VIGNAN'S FOUNDATION FOR SCIENCE, TECHNOLOGY & RESEARCH
(Deemed to be University) - Estd. u/s 3 of UGC Act 1956

SCHOOL OF APPLIED SCIENCE & HUMANITIES
DEPARTMENT OF MATHEMATICS

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Unit 3: Matrices
Tutorial Questions

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1. If A = [[2, -3], [1, 4]] and B = [[1, 2], [3, -1]], find AB and BA. Verify whether AB = BA.

2. If matrix A = [1 2 2 4 0 4 − 1 3] and matrix B = [2 1 1 − 2 0 3 2 3], find a matrix X such that A - 2X = 3B.

3. If $A = [3\ 0\ 5]$, $B = [4\ 2\ -1\ 0]$, then calculate AB and BA, if exists.

4. Solve the system of equations using the matrix inverse:
$2x + y - z = 1,\ x - y + z = 2,\ 3x + 2y - 2z = 3.$

5. A salesman has the following record of sales during the three items X, Y and Z which have the different rates of commission.

Months	Sales of Units			Total Commission (in Rs.)
	X	Y	Z	
January	45	95	15	850
February	120	45	32	950
March	45	100	25	800

Find out the rates of commission on items X, Y and Z.

6. A mixture is to be prepared by three foods A, B and Which contains nutrients P, Q and R. The table shows the amount of nutrients in units required to make 1kg of each food. The total quantity of 30 units of P, 36 units of Q and 30 units of R respectively be required.

Shop	P	Q	R
A	2	2	4
B	3	5	0

C	4	3	5

a. Express the information in equation form.
b. Solve equations using the Matrix inverse.
c. If cost for kg of food A, B and C are Rs 40,60 and Rs 80 respectively, find total cost of mixture by Matrix Method.

7. Find x such that $\begin{bmatrix}1 & x & 1\end{bmatrix}\begin{bmatrix}1 & 3 & 2\\ 2 & 5 & 1\\ 15 & 3 & 2\end{bmatrix}\begin{bmatrix}1\\ 2\\ x\end{bmatrix} = O$