D 93018 (Pages : 3) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020

Economics

ECO 3B 03—QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS—I

Time : Two Hours and a Half Maximum : 80 Marks

Section A

Answer at least **ten** *questions.*
Each question carries 3 *marks.*
All questions can be attended.
Overall Ceiling 30.

1. Define Variables and Constants.
2. What is Logarithmic linear function ?
3. Find the logarithm of 216 to the base 6.
4. Solve if $a = b^x, b = c^y, c = a^z$, show that $xyz = 1$.
5. Define Transpose of a matrix.
6. Define (i) Diagonal matrix ; and (ii) Square matrix.
7. What are the important merits and demerits of Mode ?
8. Define (i) Skewness ; and (ii) Kurtosis.
9. What Lorenz curve ?
10. Distinguish between Positive and Negative Correlation.
11. Find the range of the set 4, 8, 9, 15, 12, 6, 11, 2, 10, 7.
12. What is Co-efficient of Variation ?
13. Define Mean Deviation.
14. What is the use of Pie chart ?
15. Define Standard error of an estimate.

(10 × 3 = 30 marks)

Section B (Short Essay Questions)

Answer at least **five** *questions.*
Each question carries 6 *marks.*
All questions can be attended.
Overall Ceiling 30.

16. Briefly explain the inverse of the matrix and its properties.

17. If $A = \begin{bmatrix} 0 & 2 & 3 \\ 2 & 1 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 7 & 6 & 5 \\ 1 & 4 & 5 \end{bmatrix}$. Evaluate $2A + 3B$.

18. If $A = \begin{bmatrix} 3 \\ 0 \\ 5 \\ 1 \end{bmatrix}$ and $B = [4 \quad 2 \quad -1 \quad 0]$. Find AB and BA.

19. The rankings of 10 trainees at the beginning and at the end of a certain course are given below :

Trainees	Ranks before the training	Ranks after the training
A	1	6
B	6	8
C	3	3
D	9	7
E	5	2
F	2	1
G	7	5
H	10	9
I	8	4
J	4	10

Obtain Spearman's Rank Correlation co-efficient.

20. Distinguish between Correlation analysis and Regression analysis.

21. Find the Median for using the following table which gives you the distribution of marks secured by some students in an examination :

Marks	:	0–20	21–30	31–40	41–50	51–60	61–70	71–80
No. of Students	:	42	38	120	84	48	36	31

22. Explain different types of functions and its applications in Economic analysis.

23. Prove that $\log_{10} 1600 = 2 + 4 \log_{10} 2$.

(5 × 6 = 30 marks)

Section C (Long Essay Questions)

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

24. (i) Briefly explain different laws of logarithms.

(ii) If $\log_a 32 = \frac{5}{7}$.

25. Find the Rank of the Matrices :

(i) $\begin{bmatrix} 1 & 0 & 2 & 3 \\ 2 & 1 & 0 & 1 \\ 4 & 1 & 4 & 7 \end{bmatrix}$; and (ii) $\begin{bmatrix} 1 & 2 & -1 \\ 2 & 4 & 3 \\ -1 & -2 & 6 \end{bmatrix}$.

26. Write a short note on relative and absolute Measures of Dispersion.

27. Obtain the line of regression of Y on X for the following data :

Age (Years) X	:	66	38	56	42	72	36	63	47	55	45
Blood Pressure Y	:	145	124	147	125	160	118	149	128	150	124

Estimate the blood pressure of a man whose age is 50 years.

(2 × 10 = 20 marks)