UNIVERSITY COLLEGE TATI (UCTATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: BCE 3183
COURSE	: ENGINEERING ECONOMY
SEMESTER/SESSION	: 2-2024/2025
DURATION	: 3 HOURS

Instructions:

1. This booklet contains **5** questions. Answer **ALL** questions.
2. You are allowed to bring "**Compounded Interest Table**"
3. All answers should be written in answer booklet.
4. Write legibly and draw sketches wherever required.
5. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 7 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) Indicate the following statements is **True (T)** or **False (F)**

I. There are only three measure of worth that are used in engineering economic analysis (T/F)

II. In industries, interest earned over a specific period of time is called as rate of return (ROR), where larger capital funds are committed to engineering oriented programme (T/F)

III. Inflation represents a decrease in the value of given currency (T/F)

IV. Cash inflows are receipts, revenues, income and savings (T/F)

V. Cash outflows are cost, disbursement, expenses and taxes (T/F)

VI. Simple interest is calculated using the principal only, ignoring any interest accrued in preceding interest period (T/F)

VII. Compound interest is the interest accrued for each interest period is calculated on the principal plus the total amount of interest accumulated in all previous periods (T/F)

VIII. The minimum attractive rate of return (MARR) is a reasonable rate of return established for the evaluation and selection of alternatives (T/F)

IX. The amount of money deposited 1 year ago is equivalent to RM 1000 now at interest rate of 5% per year is RM 952.38 (T/F)

X. Pesama Sdn Bhd have to pay RM 130,000 to Commercial Bank for RM 100,000 loan after three years lent at 10% per year simple interest (T/F)

(10 marks)

b) Identify the following factors are either economic (tangible) or noneconomic (intangible)

I. First Cost
II. Leadership
III. Taxes
IV. Salvages value
V. Morale
VI. Dependability
VII. Inflation
VIII. Profit
IX. Acceptance
X. Ethics
XI. Interest rate

(10 marks)

QUESTION 2

A construction management company is examining its cash flow for 7 years. The company expects to replace office machines and computer equipment at various times over the 7 years planning period. Specifically, the company expects to spend RM 30,000 now, RM 50,00 one year from now, RM 70,000 three years from now and RM 100,000 six years from now. Given the interest rate 10% per year.

a) Illustrate the cash flow diagram (5 marks)

b) Determine the annual worth of the planned expenditure (5 marks)

c) Determine the present worth of the planned expenditure (5 marks)

d) Determine the future worth of the planned expenditure (5marks)

QUESTION 3

An Acid Sulfuric Sdn Bhd is considering three methods to dispose of a non hazardous chemical sludge; land application, fluidized bed incineration and private disposal contract. The budget for each method as shown in Table 3.

	Land application	Incineration	Contract
First cost, RM	130,000	900,000	0
Annual operating cost, RM/year	95,000	60,000	120,000
Salvage value, RM	25,000	300,000	0
Life, years	3	6	2

Table 3: Cost estimation for non hazardous disposal

a) Determine which has method has the least cost at 10% per year. (10 marks)

b) If the contract award cost increase by 20% for every 2 year renewal, determine the most economical method. (10 marks)

QUESTION 4

For the alternatives shown,

	Machine X	Machine Y
First Cost, $	-35,000	-90000
Annual operating cost, $ per year	-31600	-19400
Salvage value, $	0	8000
Life, years	2	4

Prepare a tabulation of incremental cash flow for the two machine alternatives above.

(20 marks)

QUESTION 5

Hambry Enterprises produces a component for recycling uranium as a nuclear fuel in power plant generator in France and United States. Use the following cost and revenue figures, quoted in U.S dollars per hundred weight(cwt), recorded for this year to calculate

Location	Fixed Cost $ million	Revenue $ per cwt	Cost $ per cwt
France	3.50	8,500	3,900
United States	2.65	12,500	9,900

a) Determine the breakeven for each plant (6 marks)

b) Determine the minimum revenue per hundred weight required for next year if breakeven values and variable cost remain constant, but fixed cost increase by 10% (6 marks)

c) During this year, the France plant sold 950 units in Europe and U.S plant sold 850 units. Determine the year profit (loss) for each plant (8 marks)

----------**End of questions**----------