23^{rd} term of the following A.P.:
9, 4, –1, –6, –11, …

iii. Find the mode from the following information:
L = 10, h = 2, $f_0 = 58$, $f_1 = 70$, $f_2 = 42$.

4. Solve the following questions (Any three): **[9]**

i. Solve the following simultaneous equations graphically:
$x + y = 2; x - y = 4$.

ii. Sachin invested some amounts in National Saving Certificates in a specific way. In the first year he invested ₹ 4,000 in the second year ₹ 6,000 in the third year ₹ 8,000 and so on for 12 years. Find the total amount he invested in 12 years.

iii. A readymade garment shopkeeper gives 5% discount on a dress of ₹ 2,000 and charges 5% GST on the remaining amount. What is the purchase price of the dress for the customer?

iv. A bag contains 3 red, 3 white, 3 green and 3 black balls. One ball is picked up from the bag at random. What is the probability that the ball drawn is:
a. white
b. not white.

5. Solve the following questions (Any one): **[4]**

i. Out of 555 km, Vishal travelled certain distance by bus and remaining distance by car. Bus travels with an average speed of 60 km/hr and the average speed of car is 75 km/hr. He takes total 8 hours to complete the journey. Find the distance that Vishal travelled by bus.

ii. The time required for some students to complete a science experiment and the number of students is shown in the following grouped frequency distribution table. Draw the frequency polygon with the help of histogram using given information:

Time required for experiment (minutes)	Number of Students
20 – 22	6
22 – 24	14
24 – 26	20
26 – 28	16
28 – 30	12
30 – 32	10

6. Solve the following questions (Any one): **[3]**

i. Construct a word problem on quadratic equation, such that one of its answers is 20 (years, rupees, centimetre etc.). Also solve it.

ii. A student made a cube shaped die from a card sheet. Instead of writing numbers 1, 2, 3, 4, 5, 6 on its faces, he wrote letters a, b, c, d, e, f; one on each face, randomly. If he rolls the die twice, find the probability that he gets a vowel on the upper face both times.