

Total No. of Questions : 8] [Total No. of Printed Pages : 3

Paper Code : 21202

F-202

**B.B.A. (First Semester)
Examination, 2018**

(New Course)

Paper-BBA-N-102

BUSINESS MATHEMATICS

Time : 3 Hours]

[Maximum Marks : 70

Note :- Attempt five questions in all. All questions carry equal marks. mjpruonline.com

1. Define the following with example :

- (a) Row matrix
- (b) Column matrix
- (c) Square matrix
- (d) Identity matrix
- (e) Diagonal matrix

2. (a) Explain the uses of matrix in business mathematics.

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(1)

Turn Over

(b) Find the rank of the matrix A, where :

$$A = \begin{bmatrix} 5 & 3 & 14 & 4 \\ 0 & 1 & 2 & 1 \\ 1 & -1 & 2 & 0 \end{bmatrix}$$

3. (a) In an A.P. the first term is 2 and the sum of the first five terms is one fourth of the next five terms. Show that 20th term is -112.

(b) The $(m + n)$ th and $(m - n)$ th terms of a G.P. are p and q respectively. Show that the m th

and n th terms are \sqrt{pq} and $\tilde{p}\left(\frac{q}{p}\right)^{m/2n}$

respectively. mjpruonline.com

4. (a) What will ₹ 500 amounts to in 10 years after its deposit in a bank which pays annual interest rate of 10% compounded annually ?

(b) If $A = \begin{bmatrix} 2 & 2 & 0 \\ 3 & 2 & 1 \\ 1 & 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 2 & 3 & 4 \\ 2 & 0 & 1 & 2 \\ 3 & 1 & 0 & 5 \end{bmatrix}$

then find AB. Does BA exists ?

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(2)

5. Solve the following system of equations by Gauss Elimination method :

$$x - 3y - 8z + 10 = 0$$

$$3x + y - 4z = 0$$

$$2x + 5y + 6z - 13 = 0$$

6. (a) Given 7 flags of different colours, how many different signals can be generated if a signal requires the use of two flags, one below the other ? [mjpruonline.com](http://www.mjpruonline.com)

(b) If ${}^{28}C_{2r} = {}^{24}C_{2r-4} = 225 : 11$, find r .

7. Define the followings with suitable example :

- (a) Finite and infinite sets
- (b) Equal and Null set
- (c) Subset and proper subset

8. (a) If $f(x) = x^2 + 4x + 3$
and $f'(x)$ and $f''(x)$.

- (b) Evaluate :

$$\int (5x^4 + 2x^3) dx$$