Dr. B. R. Ambedkar National Institute of Technology, Jalandhar
MBA Second Semester
HM-552, Cost and Management Accounting
End Semester Examination

Duration: 3 Hours   Max. Marks: 50   Date: 26 May 2025

Marks Distribution & Mapping of Questions							
Section	A				B		
Question Number	1	2	3	4	1	2	3
Marks	5	5	5	5	10	10	10
CO No.	3	1	2	2	3	1	2
Learning Level*	An	Ap	Ap	An	Ap	Ap	E

*Remember (R), Understand (U), Apply (Ap), Analyse (An), Evaluate (E), and Create (C)

Instructions:

I.   Use of calculators is allowed. All questions have to be attempted.

II.   If some information is missing, the students can make necessary assumptions. The assumptions should be clearly stated in the answer script.

III.   You must demonstrate how you arrived at and interpret the answers.

Section A (5*4=20 marks)

1. Financial information for **Tata Motors** and **Mahindra & Mahindra (M&M)** follows:

(In ₹ crores)	Tata Motors		M&M	
	2023	2022	2023	2022
Sales	₹ 3,42,000	₹ 2,98,500	₹ 1,21,400	₹ 1,05,600
Cost of sales	₹ 2,85,000	₹ 2,50,000	₹ 92,000	₹ 78,000
Gross margin	₹ 57,000	₹ 48,500	₹ 29,400	₹ 27,600
Inventory	₹ 32,000	₹ 28,500	₹ 12,500	₹ 10,200

Required:

a. Compare Tata Motors and Mahindra & Mahindra (M&M) in terms of their percentage change in sales and gross margin.

b. Compare Tata Motors and M&M in terms of their gross margin percentages.

c. Compare Tata Motors and M&M in terms of inventory turnover and days' sales inventory.

d. In your opinion, which firm has the best financial performance? Support your answer using calculations in Parts a, b, and c.

2. World airlines has three service departments (1) Ticketing (2) Baggage handling, and (3) Engine maintenance. The service department costs are estimated for separate cost pools formed by department and are allocated to two revenue producing departments: (1) Domestic flights and (2) International flights. World does not differentiate between fixed and variable costs in making allocations. The following data relate to the allocations:

| | Budgeted Data | |
	Costs	Air Miles
Ticketing	$4,000,000	
Baggage Handling	$2,000,000	
Engine Maintenance	$6,000,000	
Domestic Flights		5,000,000
International Flights		20,000,000

Required:

a) Allocate the service department costs to the revenue producing departments using air miles as the allocation base.

b) Evaluate the cause-and-effect relationship resulting from the use of air miles as the allocation base. In which of the cost pools do you think the cause-and-effect relationship is the strongest? Suggest alternative allocation bases for the two remaining cost pools with the weakest cause and effect relationship.

3. At Midwest Refrigeration, the standard price for the Z240 electrical relay (a component used in the production of a commercial refrigeration unit is $ 25. Standards call for 2 relays per unit of finished product. In July, the company purchased 100 relays for $ 2,600. The company used 83 relays in the production of 40 refrigeration units (three relays were damaged in the installation process).

Required:

Calculate the material price variance and the material quantity variance related to Z240 electrical relay. Indicate whether the variances are favorable or unfavorable.

4. XYZ Electronics Ltd. produces smart TVs that sell for ₹25,000 per unit. The cost of producing 10,000 TVs in the previous year was:

Cost Component	Amount (₹)
Direct Material	₹ 80,00,000
Direct Labor	₹ 50,00,000
Variable Overhead	₹ 20,00,000
Fixed Cost	₹ 1,50,00,000
Total Cost	₹ 3,00,00,000

At the start of the current year, the company received a special order for 1,000 TVs from a retail chain in Bangladesh.

Management's Dilemma:

Positive Aspect: The company has excess capacity and this is its first international order, which could open new markets.

Negative Aspect: The buyer is only willing to pay ₹18,000 per unit (below the normal selling price).

Required: What will be the effect on profit of accepting the order?

5. RoverPlus, a pet product superstore, is considering pricing of new RoverPlus labeled dog food. The company will buy the premium dog food from a company in Indiana that packs the product with a RoverPlus label. Rover pays $6 for a 50-pound bag delivered to its store. The company also sells Royal dog food (under the Royal Dog Food label), which it purchases for $9.00 per 50-pound bag and sells for $16.99. The company currently sells 25,000 bags of Royal Dog Food per month, but that is expected to change when the RoverPlus brand is introduced.

