

King Saud University

GE 401 – Engineering Economy

College of Engineering

First Semester 1428-1429H

Civil Engineering Department

Time allowed: 1:30 hours

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**Mid Term Exam. All Questions Carry Equal Marks**

		Q1	Q2	Q3	Q4	Total

**Question 1.**

The total production cost (TC) and the unit selling price (SP) of a new product are given as a function of the sales volume (t) as follow:

$$TC(t) = 32,500 + 300t \quad \text{SR}$$

$$SP(t) = 1000 - t \quad \text{SR/unit}$$

Determine:

- The maximum revenue that can be obtained.
- Range of possible profit.

**Question 2.**

What is the equivalent present worth of the following cash flow payments?

### Question 3.

Maintenance costs (in then current SR) for a project are shown in the given table:

EOY	Payment, SR	EOY	Payment, SR
1	10000	4	13310
2	11000	5	14641
3	12100	6	16105

If the real time value of money is 9% per year and the inflation rate is 7% per year, determine:

- (a) The maintenance costs measured in constant Riyals.
- (b) The present worth equivalent of maintenance costs.

### Question 4.

A project has an initial construction cost of SR 5,000,000, an annual maintenance cost of SR 60,000, and a major repair cost of SR 220,000 every fifth year forever with the first such repair occurring at the fourth year ( $t = 4$ ).

Determine the capitalized cost of this project, if interest rate is 8% per year compounded annually.