MANIPAL
UNIVERSITY JAIPUR
University under Section 2(f) of the UGC Act

Centre of Distance and Online Education

NAME	**MOHD SAJID**
ROLL NO.	**2314500867**
SEMESTER	**III**
COURSE CODE & NAME	**DCM2103 & Cost Accounting**
PROGRAM	**B.COM**

SET-1

1.a. Explain the nature and scope of cost accounting.

Nature of Cost Accounting

Cost accounting is a branch of accounting focused on the identification, recording, classification, allocation, and analysis of costs incurred in the production or delivery of goods and services. Its main objective is helping organizations control costs, improve efficiency, and enhance decision-making. Below are the key aspects of its nature:

1. Analytical in Nature: Cost accounting focuses on the analysis of costs to determine where savings can be achieved and inefficiencies reduced.

2. Managerial Tool: It provides critical data to management for planning, controlling, and decision-making.

3. Focus on Cost Control: Cost accounting focuses on monitoring and controlling costs so that they stay within budget.

4. Dynamic and Evolving: It is responsive to changes in technology, business environment, and management practices.

5. Internal Purpose: Cost accounting is mainly serving internal management purposes. Financial accounting focuses more on serving external reporting.

Scope of Cost Accounting

The scope of cost accounting covers a number of crucial tasks that help in enhancing the efficiency of operations during profitability:

1. Cost Ascertainment: Determining the cost of products, processes, and services through various costing techniques like job costing, process costing, and activity-based costing.

2. Cost Control: Establishing cost standards, comparing actual costs with standard costs, and identifying variances for corrective action.

3. Cost Reduction: Developing strategies to reduce costs without compromising quality or performance.

4. Budgeting and Budgetary Control: It prepares budgets and then monitors performance against budgeted figures to achieve resource optimization.

5. Decision Making: This provides cost-related data to make decisions like pricing, make-or-buy analysis, product mix, and discontinuing unprofitable products.

6. Profitability Analysis: It analyses the profitability of different products, services, or departments to allocate resources in an efficient manner.

7. Inventory Valuation: To help in determining the cost of raw materials, work-in-progress, and finished goods.

8. Cost Reporting: Detailed cost reports are prepared so that management can identify cost behavior and performance.

Significance of Cost Accounting

Given the all-round nature and the wide scope of cost accounting, it is crucial to:

- Operational efficiency

- Strategic planning

- Cost transparency

- Support in competitive price strategies

-Optimal usage of resources

The short-term and long-term goals solved by accounting for cost provide a competitive platform to organizations amidst changing market conditions.

b. Elaborate any five methods of costing.

Five Methods of Costing

Costing techniques are methods used to determine the cost of production or services. They are selected according to the character of the business as well as the nature of the product or service being offered. The following are five widely used costing techniques:

1. Job Costing

Definition: Job costing means calculating the cost of a particular job or order individually. Every job or project is given the status of an individual entity to which costs are added.

Applicability: Applied to sectors in which production depends on customer orders, e.g., construction, shipbuilding, and manufacture of custom furniture.

Features:

- Each job or batch is charged with costs.

- Direct materials, labor, and overhead are traced and assigned to the particular job.

- Assists in determining profitability per job.

2. Process Costing

Definition: Process costing is applied in businesses where manufacturing is ongoing, and products undergo several processes or stages before they are finished.

Applicability: Installed in chemicals, textiles, petroleum, and food processing industries.

Features:

- Expenses are totaled for every process or department.

- Average cost per unit is calculated by dividing the total process costs by the number of units produced.

- Appropriate for homogeneous products.

3. Activity-Based Costing (ABC)

Definition: ABC assigns costs according to the activities that cause costs, not usual cost centers or departments.

Applicability: Common in service-based companies, manufacturing companies with varied products, and process-intensive industries.

Features:

- Allocates activities and charges products or services for their use of these activities.

- Offers better cost allocation, particularly when overheads are high.

- Helps identify non-value-adding activities for cost reduction.

4. Batch Costing

Definition: Batch costing is applied when the same products are manufactured in batches. A batch is considered a single cost unit, and costs are accumulated for the whole batch.

Applicability: Prevalent in sectors like pharmaceuticals, clothing, and electronics.

