Mansoura University
Faculty of Engineering
Building & Construction Eng. Program
Course Title: Engineering Economy
Course Code: ENG23

Fall semester 2017
Final Exam (50%)
Time: 2 hours
Date: Dec. 20th 2016
Lecturer: Dr. Asser Elsheikh

Question 1 (10 Grades)

The purchasing cost of a given equipment is $100,000 and its return for the first year is $40,000 decreasing annually by $5,000. If the investment rate is 12% and the equipment age ranges from 14 to 16 years. It is required to study the sensitivity of the decision using the EUAW method.

Question 2 (9 Grades)

The present worth of a decreasing geometric gradient is $70,418. If the cash flow amount in year 1 is $20,000, and the rate of change is 10% per year. The interest rate is 12% per year. The year in which the gradient ends is closed to?

cash flow
year. The
d to?

Question 3 (10 Grades)

Each of following projects involves an initial cost $240,000. The estimated incomes for the projects are:

Year	Project A ($)	Project B ($)
1	140000	20000
2	80000	40000
3	60000	60000
4	20000	80000
5	20000	180000

The Company's required rate of return is 12%

a) Calculate the payback period for both projects. Which project should be chosen?

b) Calculate the NPV for both projects. Which project should be chosen?

Question 4 (9 Grades)

A town is considering building a new downtown parking lot. The land will cost $25,000 and the construction cost of the lot is estimated to be $109,580. Each year costs associated with the lot are estimated to be $17,500. The income from the lot is estimated to be $18,000 the first year and increase by $3,500 each year for the twelve years expected life of the lot. Calculate the project's internal rate of return.

Question 5 (12 Grades)

A firm has a capital budget of $30,000 and is considering three possible project
Project A has initial cost of $12,000 and annual income of $4,500 for 5 year
Project B has initial cost of $10,000 and annual income of $4,200 for 5 year
Project C has initial cost of $17,000 and annual income of $6,000 for 10 year
Funds which are not allocated to one of the projects can be placed in a ban
deposit where they will earn 12%. Identify all the possible investments and whic
one should the firm choose by using B/C ratio method.

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