B.Com. 3rd Semester

1125

BUSINESS MATHEMATICS & STATISTICS
Paper : BCM–304

Time Allowed : Three Hours]   **[Maximum Marks : 80**

Note :– (i) Attempt any **four** questions from Section A.

(ii) Attempt any **two** questions from Section B.

(iii) Attempt any **two** questions from Section C.

SECTION–A (4×5=20)

1. Explain types of Matrices with their properties.

2. For a distribution, the coefficient of variation is 30% and the value of arithmetic mean is 20. Find out the value of Standard Deviation.

3. Distinguish between Mean Deviation and Standard Deviation. Which is considered better and why ?

4. Discuss tests of Adequacy with example.

5. What do you mean by Index Number Analysis ?

6. Explain importance of Time Series in Government.

SECTION–B (2×15=30)

7. John inherited $25,000 and invested part of it in a money market account, part in municipal bonds, and part in a mutual fund. After one year, he received a total of $1,620 in simple interest from the three investments. The money market paid 6% annually, the bonds paid 7% annually, and the mutual fund paid 8% annually. There was $6,000 more invested in the bonds than the mutual funds. Find the amount John invested in each category.

8. You are standing at the edge of a slow-moving river which is one mile wide and wish to return to your campground on the opposite side of the river. You can swim at 2 mph and walk at 3 mph. You must first swim across the river to any point on the opposite bank. From there walk to the campground, which is one mile from the point directly across the river from where you start your swim. What route will take the least amount of time ?

9.   There are 50 apple trees in an Orchard. Each tree produces 800 apples. For each additional tree planted in the orchard, the output per tree drops by 10 apples. How many trees should be added to the existing orchard in order to maximize the total output of trees ?

10. Explain the concept of "Maxima" and "Minima" giving their managerial applications. Clearly state the conditions for Maxima and Minima.

SECTION–C (2×15=30)

11. Distinguish between classification and tabulation. Describe in brief the purpose, methods and importance of classification.

12. (A) Find the Mean and SD of the following :

X :   11   21   41   62   80   92

(B) Transform the above observations such that the Mean of the observations becomes double of the Mean of X, standard deviation remaining unchanged.

13. Calculate the weighted moving average of order 3 with weights 1, 4, 1 for the following data :

Year	2009	2010	2011	2012	2013
Consumption of Cotton	656	804	836	765	777

(i) Calculate "Quartile Deviation" from the above data.

(ii) If 60% of the students pass the test, find the minimum marks obtained by a pass candidate.

14. Explain measure of Skewness and concept of Kurtosis with example.