5. If $A = \begin{bmatrix} 1 & 3 \\ -1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & 0 \\ 1 & 2 \end{bmatrix}$, $2A + B + X = 0$, find X.

6. If $2A + 3B = \begin{bmatrix} 2 & 3 \\ 4 & 0 \end{bmatrix}$ and $3A + 2B = \begin{bmatrix} -2 & 2 \\ 1 & -5 \end{bmatrix}$, find A and B.

7. If $A = \begin{bmatrix} 2 & 4 \\ 3 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 5 & 4 \\ 3 & 2 \end{bmatrix}$, then verify that $(AB)' = B'A'$.

8. Find A such that $A \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix} = \begin{bmatrix} 0 & -3 \\ 10 & 3 \end{bmatrix}$.

9. Show that $A = \begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix}$ satisfies $A^2 - 4A - 5I = 0$, and hence find $A^{-1}$.

10. If $A = \begin{bmatrix} 1 & 0 \\ 2 & 1 \end{bmatrix}$, Prove that $A + A'$ is a symmetric matrix.

11. Using elementary operation, find the inverse of the matrix $A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$

12. Find the matrix X, for which $\begin{bmatrix} 5 & 4 \\ 1 & 1 \end{bmatrix} X = \begin{bmatrix} 1 & -2 \\ 1 & 3 \end{bmatrix}$.

13. Let $A = \begin{bmatrix} 3 & 2 & 5 \\ 4 & 1 & 3 \\ 0 & 6 & 7 \end{bmatrix}$. Express A as a sum of symmetric and skew symmetric matrices.

14. If $A^T = \begin{bmatrix} 3 & 4 \\ -1 & 2 \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 2 & 1 \\ 1 & 2 & 3 \end{bmatrix}$, then find $A^T - B^T$

15. If $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$, $f(x) = x^2 - 2x - 3$, show that $f(A) = 0$.

16. Solve for x and y: $\begin{bmatrix} 3 & -4 \\ 1 & 2 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 3 \\ 11 \end{bmatrix}$.

17. If $A = \begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$, find K so that $A^2 = 8A + K$

Give an examples of two non-zero 2×2 matrices A and B such that AB=0.

Find the value of x and y if $2\begin{bmatrix} x & 5 \\ 7 & y-3 \end{bmatrix} + \begin{bmatrix} 3 & -4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 6 \\ 15 & 14 \end{bmatrix}$

If $A^T = \begin{bmatrix} 3 & 4 \\ -1 & 2 \\ 0 & 1 \end{bmatrix}$ $and\ B = \begin{bmatrix} -1 & 2 & 1 \\ 1 & 2 & 3 \end{bmatrix}, then\ find\ A^T - B^T.$

If $\begin{pmatrix} 2x+y & 3y \\ 0 & 4 \end{pmatrix} = \begin{pmatrix} 6 & 0 \\ 6 & 4 \end{pmatrix}'$, then find x and y.

If $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$, find A+A'

If $\begin{pmatrix} 5 & 3x \\ 2y & z \end{pmatrix} = \begin{pmatrix} 5 & 4 \\ 12 & 6 \end{pmatrix}'$, then find x,y and z.

If A is a matrix of order 2×3 and B is of matrix of order 3×5, what is the order of the matrix (AB)' ?

Using elementary operation , find the inverse of the matrix A = $\begin{bmatrix} 1 & 0 \\ 1 & 3 \end{bmatrix}$

If $\begin{pmatrix} 2x & 1 \\ 5 & x+2y \end{pmatrix} = \begin{pmatrix} 4 & 1 \\ 5 & 0 \end{pmatrix}$, find the value of $y$.

If $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$ $and B = \begin{pmatrix} -3 & 2 \\ 0 & 1 \end{pmatrix}$,findi)3A+2B ii)A- 3B

**LEVEL – II**

If A is square matrix satisfying $A^2 = I$, then what is the inverse of A?

