

University of Jordan

Department of Industrial Engineering  
Cost Accounting Midterm 30%

Sec. No.: 101

12/30

Q1 (6 pts) Please state whether each of the following statements is True/False. Then, correct the false part

4.5

- 1- In normal and actual costing systems, the actual indirect manufacturing costs are included in job cost. (~~True~~ False ) budgeted
- 2- An increase in sales beyond the breakeven quantity results in increase in operating leverage. (~~False~~ increase )
- 3- When sales increases by 50%, the operating income increases by 50% x operating leverage x contribution margin. (~~True~~ False ) of
- 4- Nonprofit organizations are characterized by zero net income. (~~True~~ True )
- 5- When the safety of margin increases, the risk of loss increases. (~~False~~ decrease )
- 6- Overtime and undertime in merchandising industry are generally considered indirect costs. (~~False~~ Fixed costs )
- 7- In the written-off approach, the under- or - over allocated are included in the finished goods inventory. (~~True~~ True )
- 8- The variation from normal approach and normal costing both result in the same actual indirect cost rate. (~~True~~ True )
- 9- In costing systems, it is generally preferred to use longer periods to calculate the indirect cost rate. (~~True~~ True )
10. When machine depreciation is related to the number of machine hours, depreciation is considered variable cost. (~~True~~ True )
11. The operating leverage always equals to one when there is fixed cost. (~~False~~ no fixed )
12. The expected quantities of products A, B, and C are 360, 240, and 600, respectively. The product mix ratio is then 3:2:4. (~~False~~ 3:2:5 )

1.5 : 1 : 2.5  
3 : 2 : 5

4

Q 2 (6 pts) Company ABS is a chain of electronic stores that sells 10 different types of electronic accessories with identical unit cost and selling price. Given the following data:

Description	Amount (\$)	Description	Amount
Cost of electronic unit (V)	19.5	Salaries (F)	\$ 260,000
Sales commission (V)	5% sales	Advertising (F)	\$ 100,000
Selling price (V)	30	Quantity sold	35,000 units

Calculate:

(a) Contribution margin per unit (12)

$$CMU = S - VC = 30 - 19.5 = 10.5$$

(b) The annual breakeven point in revenues (947,368.4)

$$BCP = \frac{Fixed}{CM\%} = \frac{260,000 + 100,000}{(35,000 \times \frac{10.5}{30}) / 35,000 \times \frac{10.5}{30}}$$

$$CM\% = \frac{9(30-19.5)}{30} = \frac{12}{30} = 40\%$$

(c) Operating income (loss) (69,000)

$$OI = CM - F = 35,000 \times \frac{10.5}{30} - 260,000 - 100,000 = 69,000$$

Q3 (4 pts). Given the following information (1000 \$) about ABC Company.

Direct material purchased	175	Direct material inventory Jan, 2021	31
Direct manufacturing labor	195	Work-in-process inventory Jan, 2021	49
Overhead costs = 35% conversion costs		Finished goods inventory Jan., 2021	45
Prime costs	309	Costs of goods available for sale	465
Gross margin percentage based on revenues	25%	Revenues	515

Calculate for December 2021 the following:

(a) Finished goods inventory (113)

$$\begin{array}{l}
 175 \rightarrow \text{DM} \rightarrow 114 \rightarrow \text{F} \\
 195 \rightarrow \text{DL} \rightarrow 49 \rightarrow \text{WIP} \\
 \text{Prime} = \text{DM used} + \text{DL labor} \\
 309 = \text{DM used} + 195 \\
 \text{DM used} = 114 \\
 \text{conversion} = \text{DL labor} + 0.35 \text{ conversion} \\
 0.65 \text{ conversion} = 145 \\
 \text{conversion} = 223
 \end{array}$$

(b) Direct materials inventory (91)

(2)

4 (8) ABC company uses the Normal costing system for 2021 with two direct cost pools for material and labor, and one indirect cost pool and (direct labor costs) as the cost allocation base. The company had no finished goods inventories. The following information was known about the firm for 2021.

