QP CODE: 18103828

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Reg No : .....

Name : .....

B A DEGREE (CBCS)EXAMINATION, DECEMBER 2018

First Semester

B.A Corporate Economics Model III

Core Course - EC1CRT28 - MATHEMATICS FOR ECONOMISTS - I

2018 Admission only

30AD8592

Maximum Marks: 80 **Time: 3 Hours**

Part A

Answer any **ten** questions.

Each question carries **2** marks.

1. What is column matrix with example
2. Find X such that P-Q+X=0 where P= $\begin{bmatrix} 1 & 2 \\ 2 & 4 \\ 3 & 6 \end{bmatrix}$, Q= $\begin{bmatrix} -1 & -2 \\ 0 & 4 \\ 3 & 1 \end{bmatrix}$
3. Evaluate $\begin{vmatrix} 1 & 2 & -3 \\ -1 & 2 & 4 \\ 2 & 1 & 6 \end{vmatrix}$
4. What is matrix method
5. Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 \\ 3 & 6 & 9 \\ 2 & 4 & 6 \end{bmatrix}$
6. What is input output matrix
7. Examine the meaning and significance of input output analysis
8. Comment on he economic application of input output analysis
9. Test the Hawkins Simon condition for the technological matrix $\begin{bmatrix} 0.2 & 0.4 \\ 0.3 & 0.5 \end{bmatrix}$
10. What do you mean by optimal solution
11. What is dual problem in linear programming problem.
12. Solve 4x+3=7

(10×2=20)

Part B

Answer any **six** questions.

Each question carries **5** marks.

13. Explain different types of vectors.

14. Define symmetric and skew symmetric example

15. If A= $\begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 3 & -2 & 1 \end{bmatrix}$ show that Adj A= 3 A^t

16. Find the inverse of $\begin{bmatrix} 2 & -3 \\ 4 & -1 \end{bmatrix}$

17. Analyse the scope of input output analysis

18. What are the basic assumptions in linear programming problem.

19. A manufacturer of furniture makes two products chairs and tables.Processing of these products is done on two machines A and B.A chair requires 2 hours on machine A and 6 hours on machine B.A table requires 5 hours on machine A and no time on machine B.There are 16 hours of time per day available on machine A and 13 hours on machine B.Profit gained by the manufacturer from a chair is Rs.2 and from a table is Rs.5 respectively .Formulate the problem into a L.P.P inorder to maximise the total profit.

20. Solve $4x^2-9=0$

21. Solve $x+y=12$, $x^2+y^2=74$

(6×5=30)

Part C

Answer any **two** questions.

Each question carries **15** marks.

22. Solve the system of equations$5x-6y+4z=15$, $7x+4y-3z=19$, $2x+y+6z=46$ using Cramer's rule using

23. Solve Min Z= -x+2y
subject to $-x+3y \leq 10$
$x-y \leq 2$
$x+y \leq 6$
$x,y \geq 0$

24. Solve

(i) $\frac{x-y}{2}=\frac{y-1}{3}$ and $\frac{3x-4y}{5}$=x-10

(ii) $\frac{7}{x}+\frac{3}{y}=\frac{11}{5}$ and $\frac{5}{y}-\frac{15}{x}=1$

25. Solve 2x-y+z=3

x+3y-2z=11

3x-2y+z=4

(2×15=30)