



Cost accounting 2

Section NO. (6)

Accounting for Indirect Manufacturing Costs

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Example (5):

EL-Ameen Co. consists of two **production centers** (cutting and knitting), two **service centers**, (power and warehouses). The following data were extracted from the factory cost books and records:

1- Estimated indirect manufacturing costs and allocation basis:

Desc.	Cutting	Knitting	Power	warehouses
(MOH) From special costs	90,000	70,000	9,000	16,000
(MOH) From general costs	110,000	30,000	11,000	14,000
Direct materials issued (allocation base for warehouses)	3,000	3,000	4,000	--
Machine hours (allocation base for power)	2,000	8,000	--	10,000
Direct labor hours	7,500	5,000	1,000	3,000

2- The rate of indirect manufacturing costs allocated to production centers is determined based on **direct labor hours** at cutting center, **machine hours** at knitting center.

Required:

Preparing a statement of allocation the estimated indirect manufacturing costs using the reciprocal allocation method.

Solution

1- Analysis of the services provided by the Services Centers :

- ❑ Cost of warehouses center allocation based on direct materials issued
- ❑ Cost of power center allocation based on machine hours.

Desc.	beneficiary centers			
	Cutting	Knitting	Power	warehouses
Warehouses center	$= (3000 \div 10000)$ = 30%	$= (3000 \div 10000)$ = 30%	$= (4000 \div 10000)$ = 40%	-----
Power center	$= (2000 \div 20000)$ = 10%	$= (8000 \div 20000)$ = 40%	-----	$= (10000 \div 20000)$ = 50%

2- Determine the total estimated indirect manufacturing costs:

Items Costs	Production Centers		Service Centers		Total
	Cutting	Knitting	Power	warehouses	
Special costs	90,000	70,000	9,000	16,000	185,000
General costs	110,000	30,000	11,000	14,000	165,000
Total estimated (MOH) costs	200,000	100,000	20,000	30,000	350,000

3- Determine the cost allocation of production service centers:

Power (P)	Warehouse (W)
20,000	30,000
+ 40% from warehouses cost (W)	+ 50% from Power cost (P)
$P = 20,000 + 0.40 W$ (First equation)	$W = 30,000 + 0.50 P$ (Second equation)

And by substitution in the first equation:

$$P = 20,000 + 0.40 W$$

$$P = 20,000 + 0.40 (30,000 + 0.50 P)$$

$$P = 20,000 + 12,000 + 0.20 P$$

$$P = 32,000 + 0.20 P$$

$$0.80 P = 32,000$$

$$P \text{ (Power)} = 40,000 \text{ EGP}$$

And by substitution in the second equation:

$$W = 30,000 + 0.50 P$$

$$W = 30,000 + (0.50 \times 40,000)$$

$$W = 30,000 + 20,000$$

$$W \text{ (Warehouses)} = 50,000 \text{ EGP}$$

4- Allocation the cost of services centers to production centers as following:

□ The centers, share from the cost of power services center:

- **Share of cutting center = $40,000 \times 10\% = 4,000$ EGP.**
- **Share of knitting center = $40,000 \times 40\% = 16,000$ EGP.**
- **Share of warehouses center = $40,000 \times 50\% = 20,000$ EGP.**

□ The centers, share from the cost of warehouses services center:

- **Share of cutting center = $50,000 \times 30\% = 15,000$ EGP.**
- **Share of knitting center = $50,000 \times 30\% = 15,000$ EGP.**
- **Share of power center = $50,000 \times 40\% = 20,000$ EGP.**

5- Allocation of the estimated indirect manufacturing costs statement:

Items Costs	Production Centers		Service Centers		Total
	Cutting	Knitting	Power	warehouses	
Total estimated (MOH) costs	200,000	100,000	20,000	30,000	350,000
allocation power center	4,000	16,000	(40,000)	20,000	
allocation warehouses center	15,000	15,000	20,000	(50,000)	
Total estimated (MOH) costs	219,000	131,000			350,000
Allocation basis	÷ 7,500	÷ 8,000			
Allocation rate	29.2	16.375			

6- Determining allocation rate to production centers, as following:

Allocation rate - cutting center = $219,000 \div 7,500 = 29.2 \text{ EGP}$ per direct labor hour.

Allocation rate – knitting center = $131,000 \div 8,000 = 16.375 \text{ EGP}$ per machine-hour.

Frist question : Choose the correct answer :

1- Total costs of warehouses center from general and special costs:

A	30,000 EGP.
B	10,000 EGP.
C	100,000 EGP.
D	50,000 EGP.

The correct answer is (A)

2- Total costs of power center from general and special costs:.....

A	20,000 EGP.
B	10,000 EGP.
C	100,000 EGP.
D	50,000 EGP.

The correct answer is (A)

3- Total estimated indirect manufacturing costs of Shaheen Co. as a whole:

A	97,500 EGP.
B	350,000 EGP.
C	360,000 EGP.
D	150,000 EGP.

The correct answer is (B)

4- Share of the cutting center from costs of warehouses services center:

A	15,000 EGP.
B	12,500 EGP.
C	11,250 EGP.
D	2,250 EGP.

The correct answer is (A)

5- Share of the power center from costs of warehouses services center:

A	16,000 EGP.
B	12,500 EGP.
C	20,000 EGP.
D	11,250 EGP.

The correct answer is (C)

6- Share of the cutting center from costs of power services center:

A	15,000 EGP.
B	12,500 EGP.
C	4,000 EGP.
D	20,000 EGP.

The correct answer is (C)

7- Total indirect manufacturing costs of the cutting center after allocation costs of services centers:

A	100,000 EGP.
B	131,000 EGP.
C	180,000 EGP.
D	219,000 EGP.

The correct answer is (D)

8- Total indirect manufacturing costs of the knitting center after allocation costs of services centers:

A	100,000 EGP.
B	131,000 EGP.
C	180,000 EGP.
D	111,625 EGP.

The correct answer is (B)

9- Allocation rate - Cutting center:

A	21.523 EGP per machine-hour.
B	22.325 EGP per machine-hour.
C	29.2 EGP Per direct labor hour.
D	20.125 EGP Per direct labor cost.

The correct answer is (C)

10- Allocation rate - Knitting center:

A	22.797 EGP per machine-hour.
B	13.050 EGP per machine-hour.
C	12.373 EGP Per direct labor hour.
D	16.375 EGP Per machine hour.

The correct answer is (D)

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Thanks

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