ICSE Solved Paper 2018
Mathematics
Class-X

(Maximum Marks : 80)

(Time allowed : Two hours and a half)

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*Attempt **all** questions from **Section A** and **any four** questions from **Section B**.*

All working, including rough work, must be clearly shown and must be done on the same sheet as the rest of the answer.

Omission of essential working will result in loss of marks.

The intended marks for questions or parts of question are given in brackets [ ].

Mathematical tables are provided.

SECTION-A **(40 marks)**

*Attempt **all** questions from this Section.*

1. (a) Find the value of 'x' and 'y' if : [3]

$$2\begin{bmatrix} x & 7 \\ 9 & y-5 \end{bmatrix} + \begin{bmatrix} 6 & -7 \\ 4 & 5 \end{bmatrix} = \begin{bmatrix} 10 & 7 \\ 22 & 15 \end{bmatrix}$$

(b) Sonia had a recurring deposit account in a bank and deposited ₹ 600 per month for 2½ years. If the rate of interest was 10% p.a., find the maturity value of this account. [3]

(c) Cards bearing numbers 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20 are kept in a bag. A card is drawn at random from the bag. Find the probability of getting a card which is : [4]

(i) a prime number.

(ii) a number divisible by 4.

(iii) a number that is a multiple of 6.

(iv) an odd number.

Ans. (a)

$$2\begin{bmatrix} x & 7 \\ 9 & y-5 \end{bmatrix} + \begin{bmatrix} 6 & -7 \\ 4 & 5 \end{bmatrix} = \begin{bmatrix} 10 & 7 \\ 22 & 5 \end{bmatrix}$$

$$\begin{bmatrix} 2x & 14 \\ 18 & 2y-10 \end{bmatrix} + \begin{bmatrix} 6 & -7 \\ 4 & 5 \end{bmatrix} = \begin{bmatrix} 10 & 7 \\ 22 & 15 \end{bmatrix}$$

or

$$\begin{bmatrix} 2x+6 & 7 \\ 22 & 2y-5 \end{bmatrix} = \begin{bmatrix} 10 & 7 \\ 22 & 15 \end{bmatrix}$$

By equating $2x + 6 = 10$ or $x = 2$

$2y - 5 = 15$ or $y = 10$

(b)

$p =$ ₹ 600

$n = 2\frac{1}{2}$ year = 30 months

$r = 10\%$ p.a.

$M.V. = ?$

$$M.V. = p \times n + \frac{p \times n\,(n+1) \times r}{2,400}$$

$$= 600 \times 30 + \frac{600 \times 30 \times 31 \times 10}{2,400}$$

$= 18,000 + 2,325$

$=$ ₹ 20,325

(c) (i) Prime number $= \{2\}$

No. of favourable cards $= 1$

Total number of cards $= 10$

Hence, probability of a getting a prime number card

$$= \frac{\text{Number of favourable cards}}{\text{Total no. of cards}} = \frac{1}{10}$$

(ii) Number divisible by 4 $= \{4, 8, 12, 16, 20\}$

No. of favourable cards = 5

Hence, probability of a getting card, where number divisible by 4.

$$= \frac{\text{Number of favourable cards}}{\text{Total no. of cards}} = \frac{5}{10} = \frac{1}{2}$$

(iii) Number which are multiple of 6 = $\{6, 12, 18\}$

No. of favourable cards = 3

Hence, probability of getting card, which is multiple of 6.

$$= \frac{\text{Number of favourable cards}}{\text{Total No. of cards}} = \frac{3}{10}$$

(iv) Odd number = 0 (No. odd card)

No. of favourable cards = 0

Hence, probability of getting an odd number card

$$= \frac{\text{Number of favourable cards}}{\text{Total No. of cards}} = \frac{0}{10} = 0$$