The company will continue to price the Royal Dog Food brand at $16.99. The quantity of RoyalPlus and the quantity of Royal Dog Food that will be sold at various prices for Royal is estimated as:
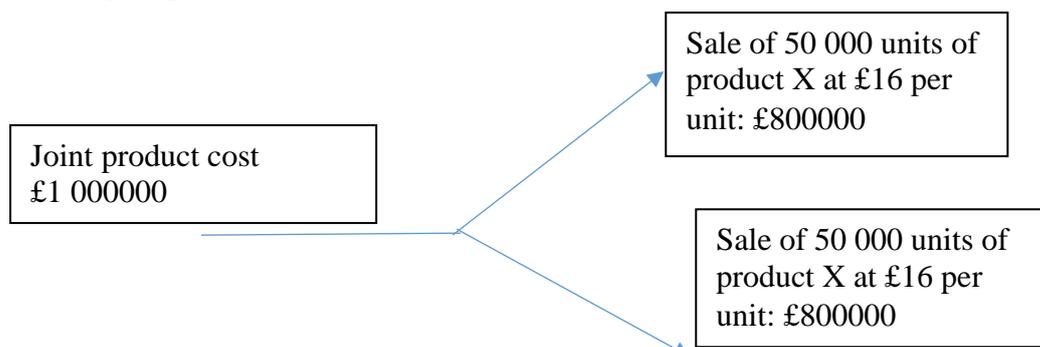
Price of RoverPlus ($)	Quantity of RoverPlus (50-pound bags)	Quantity of Royal (50-pound bags)
8.99	35,000	11,000
9.99	34,500	11,300
10.99	34,000	11,500
11.99	33,000	12,000
12.99	30,000	13,000
13.99	25,000	14,000
14.99	15,000	15,000
15.99	10,000	19,000
16.99	5,000	21,000

For example, if RoverPlus is priced at $8.99, the company will sell 35,000 bags of RoverPlus and 11,000 bags of Royal at $16.99. On the other hand, if the company prices RoverPlus at $16.99, it will sell 5000 bags of RoverPlus and 21,000 bags of Royal at $16.99. This is 4,000 fewer bags of Royal than is currently being sold.

Required:

a. Calculate the profit maximizing price for the RoverPlus brand taking into account the effect of the sales of RoverPlus on the sales of the Royal Dog Food Brand.

b. At the price calculated in part a, what is the incremental profit over the profit earned before the introduction of the RoverPlus branded dog food?

6. The GK Company incurs joint product costs of £1000000 for the production of two joint products, X and Y. Both products can be sold at split-off point. However, if additional costs of £60000 are incurred on product Y then it can be converted into product Z and sold for £10 per unit. The joint costs and the sales revenue at split-off point are illustrated in the following diagram:

Joint product cost
£1 000000

Sale of 50 000 units of product X at £16 per unit: £800000

Sale of 50 000 units of product X at £16 per unit: £800000

You are requested to advise management whether or not product Y should be converted into product Z.

7. The Cheesecake Bakery is a national bakery is known for its strawberry cheesecake. It makes 12 different kinds of cheesecake and many other types of bakery items. It has recently adopted an activity-based costing system to assign manufacturing overhead to products. The following data relate to its strawberry cheesecake and the ABC cost pools:

Strawberry Cheesecake:	
Annual production	19,500units
Direct materials per unit	$10
Direct labor per unit	$2

Cost Pool	**Cost**	**Cost Driver**
Materials ordering	$72,000	Number of purchase orders
Materials inspection	75,000	Number of receiving reports
Equipment setup	105,000	Number of setups
Quality control	69,000	Number of inspections
Other	100,000	Direct labor cost
Total manufacturing overhead	$421,000	

Annual activity information related to cost drivers:

Cost Pool	All Products	Strawberry Cheesecake
Materials ordering	8,000 orders	100
Materials inspection	375 receiving reports	60
Equipment setup	3,000 setups	30
Quality control	3,000 inspections	150
Other	$2,000,000 direct labor	$39,000

a. Calculate the overhead rate per unit of activity for each of the five cost pools.

b. Calculate the total overhead assigned to the production of the strawberry cheesecake.

c. Calculate the overhead cost per unit for the strawberry cheesecake. Round to three decimal places.

d. Calculate the total unit cost for the strawberry cheesecake. Round to three decimal places.

e. Suppose that the Cheesecake Shoppe allocates overhead by a traditional production volume-based method using direct labor dollars as the allocation base and one cost pool. Determine the overhead rate per direct labor dollar and the per unit overhead assigned to the strawberry cheesecake. Discuss the difference in cost allocations between the traditional method and the activity-based costing approach. Round to three decimal places.

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