Features:

- Costs for the whole batch are calculated, and cost per unit is found by dividing the total cost of the batch by the units in the batch.

- Ensures cost control for repeat production.

5. Contract Costing

Definition: Contract costing resembles job costing but is used on long-term work or contracts, i.e., engineering works, major building construction work.

Applicability: Employed by construction companies, civil engineers, and contractors.

Features:

- Costs are separately accumulated and monitored for every contract.

- Can include progress billing and retention amounts.

- Covers expenses such as direct material, direct labor, and applied overheads.

2.Information regarding two types of materials A and B is as follows:

Normal usage	50 units per week each
Minimum usage	25 units per week each
Maximum usage	75 units per week each
Reorder Quantity	A: 300 units B: 500 units
Reorder Period	A: 4 to 6 weeks B: 2 to 4 weeks

Calculate the following levels for each type of material: a) Reorder level

b) Minimum stock level c) Maximum Stock Level d) Average stock level

e) Danger stock level

To calculate the required stock levels for materials A and B, we use the following formulas:

Formulas

1. **Reorder Level**:
   Reorder Level = Maximum Usage × Maximum Reorder Period
2. **Minimum Stock Level**:
   Minimum Stock Level=Reorder Level−(Normal Usage×Average Reorder Period)
3. **Maximum Stock Level**:
   Maximum Stock Level=Reorder Level+Reorder Quantity−(Minimum Us age × Minimum Reorder Period)
4. **Average Stock Level**:
   Average Stock Level=Minimum Stock Level + Maximum Stock Level/2
5. **Danger Stock Level**:
   Danger Stock Level=Minimum Usage × Minimum Reorder Period

Given Data

Material A:

- Normal Usage = 50 units/week
- Minimum Usage = 25 units/week
- Maximum Usage = 75 units/week
- Reorder Quantity = 300 units
- Reorder Period = 4 to 6 weeks

Material B:

- Normal Usage = 50 units/week
- Minimum Usage = 25 units/week
- Maximum Usage = 75 units/week
- Reorder Quantity = 500 units
- Reorder Period = 2 to 4 weeks

Calculations

Material A

1. **Reorder Level**:
   Reorder Level= 75 ×6 = 450 units
2. **Minimum Stock Level**:
   Minimum Stock Level = 450−(50×5) = 450−250 =200 units

   (4+6/2 = 5 weeks)
3. **Maximum Stock Level**:
   Maximum Stock Level = 450+300 − (25×4) = 450+300 −100 = 650 units
4. **Average Stock Level**:
   Average Stock Level = 200+650/2 = 425 units
5. **Danger Stock Level**:
   Danger Stock Level = 25×4 = 100 units

Material B

1. **Reorder Level**:
   Reorder Level = 75×4 = 300 units
2. **Minimum Stock Level**:
   Minimum Stock Level = 300 − (50×3) = 300−150 = 150 units

   (2+4/2 = 3 weeks)
3. **Maximum Stock Level**:
   Maximum Stock Level = 300+500 − (25×2) = 300+500−50 = 750 units
4. **Average Stock Level**:
   Average Stock Level = 150+750/2 = 450 units

5. **Danger Stock Level**:
   Danger Stock Level = 25×2 = 50 units

Level	Material A(Units)	Material B(Units)
Reorder Level	450	300
Minimum Stock Level	200	150
Maximum Stock Level	650	750
Average Stock Level	425	450
Danger Stock Level	100	50

3.On the basis of the following information, Calculate the earnings of a worker under: A) Halsey Plan B) Rowan Plan

Guaranteed hourly rate of wages Rs. 5 per hour

Standard time for production one dozen articles 3 Hours

Actual time is taken by the worker to produce 20 dozen 48 Hours

Articles

Given Data:

Guaranteed hourly rate of wages: Rs. 5/hour

Standard time to produce one dozen article: 3 hours

Actual time taken to produce 20 dozen articles: 48 hours

Calculate Standard Time for Producing 20 Dozen Articles

The standard time for producing one dozen articles is 3 hours. Therefore, for 20 dozen:

Standard Time = 3 x 20 = 60 hours

Calculate Time Saved

Time Saved = Standard Time - Actual Time Taken

Time Saved = 60 - 48 = 12 hours

Halsey Plan Earnings

Under the Halsey Plan, the worker is paid a guaranteed wage for the actual time worked, plus 50% of the time saved as a bonus.

