Subject Code—8152

B.B.A. (First Year) EXAMINATION

(Main/Re-appear Batch 2009 Onwards)

BBA-105

BUSINESS MATHEMATICS

Time : 3 Hours   *Maximum Marks : 70*

Section A

Note : Attempt any *Seven* questions.   7×5=35

1. Compare Simple Interest and Compound Interest.

2. Explain the concept of present value.

3. If a^2, b^2, c^2 are in A.P., show that :

   $\dfrac{1}{b+c}, \dfrac{1}{c+a}, \dfrac{1}{a+b}$ are also in A.P.

4. If $x = 3^{2/3} + 3^{-2/3}$, show that :

$$9x^3 - 27x = 82$$

5. Find the maximum and minimum values of the expression :

$$x^3 - 3x^2 - 9x + 27$$

6. Evaluate :

$$\lim_{x \to 1} \frac{x^3 - 1}{x^2 - 1}$$

7. What are the types of matrices ?

8. Explain the Union and Intersection of Sets.

9. Explain the concept of Dispersion.

10. Two dice are thrown. What is the probability of getting a total of 9.

Section B

Note : Attempt all the questions.

11. The number of terms in an A.P. is even; the sum of the odd terms is 24; of the even terms 30, and the last term exceeds the first term by 10½. Find the number of terms.   12

Or

A man puts Rs. 10 at the end of every year in the savings bank at 2½ per cent compound interest. How much will his savings amount to in 15 years ?

12. Evaluate : **12**

$$\int \frac{x+5}{(x+1)(x+2)^2} \, dx$$

Or

Find the inverse of the matrix :

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

13. What is meant by Central Tendency ? Explain the measures of Central Tendency. **11**

Or

Solve :

$$\sqrt{\frac{x}{1-x}} + \sqrt{\frac{1-x}{x}} = 2\frac{1}{6}$$