QP CODE: 22103304

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Reg No : ....

Name : ....

B.A DEGREE (CBCS) REGULAR / IMPROVEMENT / REAPPEARANCE EXAMINATIONS, OCTOBER 2022

Second Semester

B.A Corporate Economics Model III

Core Course - EC2CRT06 - MATHEMATICS FOR ECONOMICS- II

2017 ADMISSION ONWARDS

3CC7EA1F

Time: 3 Hours Max. Marks : 80

Part A

*Answer any **ten** questions.*

*Each question carries **2** marks.*

1. Find the derivative of $\frac{1}{x^2}$
2. Find the derivative of $\frac{logx}{x}$
3. If $y = 3x^3 - 2x^2$ find y_2
4. Distinguish between assignment and transportation problems.
5. How will you solve maximisation problems using assignment techniques?
6. Define feasible solution in transportation problem.
7. Write a short note on Vogel's method.
8. What are unbalanced problems? How are they solved?
9. Define rank of amatrix with example.
10. Show that $\begin{pmatrix} 3 & 4 & 2 \\ 0 & 1 & -3 \\ 2 & -2 & 8 \end{pmatrix}$ is nonsingular.
11. Explain union of two sets with example.
12. Represent $(A \cap B)^c$ using venn diagram.

(10×2=20)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. Differentiate $x^{\frac{1}{3}e^x}$

14. Find

$$\frac{dy}{dx}$$

if $x^2 - y^2 + 3x = 5y$

15. Discuss any method for solving assignment problems.

16. Explain lowest cost entry method.

17. Explain elementary transformations.

18. Find the inverse of the matrix $\begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix}$

19. Explain Roster method and set builder method.

20. Different types of sets.

21. If A={1,2,3,5}, B={2,3,4}, , C={1,2,3,4} find $(A \cap B) \times C$

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **15** marks.*

22. If y= $x^2 logx$, prove that $x^2y_2 - xy_1 = 2x^2$

23. A department head has four tasks to be performed and three subordinates.The subordinates differ in efficiency .The estimates of time , each subordinate would like to perform is given below in the matrix.How should he allocate the task one to each man, as to minimise the total man hour

	1	2	3
A	9	26	15
B	13	27	6
C	35	20	15
D	18	30	30

24. Find the initial feasible solution to the transportation problem given below by North west corner rule

	A	B	C	D	Supply
P	21	16	15	3	11
Q	17	18	14	23	13
R	32	27	18	41	19
Demand	6	10	12	15	

25. Reduce the matrix $\begin{pmatrix} 1 & 2 & 0 & -1 \\ 3 & 4 & 1 & 2 \\ -2 & 3 & 2 & 5 \end{pmatrix}$ into canonical form

(2×15=30)