UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: DTD 2062
COURSE	: TOOL AND DIE ECONOMICS
SEMESTER/SESSION	: 2-2024/2025
DURATION	: 2 HOURS

Instructions:

1. This booklet contains 5 questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. 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) **Describe** what is cost estimation and why it is so important for a certain project? (6 marks)

b) Cost estimation is the process of forecasting the cost and other resources needed to complete a project. **Interpret** three (3) purposes of cost estimation. (6 marks)

c) Sources of error in estimating can be classified into unavoidable and avoidable. **Classify** (3) three sources, each under unavoidable and avoidable. (6 marks)

QUESTION 2

a) **Give** four (4) purposes of costing. (4 marks)

b) **Classify** the direct and indirect costs employed in the product's manufacturing, as well as the fixed and variable costs for the production level. (8 marks)

c) **Describe** direct labour and indirect labour for conversion of the material into finished goods. (6 marks)

QUESTION 3

a) Company ABC has problem in setting selling price of lifter pin that they are produce.

With these data: -

No of component	= 200 pcs.
Direct material	= RM25.00
Direct labour cost	= RM25.00
Factory expenses	= 30% of direct cost.
Office expenses	= 20% of factory cost.
Distribution expenses	= 15% of factory cost.
Profit	= 15% of total cost

Solve their problem in setting selling price for each product. (18 marks)

QUESTION 4

a) **Describe** straight-line depreciation method. (2 marks)

b) A brand new an injection moulding machine was installed at UC TATI's workshop. **Compute** the depreciation value per year in the following case.

Cost of machine (loan)	= RM 250,000
Cost of accessories (loan)	= RM 50,000
Installation cost and other charge	= RM 10,000
Future worth of the machine and accessories (loan interest)	= 30% for 15 years
Scrap value of the machine	= RM 70,000

(8 marks)

c) **Determine** the machine hour rate for the following details: -

Cost of machine	= RM 15,000
Installation and erection charge	= RM 1,500
Scrap value	= RM 3,000
Energy cost	= RM 160 / year
Maintenance cost	= RM 600 / year
Space cost	= RM 200 / year
Rate of interest	= 10%/year
Labor cost	= RM 8/hour
Working hours	= 1,500 hours/year
Overheads	= 130% of labor cost
Assumed life of machine	= 15 years.

(3 marks)

QUESTION 5

a) Product or component costs are costs that are incurred to create a product that is intended for sale to customers. Product costs include direct material, direct labour, and manufacturing overhead. With the given data, **compute** the cost for one moulded component.

No of cavity	= 4 cavities
Component weight	= 15 grams
Sprue Weight	= 5 grams
Runner weight	= 3 grams
Raw material price	= RM 30/kg
Cycle time	= 20 sec
Hour/shift	= 8 hrs.
Number of shift/day	= 3 shift
Working day/year	= 270 days
Machine rate/shift	= RM 400
Mould cost	= RM 35,000

(To be amortized in one year)

(18 marks)

----------End of question----------

APPENDIX 1

1.0 SELLING PRICE CALCULATION

Components of Cost
The various components of cost are: Direct cost; Factory cost; Production cost; Total cost Selling price and Depreciation

Direct cost
Direct cost = Direct material cost + Direct labour cost + Direct expenses.

Factory cost
Factory cost = Direct cost + Factory Overhead/Expenses.

Production cost
Production cost = Factory cost + Office expenses.

Total cost
Total cost = Production cost + Selling/Distribution Expenses.

Selling price
Selling Price = Total cost + Markup Rate (Profit)

Depreciation
Depreciation means "Constant reduction of value of assets with the lapse of Time"

2.0 DEPRECIATION

Straight line Depreciation method

Formula:-

$$D = \frac{C - S}{N}$$

Where:

D = Depreciation of asset
C = Original Value or replacement value of machine
S = Scrap Value
N = Number of useful years.

3.0 MACHINE HOUR RATE

Total Capital cost = *Cost of machine + installation charges + erection charges.*

Depreciation = *(Total capital cost – Scrap value/life of machine*
Average capital cost = *Capital Cost ÷ 2*
Interest value (%)
Interest on capital cost

All the costs are expressed per year.
Depreciation
Interest on capital
Energy cost
Maintenance Cost
Space Cost
TOTAL

All cost must be converted to hourly basis
Given working hours is hour / year
Cost per hour
Labour cost
Overheads
Machine hour rate

4.0 COMPONENT COST

Total component weight
Material cost = Cost of raw material x Total component weight
Number of component / hour
Number of component / shift
Number of component / day
Number of component / year
Amortization value = Tooling cost / Number of component (year)