Formula: Earnings (Halsey)} = (Actual Time x Hourly Rate) + (50/100) x Time Saved x Hourly Rate)

Calculation:

Earnings (Halsey) = (48 x 5) + (0.5 x 12 x 5)

Earnings (Halsey) = 240 + 30 = Rs. 270

Rowan Plan Earnings :Under the Rowan Plan, the worker is paid a guaranteed wage for the actual time worked, plus a bonus that is proportional to the ratio of time saved to standard time.

Formula:

Earnings (Rowan) = (Actual Time x Hourly Rate) + (Time Saved/Standard Time x Actual Time x Hourly Rate)

Calculation:

Earnings (Rowan) = (48 x 5) + (12/60 x 48 x 5)

Earnings (Rowan) = 240 + (0.2 x 48 x 5)

Earnings (Rowan) = 240 + 48 = Rs. 288

SET-2

4.Explain the Absorption of overhead. Explain various methods of Absorption of overhead.

Absorption of Overhead

Absorption of overhead refers to the process of allocating or apportioning overhead costs (indirect costs) to specific cost units or cost centers, so that they are included in the total cost of production or services. The goal is to ensure that every product or service bears its fair share of the total overhead costs.

Importance of Absorption of Overhead

1. Cost Accuracy: Helps in determining the accurate cost of a product or service.

2. Profitability Analysis: Assists in analyzing the profitability of individual products or services.

3. Pricing Decisions: Provides a basis for setting competitive prices.

4. Performance Evaluation: Helps in measuring efficiency by comparing absorbed overheads with actual overheads incurred.

Methods of Absorption of Overhead

Different methods are used to absorb overhead based on the nature of the production process, the type of cost center, and managerial requirements. The main methods are:

1. Percentage of Direct Material Cost

Formula: (Overhead Absorption Rate) = Total Overheads /Direct Material Cost x 100

Application: Overhead is absorbed as a percentage of direct material cost.

Suitability: Used in industries where material cost forms the bulk of production cost, such as textiles or metal industries.

Limitation: Ignores the contribution of labor and other factors.

2. Percentage of Direct Labor Cost

Formula: (Overhead Absorption Rate) = Total Overheads/Direct Labor Cost x 100

Application: Overhead is absorbed as a percentage of direct labor cost.

Suitability: Common in labor-intensive industries such as construction or handcrafting.

Limitation: Assumes that overheads are directly proportional to labor cost, which may not always be true.

3. Percentage of Prime Cost

Formula: (Overhead Absorption Rat) = (Total Overheads/Prime Cost x 100

(Prime Cost = Direct Material Cost + Direct Labor Cost)

Application: Overhead is absorbed as a percentage of the total prime cost.

Suitabilit: Works well when both materials and labor play a significant role in production.

Limitation: Does not account for machine usage or other production complexities.

4. Machine Hour Rate

Formula: (Overhead Absorption Rate per Machine Hour) = Total Overheads/Total Machine Hours

Application: Overhead is absorbed based on the number of machine hours used for production.

Suitability: Ideal for machine-intensive industries like engineering or automobile manufacturing.

Limitation: Ignores labor contribution in production.

5. Labor Hour Rate

Formula: (Overhead Absorption Rate per Labor Hour = Total Overheads/Total Labor Hours

Application: Overhead is absorbed based on the total number of labor hours.

Suitability: Common in labor-driven processes or industries where machines are not the primary cost driver.

Limitation: Overlooks machine usage in production.

6. Rate per Unit of Output

Formula: (Overhead Absorption Rate per Uni)} = Total Overheads/Total Units Produced

Application: Overhead is absorbed as a fixed cost per unit of production.

Suitability: Suitable for homogeneous production processes, such as cement or brick manufacturing.

Limitation: Inappropriate for industries producing diverse products.

5.The product of a manufacturing concern passes through two processes A and B and then to finished stock. It is ascertained that for each process normally 5% of total weight is lost and 10% is scrap which from processes A and B realizes Rs. 80 per ton and Rs. 200 per ton, respectively. The following are the figures relating to both processes:

	Process A	Process B
Materials in tons	1000	70
Cost of material in rupees per Ton	125	200
Wages in rupees	28,000	10,000
Manufacturing expenses	8,000	5,250
Output in tons	830	780

Prepare processes show the cost per ton of each process. There was no stock or work-in-progress in any process.

