

CBT Questions of Mathematics (JUNE-JULY)

Class- XII

CASE STUDY BASED QUESTIONS-

1. Three schools A, B and C organized a mela for collecting funds for helping the rehabilitation of flood victims. They sold handmade fans, mats and plates from recycled material at a cost of Rs 25, Rs 100 and Rs 50 each. The number of articles sold are given-



ARTICLES	A	B	C
HAND FANS	40	25	35
MATS	50	40	50
PLATES	20	30	40

Based on the above information solve the following questions-

(i) Total fund collected by school A is-

- (a) Rs 7000 (b) Rs 6500 (c) Rs 6000 (d) Rs 5000

(ii) The fund collected by school B and C is-

- (a) Rs 14000 (b) Rs 18000 (c) Rs 21,000 (d) Rs 6,375

(iii) The total fund collected by all the schools is-

- (a) Rs 14000 (b) Rs 18000 (c) Rs 21,000 (d) Rs 6,375

(iv) The total number of articles sold is-

- (a) 230 (b) 330 (c) 300 (d) 200

2. Anika wants to donate a rectangular plot of land for an orphanage. When she was asked to give dimensions of the plot, she told that the area of a rectangle gets reduced by 9 sq. units, if its length is reduced by 5 units and breadth is increased by 3 units, but if increase the length by 3 units and breadth by 2 units, the area increase by 67 sq. units. Let x and y be the length and breadth of the plot.



Based on the above information answer the following questions-

1. The equations in terms of x and y are-

- (a) $3x-5y=6$ (b) $5x-3y=6$ (c) $3x-5y=61$
 (d) $5x-3y=61$
 $2x+3y=61$ $3x+2y=61$ $2x+3y=6$
 $3x+2y=6$

2. Using matrix method find the length and breadth of the plot-

- (a) 26 units and 8 units (b) 9 units and 15 units (c) 17 units and 9 units (d) 8 units and 16 units

3. How much is the perimeter of rectangular plot?

- (a) 25 units (b) 32 units (c) 45 units (d) 52 units

4. How much is area of rectangular plot?

- (a) 153 sq. units (b) 170 sq. units (c) 90 sq. units (d) 52 sq. units

ASSERTION AND REASONING QUESTIONS-

3. **Assertion (A):** If A and B are two matrices such that AB and BA are both defined, then A and B must be square matrices of the same order.

Reason (R): For AB to be defined, the number of columns of A must be equal to the number of rows of B , and for BA to be defined, the number of columns of B must be equal to the number of rows of A .

- (a) Both A and R are true and R is the correct explanation of A .
 (b) Both A and R are true but R is not the correct explanation of A .
 (c) A is true but R is false.
 (d) A is false but R is true.
 (e) Both A and R are false.

4. **Assertion (A) :** If A is a non – singular matrix, then A^{-1} exists.

Reason (R): Determinant of a non – singular matrix is zero.

- (a) Both A and R are true and R is the correct explanation of A .
 (b) Both A and R are true but R is not the correct explanation of A .
 (c) A is true but R is false.
 (d) A is false but R is true.
 (e) Both A and R are false.

Answer key:

1(i) (a) (ii) (a) (iii) (c) (iv) (b)

2 (i) (a) (ii) (c) (iii) (d) (iv) (a)

3 (a) (If AB and BA are both defined, then A and B must be square matrices of the same order. This statement is true. If AB is defined, the number of columns of A must equal the number of rows of B . If BA is defined, the number of columns of B must equal the number of rows of A . For both to hold, the number of rows of A must equal the number of columns of B , and the number of rows of B must equal the number of columns of A . This means both matrices must be square and of the same order.)

4 (c) (A non-singular matrix, also known as an invertible matrix, has a determinant that is not zero, and it is this property that allows for the existence of its inverse (A^{-1}).)