B.A DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS, DECEMBER 2021

Second Semester

B.A Corporate Economics Model III

Core Course - EC2CRT06 - MATHEMATICS FOR ECONOMICS- II

2017 ADMISSION ONWARDS

BC264AC8

Time: 3 Hours   Max. Marks : 80

Part A

*Answer any **ten** questions.*

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

1. Find the derivative of x^4

2. Find the derivative of $(x^2 + 1)(x + 3)$

3. Find y_1 if y= $x^2 logx$

4. What are assignment problems?

5. How will you solve maximisation problems using assignment techniques?

6. What are transportation problems ?

7. Write a short note on Vogel's method.

8. What are unbalanced problems ? How are they solved?

9. Find the rank of $\begin{pmatrix} 2 & 3 & 1 \\ 2 & 0 & 1 \\ 1 & 2 & 3 \end{pmatrix}$

10. Define equivalent matrices.

11. Define finite and infinite sets.

12. Explain difference of two sets.

(10×2=20)

Part B

*Answer any **six** questions.*

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

13. Find

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

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

14. If $x^3 + y^3 = 3axy$ find $\dfrac{dy}{dx}$

15. Distinguish between unbalanced assignment problems and transportation problems.

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

	A	B	C	D	Supply
I	6	4	1	5	14
II	8	9	2	7	16
III	4	3	6	2	5
Demand	6	10	15	4	

17. Define nonsingular matrix Prove that A= $\begin{pmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{pmatrix}$ is nonsingular

18. Find the inverse of the matrix $\begin{pmatrix} 2 & -3 \\ 4 & -1 \end{pmatrix}$

19. Explain subset and superset

20. Using venn diagram prove $A \cap (B - C) = (A \cap B) - C$

21. If A={3,4,5,6}, B={3,5,7,9}, C={6,7,8,10,12} find $A \times (B - C)$

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. Differentiate $\dfrac{(x - 1)(x - 5)}{(x + 2)(x + 1)}$

23. Find the rank of the matrix A by reducing to its row equivalent Canonical form

$$\begin{pmatrix} 4 & 0 & 2 & 6 \\ 2 & 1 & 3 & 1 \\ 0 & 1 & 2 & -2 \end{pmatrix}$$

24. Solve the assignment problem

	P	Q	R	S	T
A	5	11	10	12	4
B	2	4	6	3	5
C	3	12	5	14	6
D	6	14	4	11	7
E	7	9	8	12	5

25. Find the initial feasible solution to the transportation problem using lowest cost entry method

	A	B	C	D	Supply
I	6	4	1	5	14
II	8	9	2	7	16
III	4	3	6	2	5
Demand	6	10	15	4	

(2×15=30)