Particulars	Process A	Process B
Materials	1000 tons	70 tons
Cost of Material	Rs. 125	Rs. 200
Total Material cost	1000 x 125 = 1,25,000	70 x 200 = 14,000
Wages	28,000	10,000
Manufacturing expenses	8,000	5,250
Scrap value per ton	80	200
Output in tons	830 tons	780 tons
Normal loss	5% input = 50tons	5% input = 35tons
Scrap	10% input = 100tons	10% input = 7tons

Process A

Total input = 1000 tons

Normal Loss = 1000 x 5% = 50tons

Scrap = 1000 x 10% = 100 tons

Output = 830 tons

Scarp Value = 100 x 80 = 8,000

Total Costs = Material cost + Wages + Manufacturing cost – Scarp value

1,25,000 + 28,000 + 8,000 – 8,000 = 1,53,000

Cost per Ton = Total cost/Output in tons = 1,53,000/830 = 184.34per ton

Process B

Total Output = 830 tons + 70 tons = 900tons

Normal Loss = 900 x 5% = 45tons

Scrap = 900 x 10% = 90 tons

Output = 780 tons

Scrap Value = 90 x 200 = 18,000

Total Cost = Cost from process A + material cost + Wages + Manufacturing cost – Scrap value

Cost from Process A = 830 x 184.34 = 1,53,002

Total Cost = 1,53,002 + 14,000 + 10,000 + 5,250 + 18,000 = 1,64,252

Cost Per Ton = Total Cost/Output in tons = 1,64,252/780 = 210.58per ton

Process A:

Total Cost = 1,53,000 Output = 830 Tons Cost per Ton = Rs.184.34

Process B:

Total Cost = 1,64,252 Output = 780 Tons Cost per Ton = Rs.210.58

6.XYZ Travels Ltd. Provides the following details related to a month:

Driver, Conductor and Cleaner's wages	Rs.5,00,000
Office staff's salary	Rs.2,00,000
Diesel and Other oils	Rs.7,00,000
Insurance, Taxes, etc.	Rs.4,00,000
Interest and other expenses	Rs.4,50,000
Repairs & Maintenance	Rs.2,00,000
Depreciation	Rs.5,20,000

Five buses with a seating capacity of 50 passengers shuttled between two cities at a distance of 50 kms. Each bus has made one round trip (to and from) per day with a normal occupancy of 60%. The number of days worked in a month was 25 days. Calculate the cost per passenger kilometer.

Total Cost:

Total Cost = Driver, Conductor and Cleaner's wages + Office staff's salary + Diesel and Other oils + Insurance, Taxes, + Interest and other expenses + Repairs & Maintenance + Depreciation

Total Cost = 5,00,000 + 2,00,000 + 7,00,000 + 4,00,000 + 4,50,000 + 2,00,000 + 5,20,000 = Rs.29,70,000

Total Cost = Rs.29,70,000

Total Passenger – Kilometers

Each bus shuttles between two cities (round trip):

Distance per round trip = 50km + 50km = 100km/day

Distance per month = Distance per day × Number of days worked = 100 x 25 = 2,500km

Total distance (all buses) = Distance per bus per month x 5 = 2,500 x 5 = 12,500km

Seating capacity of each bus: 50 passengers

Effective passengers per trip =50 × 0.6 = 30passengers/trip

Passenger-kilometers per trip = Passengers per trip × Distance = 30 × 50 = 1,500 passenger-kilometers

Passenger-kilometers per day = Passenger-kilometers per trip × 2(round trip) × 5buses

Passenger-kilometers per day = 1,500 × 2 × 5 =15,000 passenger-kilometers/day

Passenger-kilometers per month = 15,000 × 25= 3,75,000 passenger-kilometers

Cost Per Passenger-Kilometer

Cost Per Passenger-Kilometer = Total Costs/Total Passenger Kilometers

= 29,70,000/3,75,000= Rs.7.92

Cost Per Passenger Kilometer is Rs.7.92.