

Cost and Management Accounting -II

Activity Based Costing

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CU Syllabus

Problems of Traditional Costing, Meaning of ABC, Cost analysis under ABC, Application of ABC

Theory

1. Meaning of ABC
2. Definition of Cost Pool and Cost Driver
3. Steps in ABC
4. Uses of ABC
5. Difference between Traditional Cost System and ABC system

Practical sums

1. Problems based on Traditional Costing system- calculate the Total cost and CPU of a product
2. Problems based on ABC system- calculate Total cost and CPU of a product
3. Problems involving calculations of Total cost and CPU under both Traditional and ABC methods.

Theory

Meaning of ABC

The activity-based costing (ABC) system is a method of accounting you can use to find the total cost of activities necessary to make a product. The ABC system assigns costs to each activity that goes into production, such as workers testing a product, setting up of machines, orders passed for purchase of raw materials etc.

Definition of Cost Pool and Cost Driver

Cost pool: It is an aggregate of all the costs associated with performing a particular business activity.

Cost driver: It is an activity that is the root cause of why a cost occurs. It must be applicable and relevant to the event that is incurring a cost. A cost driver assists with allocation expenses in a systematic manner that results in more accurate calculations of the true costs of producing specific products.

Steps in ABC

- Identify which activities are necessary to create a product
- Separate each activity into its own cost pool
- Assign activity cost drivers to each cost pool
- Divide the total overhead in each cost pool by the total cost drivers to get your cost driver rate
- Compute how many hours, parts, units, etc. that the activity used and multiply it by the cost driver rate to find total cost
- Calculate Cost per Unit by dividing the Total Cost by Total Units produced.

Uses of ABC

- Identification of necessary activities: The ABC system shows how overhead is used, which helps to determine whether certain activities are necessary for production.
- Focus on Value adding activities: The Activity Based Costing helps the management on focusing the forces on value adding activities and eliminate non-value adding activities.
- Ensuring profit margin: The specific allocation of costs also helps to set prices that produce a healthy small business profit margin.
- Product pricing: With an ABC system, the business can assign costs to each activity in the production process, allowing it to more accurately set a price that accounts for how much it costs to create a product.
- Measures to improve productivity: The accurate cost information helps the management to adopt productivity improvement approaches like Total Quality Management (TQM), Business Process Re-engineering (BPR) etc.
- Help in deciding Make or Buy: The management can take make or buy decisions by considering the cost of manufacture of a product or sub contract the same with an outside agency through Activity Based Costing analysis.

Difference between Traditional Cost System and ABC system

Basis	Traditional	ABC
1. Cost pools	One or limited number	Many
2. Applied Rate	Volume based	Activity Based
3. Applied for	Labour Intensive	Capital Intensive
4. Benefits	Simple, Inexpensive	Accurate product costing, identification of necessary activities etc

5. Cost assignments	Primary and secondary distribution of Overhead and then allocation of Overhead as per the suitable rate	Allocation of cost pool based on cost drivers then allocation of costs to product or service based on the drivers used by the particular product or service
6. Focus	Departments or responsibility centres	Processes and activities

Practical sum

Problems involving calculations of Total cost and CPU under both Traditional and ABC methods.

Question:

Amrit Company produces 3 products A, B and C. The company follows Activity Based Costing system. Information related to various costs of these products for the last year:

Particulars	A	B	C
Production and Sales (Units)	15000	12000	18000
Selling Price p.u. (Rs.)	7.5	12	13
Raw Material Usage (kg) p.u.	2	3	4
Direct labour hours p.u.	0.1	0.15	0.2
Machine Hours p.u.	0.5	0.7	0.9
No. of Production runs p.a.	16	12	8
No. of purchase orders p.a.	24	28	42
No. of deliveries to retailers p.a.	48	60	32

The price of Raw materials remained constant through out the year at Rs.1.2 per kg and the labour cost was Rs.14.8 per hour. The annual Overhead costs are as follows:

Overheads	Rs
Machine set up costs	26550
Machine running costs	66400
Procurement Costs	48000
Delivery costs	54320

Solution:

Traditional Method

- a) Calculation of Total Overhead

Overheads	Rs
Machine set up costs	26550
Machine running costs	66400
Procurement Costs	48000

Delivery costs	54320
Total	195270

b) Calculation of Overhead Absorption rate

Particulars	A	B	C	Total
Production Volumes	15000	12000	18000	
Labour hours p.u.	0.1	0.15	0.2	
Total Labour hours	1500	1800	3600	6900

Overhead absorption rate = $195270/6900 = \text{Rs.}28.30$ per hour.

c) Calculation of Cost p.u.

Particulars	A	B	C
Raw material cost (Usage * Rs.1.20)	2.4	3.6	4.8
Direct Labour Cost (Labour hours * Rs.14.80)	1.48	2.22	2.96
Overhead (Labour hours * Rs.28.30)	2.83	4.25	5.66
CPU	6.71	10.07	13.42

ABC Method

a) Calculation of Overhead Absorption rate

Cost Pool	Rs.	Cost Driver		Rate of OH per activity (Rs.)
Machine set up costs	26550	No. of Production runs p.a.	$(16+12+8) = 36$ runs	$26550/36 = 737.50$ per run
Machine running costs	66400	No. of Machine Hours p.a.	$(7500+8400+16200)\# = 32100$ hours	$66400/32100 = 2.0685$ per hour
Procurement Costs	48000	No. of purchase orders p.a.	$(24+28+42) = 94$ orders	$48000/94 = 510.6383$ per order
Delivery costs	54320	No. of deliveries to retailers p.a.	$(48+30+62) = 140$ deliveries	$54320/140 = 388$ per delivery

Total Machine hours p.a. = Machine hours p.u. * Total units produced

$$A = 0.5 * 15000 = 7500$$

$$B = 0.7 * 12000 = 8400$$

$$C = 0.9 * 18000 = 16200$$

b) Calculation of Cost p.u.

Particulars	A	B	C
Material Cost	2.4	3.6	4.8

Labour Cost	1.48	2.22	1.96
Overhead: ##			
Machine set up costs	$(737.50 \times 16) / 15000 = 0.7867$	$(737.50 \times 12) / 12000 = 0.7375$	$(737.5 \times 8) / 18000 = 0.3278$
Machine running costs	$(2.0685 \times 7500) / 15000 = 1.034$	$(2.0685 \times 8400) / 12000 = 1.4479$	$(2.0685 \times 16200) / 18000 = 1.8616$
Procurement Costs	$(510.6383 \times 24) / 15000 = 0.817$	$(510.6383 \times 28) / 12000 = 1.1915$	$(510.6383 \times 42) / 18000 = 1.1915$
Delivery costs	$(388 \times 48) / 15000 = 1.2416$	$(388 \times 30) / 12000 = 0.97$	$(388 \times 62) / 18000 = 1.3364$
Total CPU	7.7593	10.1669	11.4773

Overheads p.u. for products A, B and C

= (Overhead absorption rate* No. of cost drivers used by the individual products p.a.)/ No. of units produced

For further explanation and other illustrations, please refer to the books suggested by University of Calcutta. The students are welcome to ask questions to clear doubts in Google classroom introduced by Umeschandra College for e-learning.