



# **Cost accounting 2**

## **Section NO. (5)**

### **Accounting for Indirect Manufacturing Costs**

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### Example (4):

Adam 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- Analysis of the services provided by the Service Center:

Desc.	beneficiary centers			
	Cutting	Knitting	Power	warehouses
Warehouses center	30%	30%	40%	-----
Power center	10%	40%	---	50%

## 2- Estimated indirect manufacturing costs and allocation basis:

Desc.	Cutting	Knitting	Power	warehouses
(MOH) From special costs	45,000	35,000	4,500	13,000
(MOH) From general costs	55,000	15,000	5,500	7,000
Machine hours	5,000	4,000	1,500	---
Direct labor hours	2,000	5,000	--	500

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

**Required:**

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



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## 1- Determine the total estimated indirect manufacturing costs:

Items Costs	Production Centers		Service Centers		Total
	Cutting	Knitting	Power	warehouses	
Special costs	45,000	35,000	4,500	13,000	97,500
General costs	55,000	15,000	5,500	7,000	82,500
Total estimated (MOH) costs	100,000	50,000	10,000	20,000	180,000

## 2- Determine the cost allocation of production service centers:

Power (P)	Warehouse (W)
10,000	20,000
+ 40% from warehouses cost (W)	+ 50% from Power cost (P)
$P = 10,000 + 0.40 W$ (First equation)	$W = 20,000 + 0.50 P$ (Second equation)

And by substitution in the first equation:

$$P = 10,000 + 0.40 W$$

$$P = 10,000 + 0.40 (20,000 + 0.50 P)$$

$$P = 10,000 + 8,000 + 0.20 P$$

$$P = 18,000 + 0.20 P$$

$$0.80 P = 18,000$$

$$P = 22,500 \text{ EGP}$$

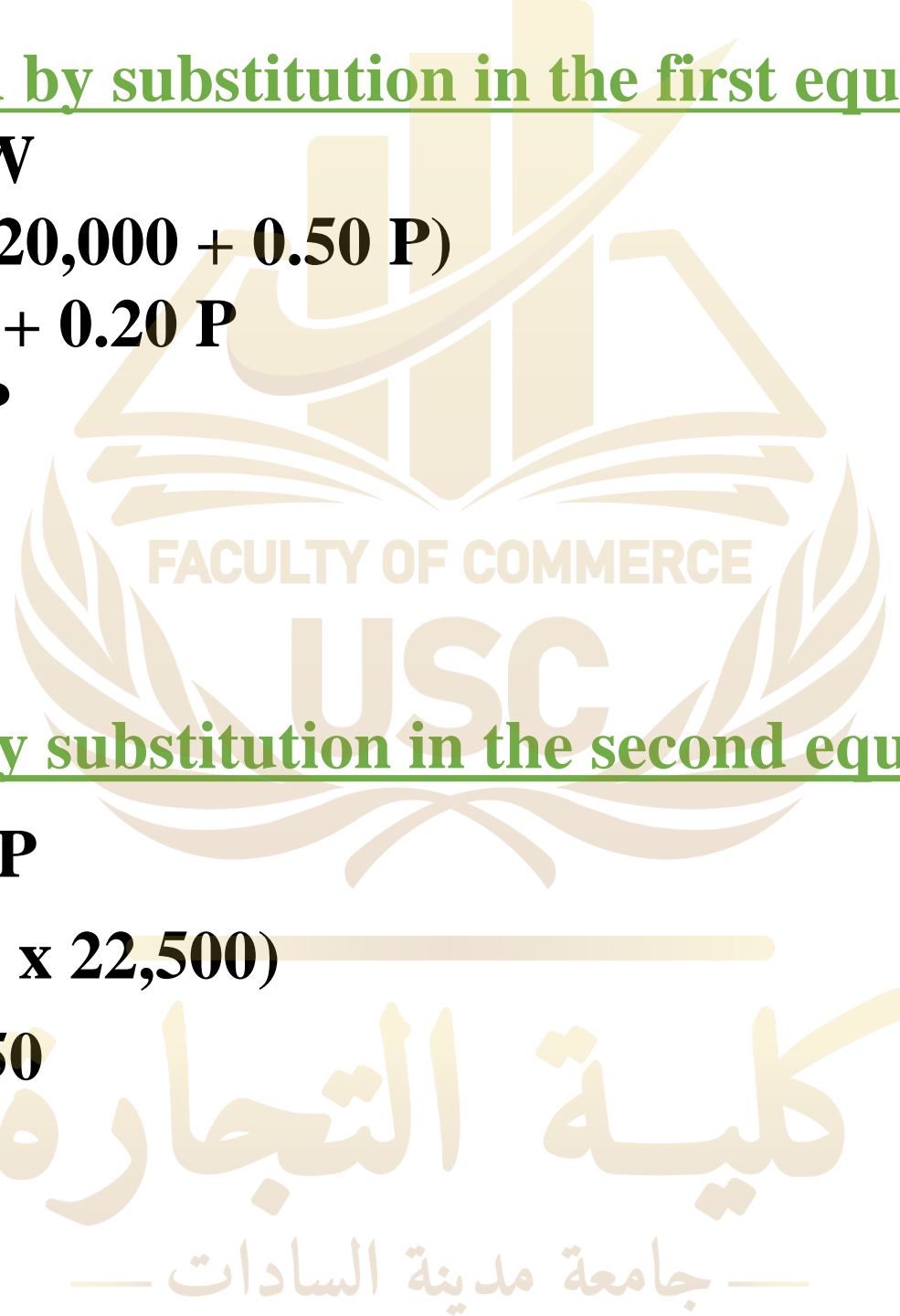
And by substitution in the second equation:

