

College Name: _____

Seat No: _____ Student's Name: _____

Copy No: _____

KARACHI UNIVERSITY BUSINESS SCHOOL
UNIVERSITY OF KARACHI
FINAL EXAMINATION DECEMBER 2017; AFFILIATED COLLEGES
BUSINESS MATHEMATICS – II; BA (H)–322
BBA – II

Date: December 19, 2017**Max Time: 2.5 Hrs****Max Marks: 60****INSTRUCTIONS:**

- 1. Attempt all questions. Do not write anything on the question paper.**
- 2. Mobile phones or any other communicating device will not be allowed in the examination room. Students will have to remove the batteries of these devices before entering the examination hall.**

Question # 01:**10 Marks**

For the following LP problem, graph the region of feasible solutions (if one exists) and solve by the corner-point method.

$$\begin{array}{ll}
 \text{Maximize} & z = 4x_1 + 8x_2 \\
 \text{subject to} & x_1 + x_2 \leq 20 \\
 & 2x_1 + x_2 \leq 32 \\
 & x_1, x_2 \geq 0
 \end{array}$$

Question # 02:**10 Marks**

Origin	Destination			Supply
	1	2	3	
1	8	6	10	125
2	4	9	8	150
3	7	6	5	95
Demand	110	85	175	

Given the data for a transportation problem.

- a. Use the northwest corner method to determine an initial solution
- b. Proceed on to solve for the optimal solution using the stepping stone algorithm.

Question # 03:**06 Marks**Determine $f'(x)$ of the following:

- i. $f(x) = (6x - 2)\sqrt{x^2 - 5x + 3}$
- ii. $f(x) = \frac{x}{(1-x^2)}$

Question # 04:**12 Marks**

A ball is dropped from the roof of a building which is 256 feet high. The height of the ball is described by the function.

$$h = f(t) = -16t^2 + 256$$

where h equals the height in feet and t equals time measured in seconds from when the ball was dropped.

- What is the average velocity during the time interval $1 \leq t \leq 2$?
- What is the instantaneous velocity at $t = 3$?
- What is the velocity of the ball at the instant it hits the ground?

Question # 05:**05 Marks**

Find the indefinite integral (if possible)

$$\text{i.} \quad \int \frac{2ax+b}{ax^2+bx} dx$$

Question # 06:**05 Marks**

Find the definite integral

$$\text{i.} \quad \int_2^4 (x+8)dx - \int_4^2 (2x-6)dx$$

Question # 07:**12 Marks**

The total cost of producing q units of a certain product is described by the function

$$C = 350,000 + 7,500q + 0.25q^2$$

where C is the total cost stated in dollars

- Determine how many units q should be produced in order to minimize the average cost per unit.
- What is the minimum average cost per unit?
- What is the total cost of production at this level of output?

END OF EXAM PAPER