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**BCMCMC 108**

Credit Based I Semester B.Com. Examination, Nov./Dec. 2018
(Common to all Batches)
BUSINESS STATISTICS AND MATHEMATICS

Time : 3 Hours

Max. Marks : 80

- Instructions :** 1) Non-programmable calculator may be **used**.
 2) Logarithm tables will be provided on **request**.
 3) Provide working notes **wherever** necessary.

SECTION – AAnswer **any four** of the following :**(4×4=16)**

- In a class there are 60 boys and 40 girls. The mean marks of boys is 70 and that of the whole class is 66. Find the mean marks of girls.
- A certain stock grows at the rates 10%, 15% and 13% in three trading sessions and decreases by 10% and 8% during next two trading sessions. What is the average growth of stock ?
- State any four properties of a determinant.
- What are the limitations of Index numbers ?

5. If $A = \begin{bmatrix} 1 & 3 \\ -2 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 5 \\ 3 & -4 \end{bmatrix}$, find the value of $2A + 3B - 4I$.

6. If $A = \begin{bmatrix} 3 & -1 & 3 \\ 1 & 2 & 3 \\ 6 & (x-5) & 6 \end{bmatrix}$ is a singular matrix, find the value of x .



SECTION - B

Answer any four of the following :

(4×8=32)

7. What are the important steps in the construction of index numbers ?

8. Compute median and mode from the following data :

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	5	7	15	25	8

9. Calculate S.D. for the following data :

C.I.	0-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40
Freq.	2	5	7	13	21	16	8	3

10. Calculate Fishers price index number for the following data :

Commodity	2014		2018	
	Price	Quantity	Price	Quantity
A	12	20	14	14
B	14	13	20	20
C	10	12	15	15
D	6	8	4	4
E	8	5	6	5

11. If $A = \begin{bmatrix} 1 & 0 & -1 \\ 3 & 4 & 5 \\ 0 & -6 & -7 \end{bmatrix}$, find the value of $A^2 - 5A + 4I$.

12. Compute cost of living index number for the following data :

Items	Weight	Prices (Rs.)	
		Base Year	Current Year
Food	10	150	225
House Rent	5	50	150
Clothing	2	30	60
Fuel and Lighting	3	30	75
Miscellaneous	5	50	75



SECTION – C

Answer **any two** of the following :

(2×16=32)

13. Find G.M. and H.M. for the following data :

Daily Wages (Rs.)	110-120	120-130	130-140	140-150	150-160	160-170	170-180
No. of workers	3	25	34	38	25	15	10

14. The scores of two batsman A and B in 10 innings during a certain season are given below

A	32	28	47	63	71	39	10	60	96	14
B	19	31	48	53	67	90	10	62	40	80

Find :

- i) Who is a better run scorer ?
- ii) Who is more consistent in scoring ?

15. Solve the following equations by Cramers Rule.

$$2x - y + 8z = 13$$

$$3x + 4y + 5z = 18$$

$$5x - 2y + 7z = 20.$$

16. Solve the following equations by matrix inverse method.

$$2x + 4y - z = 9$$

$$3x + y + 2z = 7$$

$$x + 3y - 3z = 4.$$