

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

BCA (Sem.-4th) (2007 to 2010 Batch)  
**MATHEMATICS-II (COMPUTER ORIENTED)**  
Subject Code : BC-301  
Paper ID : [B0227]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students has to attempt any FOUR questions.

**SECTION-A**

1.

and 'Kurtosis'.

(b) Define 'Simpson's  $\frac{1}{3}$  rd rule.

(c) Find the derivative of  $y = x^a + a^x + \log x^2$ .

(d) Give formula to calculate Standard Deviation (SD) in continuous series.

(e) Integrate  $\int (x-5)(x-4) dx$ .

(f) Define 'Rank' of a matrix with an example.

(g) Define 'Maxima' and 'Minima'.

(h) Prove that  $AM \geq GM$ .

(i) Find the derivative of  $y = \sqrt{(x-a)(x-b)}$ .

(j) Evaluate  $x, y, z$  and  $t$  if  $\begin{bmatrix} x-2y & 3z-2t \\ x+2y & z+t \end{bmatrix} = \begin{bmatrix} -4 & 2 \\ 8 & 9 \end{bmatrix}$ .

### SECTION-B

2. Solve the following equations by Gauss-Jordan Method :

$$5x + 3y + z = 16$$

$$2x + y + 3z = 19$$

$$x + 2y + 4z = 25$$

3. If  $x = y(1 + \log x)$  show that  $\frac{dy}{dx} = \frac{\log x}{(1 + \log x)^2}$ .

4. Evaluate  $\int e^x(1+x) \log(xe^x) dx$ .

5. Show that of all the rectangles of given areas the square has the smallest perimeter.

standard-deviation for the following :

|              |   |   |   |    |    |    |    |
|--------------|---|---|---|----|----|----|----|
| Size of item | 6 | 7 | 8 | 9  | 10 | 11 | 12 |
| Frequency    | 3 | 6 | 9 | 13 | 8  | 5  | 4  |

7. Evaluate  $\int_0^4 e^x dx$  by Simpson's rule given that  $e = 2.72$ ,  $e^2 = 7.39$ ,  $e^3 = 20.09$ ,  $e^4 = 24.6$  and compare it with actual value.