



BA DEGREE (CBCS) EXAMINATION, NOVEMBER 2020

Second Semester

B.A Corporate Economics Model III

Core Course - EC2CRT06 - MATHEMATICS FOR ECONOMICS- II

2017 ADMISSION ONWARDS

3729BBD2

Time: 3 Hours

Max. Marks : 80

Part A

*Answer any **ten** questions.*

Each question carries 2 marks.

1. Find the derivative of $x^2(x^3 + 1)$
2. If $x^2 + y^2 = 9$ find $\frac{dy}{dx}$
3. If $y = 3x^3 - 2x^2$ find y_2
4. Distinguish between assignment and transportation problems.
5. What are unbalanced assignment problems?
6. Write a short note on lowest cost entry method.
7. Write a short note on Vogel's method.
8. What are unbalanced problems ? How are they solved?
9. Find the rank of a matrix $A = \begin{pmatrix} 1 & 2 & 3 \\ 2 & 3 & 4 \\ 3 & 5 & 7 \end{pmatrix}$
10. Define equivalent matrices.
11. Define set.
12. If $A = \{3,5\}$, $B = \{x,y\}$ find $B \times A$.

(10×2=20)

Part B

*Answer any **six** questions.*

Each question carries 5 marks.





13. Find the differential coefficient of $(2x-1)^2$

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

15. How will you solve maximisation problems using assignment problems?

16. Explain the following (i)basic feasible solution(ii) optimal solution(iii)Non degenerate basic feasible solution

17. Define non singular 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 $\begin{pmatrix} 2 & 3 \\ 4 & 5 \end{pmatrix}$

19. Different types of sets.

20. If $A = \{1,2,3\}$, $B = \{2,3,4,5\}$ and $C = \{2,4,6,8\}$ verify that $A \cup (B - C) = (A \cap B) - (B \cap C)$

21. Using venn diagram prove $(A \cap B)^c = A^c \cup B^c$

(6×5=30)

Part C

Answer any two questions.

Each question carries 15 marks.

22. Differentiate $\frac{x^2 - 2x + 2}{(x + 2)(x + 1)}$

23. Four jobs are to be assigned to four machines. The operation times for the various combinations of jobs and machines are given in the following table. Determine the optimum assignment schedule

	1	2	3	4
A	1	4	6	3
B	8	7	10	9
C	4	5	11	7
D	6	7	8	5

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)

