

FAROOQ HIGH SCHOOL FOR GIRLS

I Semester Exam - October 2019

Date: 17/10/19 Std: X A Subject: Algebra Marks: 40 Time: 2 hr

Q.1.A) Solve the following questions. (Any Four)

[4]

- 1) Find the value of the determinant. $\begin{vmatrix} -8 & -3 \\ 2 & 4 \end{vmatrix}$
- 2) Write the quadratic equation $2y = 10 - y^2$ in the standard form and find the value of a, b & c.
- 3) The first term a and common difference d are given. Find first three terms of A.P. $a = -3, d = 4$
- 4) Write sample space 's' and number of sample points n(S). One coin and one die are thrown simultaneously.
- 5) Find the first term and common difference for an A.P.
 $5, 1, -3, -7, \dots$

B) Solve the following questions. (Any two)

[4]

- 1) Find the 19th term of the following A.P.
 $7, 13, 19, 25, \dots$
- 2) Solve the following quadratic equation by factorization method.
 $m^2 - 14m + 13 = 0$
- 3) Solve the following simultaneous equations.
 $5m - 3n = 19$ $m - 6n = -7$

Q.2.A): Choose the correct alternative answer and write

[4]

- 1) For an given A.P. $t_7 = 4, n = 7, d = -4$. $a =$ _____
(A) 6 (B) 7 (C) 20 (D) 28
- 2) One of the roots of equation $x^2 + mx - 5 = 0$ is 2, find m.
(A) -2 (B) $-\frac{1}{2}$ (C) $\frac{1}{2}$ (D) 2
- 3) Rate of GST on essential commodities is _____
(A) 5% (B) 12% (C) 0% (D) 18%

4) If a die is rolled what is the probability that number appearing on upper face is less than 2?

(A) $\frac{1}{3}$

(B) $\frac{1}{2}$

(C) 1

(D) $\frac{1}{6}$

B) Solve the following questions. (Any two)

[4]

- 1) First term and common difference of an A.P. are 12 and 4. If $t_n = 96$, find n.
- 2) Pawan medical supplies medicines. On some medicines the rate of GST is 12%, then what is the rate of CGST and SGST?
- 3) Two numbers differ by 3. The sum of the greater number and twice the smaller number is 15. Find the smaller number.

Q.3) Complete the following activities

[8]

- 1) If $x=5$ is a root of equation $kx^2 - 14x - 5 = 0$ then find the value of k by completing the following activity.

One of the roots of equation $kx^2 - 14x - 5 = 0$ is

Now let $x =$ in the equation.

$$k \text{ }^2 - 14 \text{ } - 5 = 0$$

$$25k - 70 - 5 = 0$$

$$25k - \text{} = 0$$

$$25k = \text{}$$

$$k = \frac{\text{}}{\text{$$

- 2) First term and common difference of an A.P. are 6 and 3. Find S_{27} .

$$A = 6, d = \text{$$

$$S_n = \frac{n}{2} [\text{} + (n-1) d]$$

$$= \frac{27}{2} [12 + (27-1) \text{}]$$

$$= \frac{27}{2} \times \text{}$$

$$= 27 \times \square$$

$$= \square$$

3) A card is drawn from a well shuffled pack of 52 playing cards. Find the probability of each even. The card drawn is (i) a red card (ii) a face card

$$n(S) = \square$$

(i) Event A = card drawn is a red card.

$$\text{Total red cards} = \square \text{ hearts} + \square \text{ diamonds} = \square$$

$$n(A) = \square$$

$$P(A) = \frac{n(A)}{n(S)} = \frac{\square}{\square} = \square$$

(i) Event B = card drawn is a face card.

$$\text{Total face cards} = \square \quad n(B) = \square$$

$$P(B) = \frac{n(B)}{n(S)} = \frac{\square}{\square} = \square$$

4) Complete the following table to draw the graph of $2x - 6y = 3$

x	- 5	\square
y	\square	0
(x, y)	\square	\square

Q.4) Solve the following questions. (Any three)

[9]

1) There is an auditorium with 27 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 15th row and also find how many total seats are there in the auditorium.

2) Solve the given quadratic equation by formula method.

$$3m^2 + 2m - 7 = 0$$

3) Solve the following simultaneous equation graphically.

$$x + y = 0, 2x - y = 9$$

4) 'M/s. Real Paint' sold 2 tins of luster paint and taxable value of each tin is ₹ 2800. If the rate of GST is 28% then find the amount of CGST and SGST charged in the tax invoice.

Q.5. Solve the following questions. (Any one)

[4]

- 1) The 10th term and the 18th term of an A.P. are 25 and 41. Then find 38th term of an A.P. If nth term is 99. Find the value of t_n .
- 2) Solve.

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

Q.6. Solve the following questions. (Any one)

[3]

- 1) Two dice are rolled, write sample space S and number of sample points $n(S)$. Find the probability of given events.
 - i) Event A : Sum of the digits on upper face is a prime number.
 - ii) Event B : Sum of the digits on the upper face is a multiple of 5.
 - iii) Event C : Sum of the digits on upper face is 25.
- 2) Find m if $(m - 12)x^2 + 2(m - 12)x + 2 = 0$ has real and equal roots.