

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

MID TERM TEST

SUMMER SEMESTER - JULY 2016

B.Tech IInd Semester(BI/BT)

COURSE CODE: 10B11MA212

MAX. MARKS: 50

COURSE NAME: Basic Mathematics II

COURSE CREDITS: 04

MAX. TIME: 2 Hrs

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Marks are indicated in square brackets against each question.

Q1. (a) Solve by separation of variables method $(x + 1) \frac{dy}{dx} = x(y^2 + 1)$

(b) Show that the equation $(xy^2 + 3x^2y)dx + (x^3 + x^2y)dy = 0$

Is exact and then solve it.

[3.5X2=7]

Q2. Solve $(D^2 + D + 1)y = \cos 2x$

[7]

Q3. Find the root of the equation $3x^3 - 9x^2 + 8 = 0$ correct up to four decimal places between the interval [1,2] using Newton Raphson method.

[7]

Q4. Evaluate $\int_0^1 \frac{dx}{x+1}$ using Trapezoidal and Simpson's 1/3 rule correct up to four decimal places.

[7]

Q5. Find y when x=2.35 from the following table using Newton forward interpolation formula.

[7]

x	2	2.25	2.50	2.75	3.0
y	9	10.06	11.25	12.56	14

Q6. Find y when x=3 from the following table using appropriate formula.

[7]

x	1	4	5	7
y=f(x)	1	64	125	343

Q7. Prepare the frequency table with class intervals 10-19,20-29,30-39,... of the following data of marks obtained by 50 students and then find the arithmetic mean.

[8]

30,45,48,55,39,25,31,12,18,21,54,59,51,33,43,44,10,38,19,26,41,35,37,41,46,33,51,37,58,58,17,19,23,26,29,38,57,36,35,44,43,27,19,43,22,31,47,34,31,15