National University of Computer and Emerging Sciences, Lahore Campus

Course:	Software Engineering	**Course Code:**	CS-3009
Program:	BS (Computer Science)	**Semester:**	Spring 2023
Duration:	20 Minutes	**Total Marks:**	10
Quiz Date:	28-March-23	**Roll No.**	
Section:	6C, 6D	**Name:**	

Question 1:   (10 Marks)

While evaluating the design alternatives, some estimated costs and benefits have been calculated and given in the following table. Determine the extent to which this design will benefit the organization after 5 years?

Hint: Identify each item as cost or benefit. Calculate total costs, benefits and return on investment (ROI) after 5 years. Also calculate payback period.

Item	Amount ($)	Cost or Benefit?
Connectivity	6000 per year	Cost
Salaries/Wages	500000	Cost
Increased earnings due to web presence	40000	Benefit
Equipment/installation	200000	Cost
Equipment maintenance	4000 per year	Cost
Increased efficiency due to new IS	800 per year	Benefit
Utilities (s.a. electricity, water)	100000	Cost
Other savings	300 per year	Benefit

Solution:

Total Cost: 6000*5 + 500,000 + 200,000 + 4000*5 + 100,000 = 850,000

Benefits: 40,000 + 800*5 + 300*5 = 45,500

Payback Period = Cost/Benefits = 810,000/41,100 = 19.7 of a year (approx. 237 months)

ROI = Benefits/Cost = 45,500/850,000 = 0.05