



NBS-003-007206

Seat No. _____

M.C.A. (Sem. II) (CBCS) Examination

April / May – 2017

**MCA-2006 : Computer Oriented Numerical &
Statistical Method**

Faculty Code : 003

Subject Code : 007206

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

1 Attempt any ten of the following : **30**

- (1) Write an algorithm for Jacobi method.
- (2) List out types of matrix and explain any two.
- (3) What is Linear equation ?
- (4) Solve the following using Gaussian Elimination method :

$$x + 2y = 20$$

$$x + 5y = 11$$

- (5) What is matrix ?
- (6) Write an algorithm for successive approximation method.
- (7) Perform the multiplication of following 2 matrices :

$$A = \begin{pmatrix} 2 & 3 & 4 \\ 5 & 1 & 0 \\ 2 & 3 & -1 \end{pmatrix} \quad B = \begin{pmatrix} 4 & 2 & 0 \\ 3 & -1 & 2 \\ 4 & -5 & 2 \end{pmatrix}$$

- (8) List out the methods for graphical representation and explain any one.
- (9) Explain types of classes available in continue frequency distribution.
- (10) Explain forward difference table.
- (11) Define : Unit matrix and Square matrix.

2 Attempt any three of the following : **15**

- (1) Solve using Seidel method :

$$10x + y = 12$$

$$x + 10y = 21$$

- (2) Write an algorithm for bi-section method.
- (3) Write a program to find out the Karl Pearson correlation of given series X and Y.
- (4) Solve using Newton central method : (X=43)

X	40	50	60	70	80	90
Y	184	204	226	250	276	304

3 Attempt any two of the following : **15**

- (1) Solve using regular false position method :

$$x^3 - 8x + 8 = 0$$

- (2) Solve using Lagrange's interpolation method :

X	5	6	9	11
Y	12	13	14	16

(3) Solve using Scattered diagram method :

X	1	2	3	4	5	6	7	8	9	10
Y	2	4	8	7	10	5	14	16	2	20

4 Attempt any one of the following :

10

- (1) Write a program for RK 4th method.
- (2) Solve using RK 2nd order method :

$$y' = x^2 + y, y(0) = 1, h = 0.5$$