$$W = 20,000 + 0.50 P$$

$$W = 20,000 + (0.50 \times 22,500)$$

$$W = 20,000 + 11,250$$

$$W = 31,250 \text{ EGP}$$



### 3- 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 =  $22,500 \times 10\% = 2,250 \text{ EGP.}$
- Share of knitting center =  $22,500 \times 40\% = 9,000 \text{ EGP.}$
- Share of warehouses center =  $22,500 \times 50\% = 11,250 \text{ EGP.}$

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

- Share of cutting center =  $31,250 \times 30\% = 9,375 \text{ EGP.}$
- Share of knitting center =  $31,250 \times 30\% = 9,375 \text{ EGP.}$
- Share of power center =  $31,250 \times 40\% = 12,500 \text{ EGP.}$

#### 4- Allocation of the estimated indirect manufacturing costs statement:

Items Costs	Production Centers		Service Centers		Total
	Cutting	Knitting	Power	warehouses	
Total estimated (MOH) costs	100,000	50,000	10,000	20,000	180,000
allocation power center	2,250	9,000	(22,500)	11,250	
allocation warehouses center	9,375	9,375	12,500	(31,250)	
Total estimated (MOH) costs	111,625	68,375			180,000
Allocation basis	÷ 5,000	÷ 5,000			
Allocation rate	22.325	13.675			

#### 5- Determining allocation rate to production centers, as following:

Allocation rate - cutting center =  $111,625 \div 5,000 = 22.325 \text{ EGP}$  per machine-hour.

Allocation rate – knitting center =  $68,375 \div 5,000 = 13.675 \text{ EGP}$  per direct labor hour.



## Frist question : Choose the correct answer :

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

<b>A</b>	<b>20,000 EGP.</b>
<b>B</b>	<b>10,000 EGP.</b>
<b>C</b>	<b>100,000 EGP.</b>
<b>D</b>	<b>50,000 EGP.</b>

**The correct answer is (A)**

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

.....

