AC-604

BBA-I Sem. Examination, December-2020

Course : 102

Business Mathematics

(Main & RE Exam.)

Time : Two Hours] *[Maximum Marks : 70*

[Minimum Marks : 28

Note : There will be **three** sections. Attempt any **8** questions from **Section-A** (2×8) approx 20 words, attempt any **four** questions from **Section-B** (6×4) approx 100 words and attempt any **two** questions from **Section-C** (15×2) approx 500 words.

Section-A

1. Define equal sets.
2. What do you mean by relation?
3. Define union of two sets.
4. What do you mean by discount?
5. Define determinant of a matrix.
6. What do you mean by square matrix?
7. Define combination.
8. What is differential coefficient?
9. Find the 14^{th} term of 5, 10, 15, 20, 25, ...
10. Define geometrical progression.

Section-B

1. Ashok buys an old scooter for Rs. 4700 and spends Rs. 800 on its repairs. If he sells the scooter for Rs. 5800, find his profit.
2. Find the simple interest on the amount Rs. 10000, interest rate 5% and time is 3 years.

P.T.O.

3. Find the Cartessian product of the sets A={a, b, c, d} and B={1, 2, 3, x, y}.
4. What are the properties of binary relations on A set?
5. Explain the multiplication of two matrices.
6. Explain properties of the adjoint of a square matrix.
7. If the 7th term of AP is -39/12 and 15th term is -103/12. What is the 27th term.
8. Find the common ratio for the G.P. 1/9, 1/27, 1/81, ... and also find the sum of 30 terms.

9. If $y=e^{\tan x}$, find d^2y/dx^2
10. If $ax^2+2hxy+by^2=1$, then d^2y/dx^2 is equal to .....

Section-C

1. The difference of amount between simple and compound interests compounded annually on a certain sum of money for 2 years at 4% per annum is Re1, find the sum.
2. Show that the Relation, equal to is an equivalence relation.
3. Find the inverse of the matrix:

$$A=\begin{bmatrix}1 & 2 & 3\\ 1 & 3 & 3\\ 4 & 1 & 3\end{bmatrix}$$

4. (a) If pth and qth term of a G.P. are q and p respectively, then find (p+q) th term.

   (b) If ${}^{56}P_{r+6} : {}^{54}P_{r+3}=3800:1$, Find the value of r.

5. (a) If $y=\sin^{-1}\frac{2x}{1+x^2}$, then find $\frac{dy}{dx}$.

   (b) Find $\int \frac{e^{\tan^{-1}x}}{1+x^2}dx$.