If A = $\begin{pmatrix} 4 & x+2 \\ 2x-3 & x+1 \end{pmatrix}$ *is symmetric Find x.*

Find the product $\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} \begin{bmatrix} 2 & 3 & 4 \end{bmatrix}$

If the matrix $\begin{bmatrix} 0 & a & 3 \\ 2 & b & -1 \\ c & 1 & 0 \end{bmatrix}$ is skew symmetric, find a + b + c .

4. Using property prove that $\begin{vmatrix} 1 & bc & a(b+c) \\ 1 & ca & b(c+a) \\ 1 & ab & c(a+b) \end{vmatrix} = 0$.

5. Find the area of the triangle with vertices (-2, -3), (3,2) and (-1, -8).

6. Using co-factors of second row, evaluate $\Delta = \begin{vmatrix} 5 & 3 & 8 \\ 2 & 0 & 1 \\ 1 & 2 & 3 \end{vmatrix}$.

7. Using co-factors of elements of third column evaluate $\Delta = \begin{vmatrix} 1 & x & yz \\ 1 & y & zx \\ 1 & z & xy \end{vmatrix}$.

8. Find the adjoint of $\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$.

9. Find the inverse of $\begin{bmatrix} -1 & 5 \\ -3 & 2 \end{bmatrix}$.

10. If A is of order 3x3 and $|A| = 5$ then find the $|adj\ A|$.

11. If $A_{ij}$ is the co factor of the element $a_{ij}$ if the determinant $\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$ write

value of $a_{32} \cdot A_{32}$

**4 MARKS QUESTIONS:**

1.If $A = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 2 \\ 0 & 0 & 4 \end{bmatrix}$, then show that $|3A| = 27|A|$.

2. Using properties evaluate $\begin{vmatrix} 1 & a & bc \\ 1 & b & ca \\ 1 & c & ab \end{vmatrix}$.

3. Prove that $\begin{vmatrix} b+c & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4abc$.

4. Using properties show that $\begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix} = (a-b)(b-c)(c-a)$.

18. If a, b, c are in A.P. , find value of

$$\begin{vmatrix} 2y+4 & 5y+7 & 8y+a \\ 3y+5 & 6y+8 & 9y+b \\ 4y+6 & 7y+9 & 10y+c \end{vmatrix}$$

19. Solve the equation $\begin{vmatrix} x+a & x & x \\ x & x+a & x \\ x & x & x+a \end{vmatrix} = 0$, $a \neq 0$

20. Using properties of properties of determinants, Prove that

$$\begin{vmatrix} 1 & 1+p & 1+p+q \\ 2 & 3+2p & 4+3p+2q \\ 3 & 6+3p & 10+6p+3q \end{vmatrix} = 1$$

SECTION C – (6 MARKS)

21. If A = $\begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$ then verify that A (adjA) = | A|I , where I is the identity matrix. Also find $A^{-1}$

22. Solve the system of the following equations using matrix method.

$\frac{2}{x}+\frac{3}{y}+\frac{10}{z}=4$, $\frac{4}{x}-\frac{6}{y}+\frac{5}{z}=1$, $\frac{6}{x}+\frac{9}{y}-\frac{20}{z}=2$

**LEVEL III QUESTIONS:**

LEVEL III

(1 mark questions)

1. If A is a matrix of order 3 X 3 then verify that $(A^2)^{-1} = (A^{-1})^2$

2. If A is a square matrix of order 3 such that $|adjA| = 64$, $find |A|$

3. If A $\begin{pmatrix} 1 & 2 \\ 4 & 2 \end{pmatrix}$, then find the value of k if $|2A| = k|A|$

4. Without expanding evaluate the determinant $\begin{vmatrix} (a^x + a^{-x})^2 & (a^x - a^{-x})^2 & 1 \\ (a^y + a^{-y}) & (a^y - a^{-y})^2 & 1 \\ (a^z - a^{-z})^2 & (a^z - a^{-z})^2 & 1 \end{vmatrix}$, where a > 0 and x,y are real numbers.

