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Total No. of Pages : 02

Total No. of Questions : 08

**B.Sc. (IT)/BCA (Sem.-2)**  
**MATHEMATICS-II**  
**Subject Code : BSIT/BSBC-202**  
**M.Code : 10051**

Time : 2 Hrs.

Max. Marks : 30

**INSTRUCTIONS TO CANDIDATES :**

1. Attempt any FIVE question(s), each question carries 6 marks.

1) If find  $A^2 - 6A + 11I$  and  $A^{-1}$

2) Using Cramer's rule, find the solution of system of following linear equations :

$$x - y + 2z = 7$$

$$3x + 4y - 5z = -5$$

$$2x - y + 3z = 12$$

3) For the distribution :

$x$	5	6	7	8	9	10	11	12	13	14	15
$f$	18	15	34	47	68	90	80	62	35	27	11

Compute the standard deviation

4) Following table gives the cumulative frequency(c.f.) of the age of a group of 199 persons. Find the mean age of the group.

<b>Age in years</b>	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70
<b>c.f.</b>	21	40	90	130	146	166	176	186	195	199

5) a) Given  $x^3 + y^3 = 3axy$  find  $\frac{d^2y}{dx^2}$ .

b) Differentiate  $\sin^{-1}(3x - 4x^3)$  w.r.t.,  $x$

- 6) Write the procedure to find extreme values of the single variable function. Also find the maximum and minimum values of the function :  $f(x) = 10x^6 - 24x^5 + 15x^4 - 40x^3 + 108$ .
- 7) What is die numerical integration. Write the formula of Simpson's 1/3rd and hence Evaluate log 2 from  $\int \frac{x}{1+x^2} dx$ , using Simpson's 1/3 rule by dividing the range of integration into four parts.
- 8) Evaluate integral by using partial fractions ;

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

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