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**SAINTGITS COLLEGE OF APPLIED SCIENCES**

**SECOND INTERNAL ASSESSMENT EXAMINATION, APRIL 2019**

**Department of BA, Semester 1I**

**Mathematics for Economics II**

Total : **80 marks** Time:**3Hours**

**Section A**

*Answer any 10 questions. Each question carries 2 marks.*

1. Define disjoint sets with example.

2. If A={a, b, c}, B={x, y} , find (i) A×B(ii)B×A

3. Define unbalanced transportation problem.

4. Define equal sets and equivalent sets.

5. Define rank of a matrix.

6. Find the derivative of $4x^{3}+3x^{2}$

7. Find the derivative of $\frac{x^{2}}{e^{x}}$

8. Define assignment problem.

9. Find $\frac{dy}{dx}$ if y= x logx

10. Find the rank of the matrix $\left[\begin{matrix}\begin{matrix}1&0&1\\2&1&3\\3&1&4\end{matrix}& \\ & \end{matrix}\right]$

11. Find $\frac{dy}{dx}$ if y= x+a

12. Define singular and nonsingular matrix **(10 X 2 = 20 marks)**

**Section B**

*Answer any 6 questions. Each question carries 5 marks.*

13.If A={1,2,3}, B= {3,4,5}, C={1,3,5} prove that A-(BUC)=(A-B)$∩$(A-C)

14. Find the initial feasible solution using North West corner rule

 D1 D2 D3 D4 supply

 O1 6 4 1 5 14

 O2 8 9 2 7 16

 O3 4 3 6 2 5

 6 10 15 4

15. Explain difference between a transportation and assignment problems.

16. Find the initial feasible solution using lowest costentry method

 A B C D supply

 1 1 5 3 3 34

 2 3 3 1 2 15

 3 0 2 2 3 12

 4 2 7 2 4 19

 21 25 17 17

17. Find the derivative of (x-1)(x-5)

18. Find the derivative of $x^{logx}$

19.If A={a,b} and B={2,3} and C={3,5} find A×(B$∪C$)(ii)(A×B)$∩$(A$×$C)

20.If A= {2,3} B={3,4} and U={1,2,3,4,5} represent (i)A-(B-C) (ii)A-(B$∩$C) using venn diagram

21. Explain set operations. **(6 X 5 = 30marks)**

**Section C**

*Answer any 2questions. It carries 15marks.*

22. Solve the assignment problem

 A B C

 1 17 25 31

 2 10 25 16

 3 12 14 11

23. Find the initial solution for the transportation problem by Vogel’s method

 W1 W2 W3 supply

 F1 2 7 4 5

 F2 3 3 1 8

 F3 5 4 7 7

 F4 1 6 2 14

 Demand 7 9 18

24. Reduce the matrix A=$\left[\begin{matrix}\begin{matrix}1&2&3\\2&-2&1\\3&0&4\end{matrix}&\begin{matrix}-2\\3\\1\end{matrix}\\ & \end{matrix}\right]$ to Row equivalent canonical form.

25.If u={1,2,3,4,5,6,7,8}, A= {1,2,3}, B={2,4,5}, C={2,4,6} verify that (i)$(AUB)^{'=}A^{'}∩B^{'}$

 (ii)$(A∩B)^{'}$ =$A^{'}∪$ $B^{'}$

 **(2 X 15 = 30 marks)**

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