5. If A and B are non singular square matrices of the same order, then write the relationship between adj AB, adj A and adj B.

6. If A is invertible matrix of 3 X 3 and $|A| = 7$ then find $|A^{-1}|$

**<u>(4 mark questions)</u>**

1. If a, b and c are real numbers and $\begin{vmatrix} b+c & c+a & a+b \\ c+a & a+b & b+c \\ a+b & b+c & c+a \end{vmatrix} = 0$. Show that either a+b+c=0 or a=b=c.

2. Using properties of determinants, prove that

$$\begin{vmatrix} a+b+2c & a & b \\ c & b+c+2a & b \\ c & a & c+a+2b \end{vmatrix} = 2(a+b+c)^3$$

3.Using properties of the determinants , prove that

$$\begin{vmatrix} -bc & b^2+bc & c^2+bc \\ a^2+ac & -ac & c^2+ac \\ a^2+ab & b^2+ab & -ab \end{vmatrix} = (ab+bc+ac)^3$$

4.Using properties of determinants, prove that if x, y and z are different and

$\begin{vmatrix} x & x^2 & 1+x^3 \\ y & y^2 & 1+y^3 \\ z & z^2 & 1+z^3 \end{vmatrix} = 0$ , show that 1+xyz=0.

5. Using properties of determinants, prove the following:

$$\begin{vmatrix} (b+c)^2 & a^2 & a^2 \\ b^2 & (c+a)^2 & b^2 \\ c^2 & c^2 & (a+b)^2 \end{vmatrix} = 2\text{abc}(a+b+c)^3.$$

6.. Using properties of determinants, prove the following:

$$\begin{vmatrix} 1+a^2-b^2 & 2ab & -2a \\ 2ab & 1-a^2+b^2 & 2a \\ 2b & -2a & 1-a^2-b^2 \end{vmatrix} = (1+a^2+b^2)^3.$$

7. Using properties of determinants, solve the following for x :

$$\begin{vmatrix} x-2 & 2x-3 & 3x-4 \\ x-4 & 2x-9 & 3x-16 \\ x-8 & 2x-27 & 3x-64 \end{vmatrix} = 0$$

8. Using properties of determinants, solve the following for x :

$$\begin{vmatrix} a+x & a-x & a-x \\ a-x & a+x & a-x \\ a-x & a-x & a+x \end{vmatrix} = 0$$

9. Using properties of determinants, show that ???? $\begin{vmatrix} b+c & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4\,abc$

10. Using properties of determinants, prove the following: $\begin{vmatrix} x & x+y & x+2y \\ x+2y & x & x+y \\ x+y & x+2y & x \end{vmatrix} = 9y^2(x+y).$

11. If x, y, z are the 10th, 13th and 15th terms of a G.P. find the value of

$$\begin{vmatrix} \log x & 10 & 1 \\ \log y & 13 & 1 \\ \log z & 15 & 1 \end{vmatrix}$$

**(5 marks questions)**

1. If $A = \begin{bmatrix} 1 & -1 & 1 \\ 2 & 1 & -3 \\ 1 & 1 & 1 \end{bmatrix}$, find $A^{-1}$ and hence solve the following system of equations x+2y+z=4 , −x+y+z=0 , x-3y+z=2.

2. If a, b and c are are positive and unequal , show that the following determinant is negative

$$\Delta = \begin{vmatrix} a & b & c \\ b & c & a \\ c & a & b \end{vmatrix}.$$

3. If $A = \begin{pmatrix} 2 & 1 & 3 \\ 4 & -1 & 0 \\ -7 & 2 & 1 \end{pmatrix}$, find $A^{-1}$ and hence solve the system of equations:

