**Costing Methods**

**Week 3: Tutorial**

**A. Multiple-Choice Questions (10 minutes)**

1. In full costing, fixed overheads are:
2. Treated as period costs
3. Allocated to products using a predetermined overhead rate
4. Excluded from product costs
5. Only allocated to direct labour
6. Which of the following best describes Activity-Based Costing (ABC)?
7. Allocates overhead based on a single cost driver like machine hours
8. Allocates overhead based on multiple activities and their respective cost drivers
9. Only allocates variable costs to products
10. Ignores fixed costs in overhead allocation
11. The contribution margin in marginal costing is calculated as:
12. Sales revenue minus fixed costs
13. Sales revenue minus variable costs
14. Total costs minus overheads
15. Variable costs plus fixed costs
16. Which of the following is an advantage of full costing?
17. Simplicity and ease of use in overhead allocation
18. Helps in making short-term decisions
19. Provides highly accurate cost allocation for complex businesses
20. Excludes fixed costs from profit calculations
21. In Activity-Based Costing (ABC), a cost driver is:
22. A measure that is used to allocate variable costs
23. Only used to allocate direct materials
24. The reason for a cost occurring, such as number of machine setups or labor hours
25. Ignored when calculating overhead absorption rates
26. Under marginal costing, fixed costs are:
27. Allocated to products based on cost drivers
28. Treated as period costs and not included in unit costs
29. Excluded from total cost calculations
30. Allocated directly to products based on labor hours
31. Which of the following is a disadvantage of full costing?
32. It is not compliant with financial reporting standards
33. It focuses only on variable costs
34. It can lead to over- or under-allocation of overheads
35. It requires detailed activity-based data
36. The primary benefit of using Activity-Based Costing (ABC) is:
37. Reducing the need for cost drivers
38. Simplifying the overhead allocation process
39. Ignoring non-production costs
40. Better cost allocation accuracy in businesses with diverse products
41. Which of the following statements is true about full costing?
42. It includes both fixed and variable costs in product costing
43. It allocates only variable costs to products
44. It is more accurate than ABC for complex overhead allocation
45. It treats fixed costs as period costs
46. ABC Manufacturing Ltd. uses machine hours as a basis for absorbing overheads. The budgeted overheads for the year were $150,000, and the company expected to use 25,000 machine hours. At the end of the year, the actual overheads incurred were $160,000, and the actual machine hours used were 26,000. The overheads were:
47. Over-absorbed by $4,000
48. Under-absorbed by $6,000
49. Over-absorbed by $6,000
50. Under-absorbed by $4,000

(Actual =$160,000, but only absorbed = $150,000/25,000 x 26,000 =$156,000)

1. A company produces a product with the following costs:
* Direct materials: $15 per unit
* Direct labor: $10 per unit
* Variable overhead: $5 per unit
* Fixed overhead: $30,000 (total for the period)
* Units produced: 10,000 units

 Using marginal costing, what is the product cost per unit?

1. $30 per unit B. $40 per unit C. $50 per unit D. $45 per unit

 (Marginal costing only consider variable production cost, hence $15+$10+$5)

1. A company manufactures a product with the following costs:
* Direct materials: $25 per unit
* Direct labor: $20 per unit
* Variable overheads: $10 per unit
* Fixed production overheads: $100,000 (total for the period)
* Units produced: 20,000 units

Using full costing, what is the product cost per unit?

1. $55 per unit
2. $60 per unit
3. $50 per unit
4. $70 per unit

( total cost =total direct cost + OH =($25+$20+$10)x20,000+$100,000 =$1,200,000

Cost per unit = $1,200,000/20,000=$60 per unit)

**Problems Group Activity (25 minutes)**

1. MBB Ltd. produces two products, **Gadget A** and **Gadget B**, in a factory. The following information is provided:

**Direct Costs:**

* **Gadget A**:

Direct materials: $30 per unit

Direct labour: $20 per unit

* **Gadget B**:

Direct materials: $50 per unit

Direct labour: $25 per unit

**Overhead Information:**

* Total overheads: $120,000 for the period
* The company uses machine hours to allocate overheads.

Gadget A: 1,000 machine hours

Gadget B: 2,000 machine hours

**Production Information:**

* Units produced of Gadget A: 500 units
* Units produced of Gadget B: 800 units

**Activity Cost Pools and Drivers:**

* **Machine setups**: $60,000

Gadget A: 120 setups

Gadget B: 80 setups

* **Quality inspections**: $40,000

Gadget A: 300 inspections

Gadget B: 200 inspections

* **Material handling**: $20,000

Gadget A: 600 movements

Gadget B: 400 movements

**Tasks**

1. Calculate the **overhead absorption rate** based on machine hours.
2. Calculate the **total cost per unit** for both **Gadget A** and **Gadget B** using full costing.
3. Calculate the total cost per unit for both Gadget A and Gadget B using ABC method.
4. Comment on the difference in cost per unit determined by these two methods.

Solution:

1. **Step 1**: Calculate the overhead absorption rate (OAR):

**Total machine hours =1,000+2,000=3,000**

OAR=Total Overheads/Total Machine Hours=120,000/3,000=$40 per machine  hour

1. **Step 2**: Allocate overheads to each product:

**Gadget A**: 1,000×40=$40,000

**Gadget B**: 2,000×40=$80,000

 **Step 3**: Calculate the total cost per unit:

**Gadget A**:

Total cost =Direct Cost + OH absorbed

 =$50x500+$40,000

 =$25,000+$40,000=$65,000

Cost per unit = Total cost / total unit produced = $65,000/500 =$130

**Gadget B**:

Total cost =Direct Cost + OH absorbed

 =$75x800+$80,000

 =$60,000+$80,000=$140,000

 Cost per unit = Total cost / total unit produced = $140,000/800 =$175

Full costing

|  |  |  |
| --- | --- | --- |
|  | Gadget A | Gadget B |
| Cost per unit  | $130 | $175 |

Task 3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Activity | Cost | Cost driver | Total activity | Rate |
| Machine set-up | $60,000 | No of setups | 200 setups | $300 per setup |
| Inspections | $40,000 | No of inspections | 500 inspections | $80 per inspection |
| Material Handling | $20,000 | No of movements | 1,000 movements | $20 per movement |

|  |  |  |
| --- | --- | --- |
|  | Gadget A | Gadget B |
| Machine set-up | 120x300 =$36,000 | $24,000 |
| Inspections | 300x$80=$24,000 | $16,000 |
| Material Handling | 600x$20=$12,000 | $8,000 |
| Total OH | $72,000 | $48,000 |
| Direct Cost (from task 2) | $25,000 | $60,000 |
| Total product cost | $97,000 | $108,000 |
| Unit produced | 500 | 800 |
| Cost per unit | $194 | $135 |

Task 4:

Full costing

|  |  |  |  |
| --- | --- | --- | --- |
|  | Costing Method | Gadget A | Gadget B |
| Cost per unit | Full costing | $130 | $175 |
| ABC | $194 | $135 |

 Full costing method undercast lower volume products while overcast higher volume products.