Roll No. ..... **Exam Code : J-19**

Subject Code—0762

B. B. A. (First Year) EXAMINATION

(For Batch 2018 Onwards Main)

BUSINESS MATHEMATICS

BBA-105

Time : 3 *Hours* *Maximum Marks :* 70

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. **1** is compulsory. All questions carry equal marks.

(Compulsory Question)

1. Explain the following :

(a) Union of sets

(b) Venn diagram

(c) Permutation

(d) Arithmetic Progression

(e) Diagonal matrix

(f) Scalar matrix

(g) Binomial expression.

Unit I

2. In a recent survey of 400 students in a school, 100 were listed as smokers and 150 as chewers of gum; 75 were listed as both smoker and gum chewers. Find out how many students are neither smokers nor gum chewers.

3. A market research group conducted a survey of 1000 consumers and reported that 720 consumers linked product A and 450 consumers liked product B. What is the least number of consumers that must have liked both products ?

Unit II

4. Find the sum of all natural numbers between 500 and 1000 which are divisible by 13.

5. Find the sum of the series $1+\frac{2}{5}+\frac{3}{5^2}+.....$ upto n terms.

Unit III

6. If $10_{C_r} : 12_{C_{r+1}} = 9 : 44$, find r.

7. Show that :

$$\left(\sqrt{2}+1\right)^6+\left(\sqrt{2}-1\right)^6=198$$

Unit IV

8. Find the inverse of the matrix :

$$\begin{bmatrix} 1 & 3 & -2 \\ -3 & 0 & -5 \\ 2 & 5 & 0 \end{bmatrix}$$

9. (a) Differentiate w.r.t. x :

$$\left(2x+3\right)^5$$

(b) Integrate :

$$\int \frac{x^3+2x^2+4}{x}$$