B.A. DEGREE EXAMINATION,NOVEMBER 2019
III Year V Semester
Mathematics for Economists

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. **What is a column matrix?**
2. **Define Matrix.**
3. **Define Value added.**
4. **State any 2 assumption of input – output analysis.**
5. **What is known as chain rule?**
6. **Differentiate y = $7x^3+5x^5-3x^6+8$**
7. **What is the condition for minimum value?**
8. **What is marginal cost?**
9. **Z = x^3e^{2y}, find partial derivatives.**
10. **What is Revenue?**
11. **What is Total cost?**
12. **What is average cost?**

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. $A = \begin{bmatrix} 2 & 3 & 4 \\ 5 & 6 & 7 \\ 4 & 7 & 6 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{bmatrix}$ find AB.
14. **State the limitations of input - output analysis.**
15. **Briefly state the rules of differentiation.**
16. **Find the maximum and minimum values of y = x^3-3x+1**
17. **State the properties of a homogeneous function.**
18. Let $A = \begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ 3 & 2 \end{bmatrix}$ verify that $(A+B)^1 = A^1+B^1$
19. **Suppose we are given a short run total cost function as C =$Q^3-3Q^2+15Q+27$, obtain AC+MC function.**

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. If A $= \begin{bmatrix} a11 & a12 & a13 \\ a21 & a22 & a23 \end{bmatrix}$ and B $= \begin{bmatrix} b11 & b12 \\ b21 & b22 \\ b31 & b32 \end{bmatrix}$ prove that AB ? BA

21. **G**iven A $= \begin{bmatrix} 0.1 & 0.3 & 0.1 \\ 0 & 0.2 & 0.2 \\ 0 & 0 & 0.3 \end{bmatrix}$ and final demands are F_1, F_2 and F_3, Find the output levels consistent with the model. What will be the output level if $F_1 = 20$, $F_2 = 0$ and $F_3 = 100$?

22. **Show that y = x+1/x has one maximum and one minimum value and the latter is larger than the former.**

23. **If the total cost function is C = 1/3 Q^3-3Q2+9Q, find at what level of output AC will be minimum and what level will it be?**

24. **State the condition for Maxima & Minima of function involving independent variables.**

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