$2x + y + 3z = 3,\ 4x - y = 3\ and - 7x + 2y + z = 2.$

4. If $A = \begin{pmatrix} 1 & -1 & 0 \\ 2 & 3 & 4 \\ 0 & 1 & 2 \end{pmatrix}$ $and\ B = \begin{pmatrix} 2 & 2 & -4 \\ -4 & 2 & -4 \\ 2 & -1 & 5 \end{pmatrix}$, find AB. Use this to solve the following

system of equations. x - y =3 , 2x +3y + 4z =17 and y + 2z = 7

5. Examine the consistency of the following system of equations.

3x-y+7y=3, 2x+y+3z, x+4y-2z

6. Examine the consistency of the followi8ng system of equations

X –y + z=3, 2x+y-z=3, -x-2y+2z=1

7. Solve the following for CosA, CosB, CosC using Matrix method

a=b CosC+cCosB ,

b=cCosA+aCosC,

c=aCosB+bCosC

**VALUE BASED QUESTIONS**

MATRICES AND DETERMINANTS

1. Assume a hypothetical situation that to promote "Save Environment" awareness a university gives scholarships for those students who take any of the below subjects as an additional subject in first year, second year, third year of graduation. From the table given below form a set of simultaneous equation and check the consistency. Which subject has to be promoted the most and why?

| S.No. | Subject | No. of students in A | No. Of students in B | No. Of students in C |
|---|---|---|---|---|
| 1 | Industrial waste | 1 | 3 | 6 |
| 2 | Organic waste | 1 | 1 | 7 |
| 3 | e-waste | 1 | 1 | 8 |
| | Amount received | 5,000 | 7,000 | 35,800 |

EXPECTED VALUES:

1. Sense of belonging
2. Pollution control

$C_i \leftrightarrow C_j$

$C_i \rightarrow kC_i$

$C_i \rightarrow C_i + kC_j$, *where k is any nonzero real number*

12.Finding the inverse of a square matrix using elementary row or column transformations

13. $(AB)^{-1} = B^{-1}A^{-1}$
$AA^{-1} = A^{-1}A = I$

14.Invertible matrix( Let A and B be two square matrices, if AB=BA =I then B is called the inverse of the matrix A and A is called an invertible matrix . Inverse of A is denoted by $A^{-1}$)

**LEVEL -I**

1. If a matrix has 5 elements, write all possible order it can have?

2. If $\begin{bmatrix} 3 & 4 \\ 2 & x \end{bmatrix} \begin{bmatrix} x \\ 1 \end{bmatrix} = \begin{bmatrix} 19 \\ 15 \end{bmatrix}$, find the value of x.

3. Construct a 3x3 matrix A, where $a_{ij} = 2i - 3j$ .

4. If order of matrix A is 2x3 and order of matrix B is 3x4 , find the order of AB.

5. Write the value of $x + y + z$ if $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ -1 \\ 0 \end{bmatrix}$

6. For what value of x, is the matrix A= $\begin{bmatrix} 0 & 1 & -2 \\ -1 & 0 & 3 \\ x & -3 & 0 \end{bmatrix}$ a skew-symmetric matrix?

7. If A= $\begin{bmatrix} 2 & 1 & 4 \\ 4 & 1 & 5 \end{bmatrix}$ and B= $\begin{bmatrix} 3 & -1 \\ 2 & 2 \\ 1 & 3 \end{bmatrix}$, write the order of AB and BA.

8. If A, B and C are three non-zero square matrices of same order, find the condition on A such that $AB = AC \Rightarrow B = C$.

## LEVEL 1 QUESTIONS:

### 1 MARK QUESTIONS:

1. *If* $A = \begin{bmatrix} 1 & 2 \\ 4 & 2 \end{bmatrix}$ then show that $|2A| = 4|A|$.

2. Find the value of x if $\begin{vmatrix} 2 & 4 \\ 5 & 1 \end{vmatrix} = \begin{vmatrix} 2x & 4 \\ 6 & x \end{vmatrix}$.

3. Using property prove that $\begin{vmatrix} a-b & b-c & c-a \\ b-c & c-a & a-b \\ c-a & a-b & b-c \end{vmatrix} = 0$.

Using properties show that $\begin{vmatrix} x+4 & 2x & 2x \\ 2x & x+4 & 2x \\ 2x & 2x & x+4 \end{vmatrix}$ = (5x+4) $(4-x)^2$.

