BAHRIA UNIVERSITY, (KarachiCampus)

Department of Software Engineering

Quiz 3 - Fall 2022

COURSE TITLE: **Applied Calculus & Analytical Geometry** COURSE CODE: **GSC-110**
Class **BSE-I(B)** Shift: **Morning**
Course Instructor: **Daniyal ur rehman** Time Allowed: **20 min.**
Date: 30-12-2022 Max. Marks: **10 Marks**

Question No. 1. Choose the correct answers **[CLO3: 10 Marks]**

i. nth derivative of sin(ax+b) is

a. $y_n = a^n \cos(ax + b + \frac{n\pi}{2})$

b. $y_n = a^n \sin(ax + b + \frac{n\pi}{2})$

c. $y_n = b^n \cos(ax + b + \frac{n\pi}{2})$

d. $y_n = b^n \sin(ax + b + \frac{3n\pi}{2})$

ii.

Find the area above the x-axis under the curve $y^2 = x, \quad x = 1, x = 3$

a. $\frac{3}{2}(3\sqrt{3} - 1)$
b. $\frac{2}{3}(3\sqrt{3} - 1)$
c. $(3\sqrt{3} - 1)$
d. None

iii.

Solve the differential equation $\frac{dy}{dx} = xcos^2y$

a. $tany = \frac{x}{2} + c$
b. $tany + x + c = 0$
c. $tanx = \frac{y^2}{2} + c$
d. $tany = \frac{x^2}{2} + c$

iv.

$\int xlnx\, dx$

a. $xlnx - x^2 + c$
b. $\frac{x^2}{2}lnx - \frac{1}{4}x^2 + c$
c. $xlnx + x + c$
d. None

v.

$\int sin^2 x cosx dx$

a. $\frac{sin^3 x}{3} + c$
b. $cos^2 x + c$
c. $SinxCosx + c$
d. None

Q2. Show that If $y = x + tanx$ then $cos^2 x \frac{d^2y}{dx^2} - 2y + 2x = 0$.

Q3. Find the sum of 1+2+3+…+50 by using the appropriate formula