

BACHELOR OF BUSINESS ADMINISTRATION (CBCS-2019 COURSE)
B.B.A. SEM - I : WINTER :- 2021
SUBJECT: FOUNDATION OF MATHEMATICS & STATISTICS

Day : Friday
Date 11/2/2022

W-21523-2021

Time : 02:00 PM-05:00 PM
Max. Marks: 60

N.B.

- 1) Attempt any **THREE** questions from Section – I and any **TWO** questions from Section – II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non-programmable **CALCULATOR** is allowed.
- 4) Use graph paper **WHEREVER** necessary.
- 5) Answers to both the sections should be written in **SAME** answer book.

SECTION – I

- Q.1** a) Define Statistics. Explain the importance of statistics in business. (06)
- b) Find the principal amount for which the difference of simple interest and compound interest is ₹ 20 at 4% for 2 years. (06)

- Q.2** a) Find $(A^2 - (A+B))$ (06)
- If, $A = \begin{bmatrix} 4 & -3 \\ 2 & 1 \end{bmatrix}, B = \begin{bmatrix} 3 & 2 \\ 5 & 1 \end{bmatrix}$

- b) Prepare frequency distribution for the following data taking classes as 10 – 20, 20 – 30, 30 – 40 etc, also find relative and cumulative frequencies. (06)
- 14, 64, 37, 83, 17, 25, 73, 48, 35, 20, 81, 43, 61, 55, 46, 88, 25, 15, 32, 77, 68, 82, 37, 11, 27.

- Q.3** a) Two Companies have shares of 12% at 124 and 16% at 145. In which of the shares would the investment be more profitable? (06)
- b) Mr. Joshi lent ₹ 10,000 to two persons in two parts. The first man borrowed at 5% and the second person borrowed at 6% interest per annum. If the Mr. Joshi receives ₹ 12,240 as total amount after 4 years then, what sum was borrowed by of the two persons? (06)

- Q.4** a) Explain various methods of Statistical Data Collection. (06)
- b) Draw less than and more than ogive curve for the following data: (06)

Class	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35
Frequency	4	9	26	21	16	8

- Q.5** Write short notes on **ANY TWO**: (12)
- a) Payroll
 - b) Annuity
 - c) Concept of Brokerage

P.T.O.

SECTION – II

- Q.6 a)** 'A' and 'B' are partners in a business with capitals ₹ 10,000 and ₹ 12,000 respectively. Each will get 5% interest on capital. 'A' will get ₹ 500 per month as manager and the remaining profit will be divided equally between them. If 'A' gets ₹ 16,000 in a certain year, find the total profit in that year. (06)

- b)** Solve the system of linear equations (06)
 $5x + y = 8$
 $2x + 3y = 11$

- Q.7 a)** Construct Histogram for following data. (06)

Class	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90
Frequency	12	20	34	26	15	8

- b)** Find the number of ways 4-digit number can be formed by using digits 0, 1, 2, 3, 5, 8. How many of these are (Assume that repetition of digits is not allowed) (06)
 1) Greater than 3000 2) Greater than 5200.

- Q.8 a)** In a certain organization there are 4 Officers and 12 Clerks. A committee of 2 Officers and 2 Clerks is to be formed. In how many ways can this be done if, (06)
 i) any Officer and any clerk can be included.
 ii) one particular Officer and one particular Clerk must be included.
 iii) one particular Officer and two particular Clerk must be excluded

- b)** Find the value of 'x' if (06)

$$\begin{vmatrix} (2+x) & (3+x) & (4+x) \\ 1 & 2 & -1 \\ 2 & 1 & 3 \end{vmatrix} = 0$$

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