Solve 5x+2y =4 ; 7x+3y = 5.

Find the equation of the line joining the points (1,2) and (3,6) using determinants.

Verify A(adjA) = (adj A) A = $|A|$ I if A = $\begin{bmatrix} 1 & -1 & 2 \\ 3 & 0 & -2 \\ 1 & 0 & 3 \end{bmatrix}$.

If A = $\begin{bmatrix} 3 & 7 \\ 2 & 5 \end{bmatrix}$ and B = $\begin{bmatrix} 6 & 8 \\ 7 & 9 \end{bmatrix}$ verify that $(AB)^{-1} = B^{-1}\ A^{-1}$.

If A = $\begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ then show that $A^2 - 5A + 7I = 0$. Hence find $A^{-1}$.

**MARKS QUESTIONS:**

Solve using matrices 2x+3y +3z =5; x-2y+z = -4; 3x-y-2z =3.

Solve using matrices x-y+z=4; 2x+y-3z=0; x+y+z= 2.

**QUESTIONS:**

SECTION A – (one mark)

Evaluate the determinant

$$\begin{matrix} \sin x & -\cos x \\ 0 & \sin y \\ -\sin y & 0 \end{matrix}\Bigg|$$

If A is of order 3 and det A = 4, find det(3A).

Evaluate $\begin{vmatrix} 102 & 18 & 36 \\ 1 & 3 & 4 \\ 17 & 3 & 6 \end{vmatrix}$

Show that the points A (a, b+c), B (b,c+a), C(c,a+b) are collinear.

Find values of k if area of triangle is 4 sq.units and vertices are (-2,0),(0,4), (0,k).

Find equation of line joining (1,2) and (3,6) using determinants.

If A is of order 3 and det (A) = -2, find det (AdjA)

8. Find k if $\begin{bmatrix} 1 & 1 & 1 \\ 0 & 1 & k \\ 1 & -2 & 1 \end{bmatrix}$ is singular.

9. If A is a square matrix of order 3 such that $|A| = 4$ what is $|-5A|$

SECTION B – ( 4 marks)

10. Prove that $\begin{vmatrix} a & a+b & a+b+c \\ 2a & 3a+2b & 4a+3b+2c \\ 3a & 6a+3b & 10a+6b+3c \end{vmatrix} = a^3$

11. Show that $\begin{vmatrix} 1+a & 1 & 1 \\ 1 & 1+b & 1 \\ 1 & 1 & 1+c \end{vmatrix}$ = abc + bc + ca + ab =abc ( $1 + \frac{1}{a} + \frac{1}{b} + \frac{1}{c}$

12. Using properties of determinants prove that

$$\begin{vmatrix} b+c & q+r & y+z \\ c+a & r+p & z+x \\ a+b & p+q & x+y \end{vmatrix} = 2 \begin{vmatrix} a & p & x \\ b & q & y \\ c & r & z \end{vmatrix}$$

13. Using properties of determinants, Prove that

$$\begin{vmatrix} a^2+1 & ab & ac \\ ab & b^2+1 & bc \\ ca & ab & c^2+1 \end{vmatrix} = 1 + a^{2+} b^2 + c^2$$

14. Find minors and cofactors of the elements of the determinant

$\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$ and verify that $a_{11} A_{31} + a_{12} A_{32} + a_{13} A_{33} = 0$.

15. Let $A = \begin{bmatrix} 3 & 7 \\ 2 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 6 & 8 \\ 7 & 9 \end{bmatrix}$. Verify that $(AB)^{-1} = B^{-1} A^{-1}$

16. If $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ Show that $A^2 - 5A + 7I = 0$. Hence find $A^{-1}$

17. Examine the consistency of the system of equations,

$3x - y - 2z = 2$, $2y - z = -1$, $3x - 5y = 3$.

