

**TOPICS : Absorption Costing, Overheads, Activity Based Costing**

**QUESTION NO.1**

**(10 MARKS)**

A B C D Co. Ltd. produces and sells four products A, B, C and D. These products are similar and usually produced in production runs of 10 units and sold in a batch of 5 units. The production details of these products are as follows:

| Product                 | A   | B   | C   | D   |
|-------------------------|-----|-----|-----|-----|
| Production (Units)      | 100 | 110 | 120 | 150 |
| Cost per unit:          |     |     |     |     |
| Direct material (Rs.)   | 30  | 40  | 35  | 45  |
| Direct labour (Rs.)     | 25  | 30  | 30  | 40  |
| Machine hour (per unit) | 5   | 4   | 3   | 4   |

The production overheads during the period are as follows:

|                                  | Rs.    | Rs.    |
|----------------------------------|--------|--------|
| Factory works expenses           | 22,500 |        |
| Stores receiving costs           | 8,100  |        |
| Machine set up costs             | 12,200 |        |
| Cost relating to quality control | 4,600  |        |
| Material handling and dispatch   | 9,600  | 57,000 |

The cost drivers for these overheads are detailed below:

| Cost                             | Cost drivers           |
|----------------------------------|------------------------|
| Factory works expenses           | Machine hours          |
| Stores receiving costs           | Requisitions raised    |
| Machine set up costs             | No. of production runs |
| Cost relating to quality control | No. of production runs |
| Material handling and dispatch   | No. of orders executed |

The number of requisitions raised on the stores was 25 for each product and number of orders executed was 96, each order was in a batch of 05 units.

**Required:**

- (i) Total cost of each product assuming the absorption of overhead on machine hour basis;
- (ii) Total cost of each product assuming the absorption of overhead by using activity base costing; and
- (iii) Show the differences between (i) and (ii) and comment.

**QUESTION NO.2****(10 MARKS)**

A company has 3 production departments A, B and C and two service departments X and Y. The following data are extracted from the records of the company for a particular given period :

A.

|       |                           |           |
|-------|---------------------------|-----------|
| (i)   | Rent and rates            | Rs.25,000 |
| (ii)  | General lighting          | 3,000     |
| (iii) | Indirect wages            | 7,500     |
| (iv)  | Power                     | 7,500     |
| (v)   | Depreciation on machinery | 50,000    |
| (vi)  | Sundries                  | 50,000    |

B. Additional data department-wise

|                             | Total     | Departments |          |          |        |        |
|-----------------------------|-----------|-------------|----------|----------|--------|--------|
|                             |           | A           | B        | C        | X      | Y      |
| Direct wages (Rs.)          | 50,000    | 15,000      | 10,000   | 15,000   | 7,500  | 2,500  |
| H.P. of machines used       | 150       | 60          | 30       | 50       | 10     | -      |
| Cost of machinery (Rs.)     | 12,50,000 | 3,00,000    | 4,00,000 | 5,00,000 | 25,000 | 25,000 |
| Production hours worked     | -         | 6,226       | 4,028    | 4,066    | -      | -      |
| Floor space used (Sq. mtr.) | 10,000    | 2,000       | 2,500    | 3,000    | 2,000  | 500    |
| Lighting points (nos.)      | 60        | 10          | 15       | 20       | 10     | 5      |

C. Service departments' expenses allocation

|   | A   | B   | C   | X   | Y   |
|---|-----|-----|-----|-----|-----|
| X | 20% | 30% | 40% | -   | 10% |
| Y | 40% | 20% | 30% | 10% | -   |

You are required to :

- (a) **compute the overhead rate of production departments using the repeated distribution method;** and
- (b) hence, **determine the total cost of a product** whose direct material cost and direct labour cost are Rs. 250 and Rs. 150 respectively and which would consume 4 hours, 5 hours and 3 hours in departments A, B and C respectively.

**QUESTION NO.3****(10 MARKS)**

A manufacturing unit has added a new machine to its fleet of five existing machines. The total cost of purchase and installation of the machine is Rs. 7,50,000. The machine has an estimated life of 15 years and is expected to realize Rs.30,000 as scrap at the end of its working life.

Other relevant data are as follows:

- (i) Budgeted working-hours are 2,400 based on 8 hours per day for 300 days. This includes 400 hours for plant maintenance.
- (ii) Electricity used by the machine is 15 units per hour at a cost of Rs. 2.00 per unit. No current is drawn during maintenance.
- (iii) The machine requires special oil for heating which is replaced once in every month at a cost of Rs. 2,500 on each occasion.
- (iv) Estimated cost of maintenance of the machine is Rs. 500 per week of 6 working days.
- (v) 3 operators control the operations of the entire battery of six machines and the average wage per person amounts to Rs. 450 per week plus 40% fringe benefits.
- (vi) Departmental and general works overheads allocated to the operation during the last year were Rs. 60,000. During the current year it is estimated that there will be an increase of 12.5% of this amount. No incremental overhead is envisaged for the installation of the new machine.

**You are required to compute the machine hour rate for recovery of the running cost of the machine.**

**QUESTION NO.4****(10 MARKS)**

ABC Ltd. manufactures a single product and absorbs the production overheads at a pre-determined rate of Rs.10 per machine hour.

At the end of financial year 20X1-X2, it has been found that actual production overheads incurred were Rs. 6,00,000. It included Rs. 45,000 on account of 'written off' obsolete stores and Rs. 30,000 being the wages paid for the strike period under an award.

The production and sales data for the year 20X1-X2 is as under :

Production :

|                  |              |
|------------------|--------------|
| Finished goods   | 20,000 units |
| Work-in-progress | 8,000 units  |

(50% complete in all respects)

Sales :

|                |              |
|----------------|--------------|
| Finished goods | 18,000 units |
|----------------|--------------|

The actual machine hours worked during the period were 48,000. It has been found that one-third of the under-absorption of production overheads was due to lack of production planning and the rest was attributable to normal increase in costs.

- (i) Calculate the amount of under-absorption of production overheads during the year 20X1-X2; and  
 (ii) Show the accounting treatment of under-absorption of production overheads.

**QUESTION NO.5**

**(10 MARKS)**

Linex Limited manufactures three products P, Q and R which are similar in nature and are usually produced in production runs of 100 units. Product P and R require both machine hours and assembly hours, whereas product Q requires only machine hours. The overheads incurred by the company during the first quarter are as under:

|                                  |           |
|----------------------------------|-----------|
| Machine Department expenses      | 18,48,000 |
| Assembly Department expenses     | 6,72,000  |
| Setup costs                      | 90,000    |
| Stores receiving cost            | 1,20,000  |
| Order processing and dispatch    | 1,80,000  |
| Inspect and Quality control cost | 36,000    |

The data related to the three products during the period are as under:

|                                             | P           | Q           | R           |
|---------------------------------------------|-------------|-------------|-------------|
| Units produced and sold                     | 15,000      | 12,000      | 18,000      |
| Machine hours worked                        | 30,000 hrs. | 48,000 hrs. | 54,000 hrs. |
| Assembly hours worked (direct labour hours) | 15,000 hrs. | -           | 27,000 hrs. |
| Customers' orders executed (in numbers)     | 1,250       | 1,000       | 1,500       |
| Number of requisitions raised on the stores | 40          | 30          | 50          |

Required

**PREPARE a statement showing details of overhead costs allocated to each product type using activity based costing.**