JAYPEE UNIVERSITY OF INFORMATRION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATION- 2016
B.Tech IInd Semester (BI/BT)

COURSE CODE: 10B11MA212   MAX. MARKS: 35
COURSE NAME: Basic Mathematics II
COURSE CREDITS: 04   MAX. TIME: 2 hours

Note: All questions are compulsory. Marks are indicated in square bracket against each question.

Q1. If $\vec{V} = \frac{x\hat{i}+y\hat{j}+z\hat{k}}{\sqrt{x^2+y^2+z^2}}$, Find Curl $\vec{V}$ [5]

Q2. Solve the differential equation $(D^2 - 4D + 4)y = e^{-4x}$ [5]

Q3. (a) If 0.333 is the approximate value of $\frac{1}{3}$, find absolute, relative and percentage error.   [2]

(b) Using bisection method, find the real root of the equation $3x - \sqrt{1 + \sin x} = 0$, correct

up to 2 decimal places. Root lies in the interval [0,1].   [5]

Q4. Given that

x	4.0	4.2	4.4	4.6	4.8	5.0	5.2
log x	1.3863	1.4351	1.4816	1.5261	1.5686	1.6094	1.6487

Evaluate $\int_4^{5.2} \log x \, dx$ using (a) Simpson's 1/3 rule (b) Simpson's 3/8 rule   [5]

Q5. Find f (175) from the following table using appropriate Newton's formula.   [5]

x	140	150	160	170	180
f(x)	3.685	4.854	6.302	8.076	10.225

Q6. Calculate mean and mode from the following table   [5]

Class Interval(x)	92.5-97.5	97.5-102.5	102.5-107.5	107.5-112.5	112.5-117.5	117.5-122.5	122.5-127.5	127.5-132.5
Frequency(f)	2	5	12	17	14	6	5	1

Q7. Calculate the standard deviation from the following data   [3]

Class Interval(x)	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency(f)	5	7	14	12	9	6	2