<b>A</b>	<b>20,000 EGP.</b>
<b>B</b>	<b>10,000 EGP.</b>
<b>C</b>	<b>100,000 EGP.</b>
<b>D</b>	<b>50,000 EGP.</b>

**The correct answer is (B)**

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

<b>A</b>	<b>97,500 EGP.</b>
<b>B</b>	<b>180,000 EGP.</b>
<b>C</b>	<b>82,500 EGP.</b>
<b>D</b>	<b>150,000 EGP.</b>

**The correct answer is (B)**

**4- Total indirect manufacturing costs of the cutting center before allocation costs of services centers: .....**

<b>A</b>	<b>97,500 EGP.</b>
<b>B</b>	<b>180,000 EGP.</b>
<b>C</b>	<b>100,000 EGP.</b>
<b>D</b>	<b>150,000 EGP.</b>

**The correct answer is (C)**

**5- Total indirect manufacturing costs of the knitting center before allocation costs of services centers: .....**

<b>A</b>	<b>50,000 EGP.</b>
<b>B</b>	<b>180,000 EGP.</b>
<b>C</b>	<b>100,000 EGP.</b>
<b>D</b>	<b>150,000 EGP.</b>

**The correct answer is (A)**

**6- Share of the cutting center from costs of warehouses services center: .....**

<b>A</b>	<b>9,375 EGP.</b>
<b>B</b>	<b>12,500 EGP.</b>
<b>C</b>	<b>11,250 EGP.</b>
<b>D</b>	<b>2,250 EGP.</b>

**The correct answer is (A)**

**7- Share of the power center from costs of warehouses services center: .....**

<b>A</b>	<b>9,375 EGP.</b>
<b>B</b>	<b>12,500 EGP.</b>
<b>C</b>	<b>11,250 EGP.</b>
<b>D</b>	<b>2,250 EGP.</b>

**The correct answer is (B)**

**8- Share of the cutting center from costs of power services center:.....**

<b>A</b>	<b>9,375 EGP.</b>
<b>B</b>	<b>12,500 EGP.</b>
<b>C</b>	<b>11,250 EGP.</b>
<b>D</b>	<b>2,250 EGP.</b>

**The correct answer is (D)**



**9- Share of the knitting center from costs of power services center: .....**

<b>A</b>	<b>9,375 EGP.</b>
<b>B</b>	<b>12,500 EGP.</b>
<b>C</b>	<b>9,000 EGP.</b>
<b>D</b>	<b>2,250 EGP.</b>

**The correct answer is (C)**

**10- Share of the warehouses center from costs of power services center: .....**

<b>A</b>	<b>9,375 EGP.</b>
<b>B</b>	<b>12,500 EGP.</b>
<b>C</b>	<b>9,000 EGP.</b>
<b>D</b>	<b>11,250 EGP.</b>

**The correct answer is (C)**

**11- Total indirect manufacturing costs of the cutting center after allocation costs of services centers: .....**

<b>A</b>	<b>100,000 EGP.</b>
<b>B</b>	<b>68,375 EGP.</b>
<b>C</b>	<b>180,000 EGP.</b>
<b>D</b>	<b>111,625 EGP.</b>

**The correct answer is (D)**

**12- Total indirect manufacturing costs of the knitting center after allocation costs of services centers: .....**

<b>A</b>	<b>100,000 EGP.</b>
<b>B</b>	<b>68,375 EGP.</b>
<b>C</b>	<b>180,000 EGP.</b>
<b>D</b>	<b>111,625 EGP.</b>

**The correct answer is (B)**

**13- Allocation rate - Cutting center: .....**

<b>A</b>	<b>21.523 EGP per machine-hour.</b>
<b>B</b>	<b>22.325 EGP per machine-hour.</b>
<b>C</b>	<b>13.675 EGP Per direct labor hour.</b>
<b>D</b>	<b>20.125 EGP Per direct labor cost.</b>

**The correct answer is (B)**

**14- Allocation rate - Knitting center: .....**

<b>A</b>	<b>22.797 EGP per machine-hour.</b>
<b>B</b>	<b>13.050 EGP per machine-hour.</b>
<b>C</b>	<b>12.373 EGP Per direct labor hour.</b>
<b>D</b>	<b>13.675 EGP Per direct labor hour.</b>

**The correct answer is (D)**

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*Thanks*

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