Description	Amount (\$)	Description	Amount (\$)
Budgeted material costs	1000	Actual material costs	900
Budgeted labor costs	4000	Actual labor costs	3600
Budgeted overhead costs	3000	Actual overhead costs	2500
Budgeted labor hours	200	Actual labor hours	180

There was no work in process on Jan. 2021 and there were two jobs/batches in process on Dec., 31, 2021.

Description	Batch A	Batch B
Direct material costs (\$)	25	15
Direct labor costs (\$)	20	32

Calculate:

(a) The indirect cost rate using normal costing (~~15~~),  $\frac{3000}{4000} = 0.75$   
 $rate = \frac{3000}{4000} = 0.75$

(b) The total cost of batches A and B using normal costing (~~38,777.9~~),  $\rightarrow 0.75 \times 20 + 0.75 \times 32 + 25 + 10 + 15 + 32 = 131$   
 $Actual\ rate = \frac{2500}{180} = 13.89$   
 $13.89 \times (25 + 20) + 13.89 \times (15 + 32) + 15 \times 2500$

(c) The balance in costs of goods sold (.....). 2

(d) The under-or over allocated overhead (~~500~~),  $rate \times Actual\ labor\ hrs = 0.75 \times 3600 = 2700$   
 $= Actual\ indirect\ costs - Indirect\ allocated = 2500 - 3000 = -500$   
 $Actual\ overhead = 2500$   
 $Over-allocated = -2700$   
 $= -200$

(e) The direct labor rate per labor hour using variation from normal costing (~~20~~)  
 $\frac{4000}{200} = 20$

Q5 (6 pts) Company ABS is a chain of electronic stores that sells 3 different types (A, B, C) of electronic accessories with contribution margin of \$3, \$2, and \$1, respectively. The expected sales are 20,000, 100,000, and 80,000 units of A, B, and C, respectively. The fixed costs = \$255,000. Assuming the product mix is maintained, calculate:

(a) Contribution margin of the bundle ( ~~90,000~~ )

$$3 \times 1 + 5 \times 2 + 4 \times 1$$

$$17$$

2:10:8  
1:4:4

(b) Total number of units from all types to breakeven ( ~~90,000~~ ).

$$\text{REP in bundle} = \frac{255,000}{17} = 15,000$$

$$15,000 \times 1 + 15,000 \times 2 + 15,000 \times 4$$

$$15,000 \times 5$$

2.5

(c) The operating income when 200,000 units are sold ( ~~2,145,000~~ ).

$$\text{CM}_1 = 200,000 \times 3 = 600,000$$

$$\text{CM}_2 = 200,000 \times 2 \times 5 = 1,000,000$$

$$\text{CM}_3 = 200,000 \times 1 \times 4 = 800,000$$

$$\text{OI} = \text{CM}_1 + \text{CM}_2 + \text{CM}_3 - F = 2,145,000$$

(d) Calculate the operating leverage when the total number of units from all types is 200,000 units ( ~~1.118~~ ).

$$\text{OL} = \frac{\text{CM}}{\text{OI}} = \frac{2,100,000}{2,145,000} = 1.118$$

Q5 (6 pts) Company ABS is a chain of electronic stores that sells 3 different types (A, B, C) of electronic accessories with contribution margin of \$3, \$2, and \$1, respectively. The expected sales are 20,000, 100,000, and 80,000 units of A, B, and C, respectively. The fixed costs = \$255,000. Assuming the product mix is maintained, calculate:

(a) Contribution margin of the bundle (  $\frac{17}{17}$  )

$$3 \times 1 + 5 \times 2 + 4 \times 1$$

17

2:10:8  
1:6:4

(b) Total number of units from all types to breakeven (  $\frac{9,500}{17}$  ).