3. About harmful radiation
4. Simple living without electronic gadgets

2. The cost of 4 chocolates, 3 samosas and 2 apples is Rs.60 and that of 2 chocolates, 4 samosas, and 6 apples is Rs.90. The cost of 6 chocolates, 2 samosas, 3 apples is Rs.70. Find the cost of each item by matrix method. What do you think is the healthiest diet? Suggest an item that could replace chocolates and samosas to make the diet healthier?

EXPECTED VALUES:
1. fruits
2. sprouts
3. salads
4. fresh juices

3. Last year 1 packet of tea and 3 packets of sugar together cost Rs.96.This year, the rate of tea increased by 15% and that of sugar by 10%. So, the same amounts of tea and sugar now cost Rs.108.60. Find the rates of sugar and tea per packet last year and this year using matrix method. What do you think is the impact of inflation on family expenses?

EXPECTED VALUES:
1. People in the family has to be educated
2. They should be made skilled laborers
3. Government should take suitable steps to reduce the inflation
4. The benefits of the government schemes should reach the poor people correctly

4. To promote "Compulsory Education" awareness an NGO awards those who take any of the following subjects as additional subjects. From the table given below, form a set of simultaneous equations and solve using matrix method to find the amount given exactly to each
subject. Which subject has to be promoted the most and why?

| S.No. | Subject | No.of students in A | No.of students in B | No.of students in C |
|---|---|---|---|---|
| 1 | Compulsory education | 1 | 1 | 3 |
| 2 | Adult literacy | 1 | 2 | 1 |
| 3 | Amount received | 6,000 | 7,000 | 12,000 |

EXPECTED VALUES:

1. Compulsory education upto 14 years
2. Education alone can create a positive impact on the society
3. Young Indian future leaders should not become child laborers
4. Education for all should be motto
5. Education alone can make country more stronger and a super

**5.** A part of the monthly expenses of a family is constant while the remaining varies with the price of rice, fuel etc., When the price of rice is Rs 25/Kg the monthly expenses of the family is Rs.1000. when it is Rs 24/Kg the monthly expenses is Rs 980. Find the total monthly expenses of the family when the cost of rice is Rs 35/Kg. Is this family below poverty line? Give some suggestions to improve their standard of living.

EXPECTED VALUES:

1. Government should take suitable steps to reduce the inflation
2. The benefits of the government schemes should reach the poor people correctly
3. Price of essential commodities should be reduced.
4. The corruption menace has to be curbed.

Continuity and differentiability

**6.** The cost of 4 kg onion, 3 kg wheat and 2 kg rice is Rs. 60 . The cost of 2 kg onion, 4 kg wheat and 6 kg rice is Rs. 90 The Cost of 6 kg onion 2 kg wheat and 3 kg rice is Rs. 70 . Find Cost of each item per kg by matrix method. What do you think the impact of price hick of onion also Suggest a method to reduce the price hick of onion.

The management committee of a residential colony decided to award some of members (say x) for honesty, some (say y) for helping others and some ers(say z) for supervising the workers to keep the colony neat and clean. The m of all the awards is 12. Three times the sum of the awardees for helping and pervision added to two times the number of awardees for honesty is 33. If the m of the number of awardees for honesty and supervision is twice the number awardees for helping others, using matrix method, find the number of awardees each category . Apart from these values , namely honesty ,cooperation and pervision, suggest one more value which the management of the colony must lude for awards.

Two schools A and B decided to award prizes to their students for three values honesty (x), punctuality (y) and obedience (z). School A decided to award a total of Rs. 11000 for the three values to 5, 4 and 3 students pectively while school B decided to award Rs. 10700 for the three values to 4, 3 and 5 students pectively.

If all the three prizes together amount to Rs. 2700, then.

i. Represent the above situation by a matrix equation and form Linear equations using matrix multiplication.
ii. Is it possible to solve the system of equations so obtained using matrices?
iii. Which value you prefer to be rewarded most and why?