



COMSATS Institute of Information Technology Lahore

Sessional-II Fall Semester 2017

Course Title:	Calculus and Analytical Geometry	Course Code:	MTH104	Credit Hours:	3
Course Instructor/s:	Shazia Rana	Programme	BCE/BCS		
Semester:	1st	Batch	FA-17-SDP	Section:	A, B/ A, B
				Date	December, 09, 2017
Time Allowed:	1.5 Hour			Maximum Marks:	30
Student's Name:				Reg. No.	

Important Instructions / Guidelines:

- Attempt all the questions on the separate answer booklet provided.

Q#1 Evaluate 1st 2nd 3rd and 4th order derivatives of $f(x) = \frac{4}{3(x-1)}$ at $x = 0$

And Generalize these results to find formula for nth order derivative.

(10)

Q#2 Evaluate the given integrals

$$\int_0^1 (x^2 + 1)e^{-x} dx$$

$$\int_{\frac{2}{3}}^{\frac{2\sqrt{3}}{3}} \frac{dx}{x\sqrt{9x^2+4}}$$

(10)

Q#3 Find the area of the region enclosed by the given curves,

$$y = x^2, x = 0 \quad \text{and} \quad x + y = 2$$

$$\left(-\frac{1}{6}\right)$$

(10)

0	1	2
0	1	2
1	1	1
2	4	0
-1	1	3

$$1, -2 \quad + 2u - u$$

$$u^2 = 2 - u \quad (3)$$

$$u^2 - (2 - u)$$

$$\frac{\sec \theta}{\tan \theta}$$

$$(1) = -\frac{4}{3}(u-1)^{-2}$$

$$(2) = -\frac{8}{3}(u-1)^{-3}$$

Shazia Rana