

LITTLE FLOWER CONVENT HIGH SCHOOL

STD	SUBJECT	EXAM	DATE	MARKS	TIME
X	MATHEMATICS-1	I-SEMESTER	18-10-2021	40	2 HOURS

NOTE : - (i) All questions are compulsory.

(ii) The numbers to the right of the questions indicate full marks.

(iii) In case of MCQs Q.No.1(A) only the first attempt will be evaluated and will be given credit.

(iv) For every MCQ, the correct alternative A/B/C/D of answers with sub-question number is to be written as an answer.

Q.1A] For every sub-question four alternative answers are given. Choose the correct answer and write the alphabet of it: [4]

(i) To draw graph of $5x + 4y = 10$, find y when $x = 2$

A] 0 B] 5 C] 2 D] -2

(ii) Which of the following quadratic equations has roots 3, 5?

A] $x^2 - 8x + 15 = 0$ B] $x^2 - 15x + 8 = 0$ C] $x^2 + 8x - 15 = 0$ D] $x^2 + 3x + 5 = 0$

(iii) Which number cannot represent a probability?

A] $\frac{1}{2}$ B] 25% C] 1.7 D] 0.6

(iv) Out of the following equations which one is a quadratic equation?

A] $x^2 + 4x = 11 + x^2$ B] $x^2 = 4$ C] $2x^2 + x = 10 + 2x^2$ D] $(x - 2)^2 = x^2$

Q.1B] Solve the following sub-questions: [4]

(i) If $x + 2y = 5$ and $2x + y = 4$, then find the value of $x - y$

(ii) Find the value of $\begin{vmatrix} 3 & 2 \\ 5 & 4 \end{vmatrix}$

(iii) One of the roots of quadratic equation $2x^2 + kx - 2 = 0$ is -2, find k .

(iv) Write Sample space 'S' and number of sample points $n(S)$ for the following experiment:
A die is thrown.

Q.2A] Complete and write the following activities : [4]

(i) Two coins are tossed simultaneously. Complete the following activity to find the probability of getting at least one head.

→ Activity:

'S' is the sample space for two coins are tossed simultaneously.

∴ $S = \{ \text{ } \}$

∴ $n(S) = 4$

Event A: To get at least one head.

∴ $A = \{ \text{ } \}$,

∴ $n(A) = \text{ } \}$

∴ $P(A) = \frac{n(A)}{n(S)}$

∴ $P(A) = \text{ } \}$

(ii) Obtain the quadratic equation by completing the following activity:

→ Activity:

If $\alpha = 2$, $\beta = 5$

$\alpha + \beta = \text{ } \}$, $\alpha \times \beta = \text{ } \}$

∴ $x^2 - (\alpha + \beta)x + \text{ } = 0$

∴ $\text{ } \}$ -----required equation.

Q.2B] Solve the following sub-questions: [8]

- (i) For simultaneous equations in variables x and y, if $D_x = -14$, $D_y = -28$ and $D = 14$, then find the value of x and y.
- (ii) Solve the following quadratic equation by factorization:
 $5m^2 = 22m + 15$
- (iii) If one die is rolled then find the probability of the event:
Number on the upper face is prime.
- (iv) Find the value of the discriminant of the equation $p^2 + 2p - 9 = 0$

Q.3A] Complete and write the following activity. [3]

- (i) A two-digit number is to be formed from the digits 2,3,5 without repetition of the digits. Complete the following activity to find the probability that the number so formed is an odd number.

→Activity:

Let 'S' be the sample space

$$\therefore S = \{23, 25, 32, \square, 52, 53\}$$

$$\therefore n(S) = \square$$

Now condition for event 'A' is that number so formed is an odd number.

$$A = \{23, 25, \square, 53\},$$

$$\therefore n(A) = 4$$

$$\therefore P(A) = \frac{\quad}{n(S)} \text{-----Formula}$$

$$\therefore P(A) = \frac{\quad}{6}$$

$$\therefore P(A) = \frac{\quad}{3}$$

Q.3B] Attempt the following sub-questions: [6]

- (i) Solve the following simultaneous equations by graphical method:
 $X - y = 1$; $5x - 3y = 1$
- (ii) Solve the following quadratic equation using formula:
 $5m^2 + 13m + 8 = 0$

Q.4] Attempt the following sub questions: [8]

- (i) If two dice are rolled simultaneously, find the probability of the following events:
A] The sum of the digits on the upper faces is at least 11.
B] The digit on the second die is greater than digit on first die.
- (ii) Solve the following:
A two digit number and the number with digits interchanged add up to 143. In the given Number the digit in units place is 3 more than the digit in the tens place. Find the original Number.

Q.5] Attempt the following question: [3]

- (i) Out of the group of employees, twice the square root of the number of the employees Are on a trip to attend a conference held by the company half the number are in the Office and the remaining six employees are on leave. What is the number of employees in the Group?

LITTLE FLOWER CONVENT SCHOOL
I TERM INTERNAL EVALUATION: M.C.Q.

SUBJECT: MATHS -1
STD: X

MARKS: - 10
DATE: 18-10-2021

1. What is value of determinant $\begin{vmatrix} a & b \\ c & d \end{vmatrix}$
A) $ab - cd$ B) $ad - bc$ C) $ac - bd$ D) $ad + bc$
2. What is nature of root of equation $2x^2 - 5x + 7 = 0$
A) Real and equal B) Real and Unequal C) Not Real D) None
3. How many face cards are there in 52 playing cards?
A) 16 B) 11 C) 04 D) 12
4. The solution of $x + y = 3$ and $x - y = 7$ is _____
A) (5, -2) B) (-5, 2) C) (-5, -2) D) (5, 2)
5. Which of the following is correct standard form of the quadratic equation $x + \frac{1}{x} = 5x$
A) $5x^2 + x + 1 = 0$ B) $-4x^2 + 0x + 1 = 0$ C) $-4x^2 + 0x - 1 = 0$ D) $4x^2 + 0x + 1 = 0$
6. Each card bears one letter from the word 'mathematics'. What is probability that card drawn bears the letter 'm'?
A) $\frac{1}{11}$ B) $\frac{2}{11}$ C) $\frac{3}{11}$ D) $\frac{1}{2}$
7. In a linear equation in two variables $ax + by = c$, the values of a and b cannot be equal to _____
A) Zero B) Real numbers C) One D) Two
8. Roots of equation $y^2 = 25$ are _____
A) 0, 5 B) 5, -5 C) 5, 0 D) 5, 5
9. A die is rolled. E is the event that the uppermost face shows a prime number. What is E equal to?
A) {3, 5} B) {2, 3, 5} C) {1, 2, 3} D) {2, 3, 4}
10. For which of the following equations is $\alpha + \beta = 11$ and $\alpha\beta = 33$
A) $x^2 - 11x + 33 = 0$ B) $x^2 - 11x - 33 = 0$ C) $x^2 + 11x + 33 = 0$ D) $x^2 + 11x - 33 = 0$