$$\text{BEP in bundle} = \frac{255,000}{17} = 15,000$$

$$15,000 \times 1 + 15,000 \times 2 + 15,000 \times 4$$

$$15,000 \times 5 = 75,000$$

2.5

(c) The operating income when 200,000 units are sold (  $\frac{2,145,000}{2,145,000}$  ).

$$CM_1 = 200,000 \times 3 = 600,000$$

$$CM_2 = 200,000 \times 2 \times 5 = 1,000,000$$

$$CM_3 = 200,000 \times 1 \times 4 = 800,000$$

$$OI = CM_1 + CM_2 + CM_3 - F = 2,145,000$$

(d) Calculate the operating leverage when the total number of units from all types is 200,000 units (  $\frac{1.118}{1.118}$  ).

$$OL = \frac{CM}{OI} = \frac{2,145,000}{2,145,000} = 1.118$$

24.5/30

Q1 (6 pts) Please state whether each of the following statements is True/False. Then, correct the false part

- 1- In normal and actual costing systems, the actual indirect manufacturing costs are included in job cost. (True)
- 2- An increase in sales beyond the breakeven quantity results in increase in operating leverage. (False, decreases)
- 3- When sales increases by 50%, the operating income increases by 50% x operating leverage x contribution margin. (True)
- 4- Nonprofit organizations are characterized by zero net income. (True)
- 5- When the safety of margin increases, the risk of loss increases. (False, decreases)
- 6- Overtime and undertime in merchandising industry are generally considered indirect costs. (False, period cost)
- 7- In the written-off approach, the under- or - over allocated are included in the finished goods inventory. (False, cost of goods sold)
- 8- The variation from normal approach and normal costing both result in the same actual indirect cost rate. (False, Budgeted indirect cost)
- 9- In costing systems, it is generally preferred to use longer periods to calculate the indirect cost rate. (True)
10. When machine depreciation is related to the number of machine hours, depreciation is considered variable cost. (False, indirect)
11. The operating leverage always equals to one when there is fixed cost. (False, no fixed cost)
12. The expected quantities of products A, B, and C are 360, 240, and 600, respectively. The product mix ratio is then 3:2:4. (False, 1.5:1:2.5)

1.5 1 2.5  
4

ABC company uses the Normal costing system for 2021 with two direct cost pools for material and indirect cost pool and direct labor costs as the cost allocation base. The company had no finished inventories. The following information was known about the firm for 2021.

Description	Amount (\$)	Description	Amount (\$)
Budgeted material costs	1000	Actual material costs	900
Budgeted labor costs	4000	Actual labor costs	3600
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Budgeted labor hours	200	Actual labor hours	180

There was no work in process on Jan. 2021 and there were two jobs/batches in process on Dec., 31, 2021

Description	Batch A	Batch B
Direct material costs (\$)	25	15
Direct labor costs (\$)	20	32

Calculate:

(a) The indirect cost rate using normal costing ( $0.75$  \$ / direct labor cost).

$$\text{ind rate} = \frac{\text{Budgeted overhead costs}}{\text{Budgeted direct labor costs}}$$

$$= \frac{3000}{4000} = 0.75$$

(b) The total cost of batches A and B using normal costing ( $7092.75$ ).

$$0.75 \times 3600 + 2500 + 900 = 7000.75 + 25 + 15 + 20 + 32$$

(c) The balance in costs of goods sold ( $7000$  \$).

$$900 + 3600 + 2500 = 7000$$

(d) The under-or over allocated overhead ( $-200$  over allocated).

$$= \text{Actual indirect cost incurred} - \text{Indirect cost allocated}$$

$$= 2500 - 0.75 \times 3600$$

$$= -200$$

(e) The direct labor rate per labor hour using variation from normal costing ( $20$  \$ / hour).

$$\text{Budgeted direct labor cost rate} = \frac{\text{Budgeted direct labor costs}}{\text{Budgeted direct labor hours}}$$

$$= \frac{4000}{200} = 20 \text{ $ per hour}$$

Q5 (6 pts) Company ABS is a chain of electronic stores that sells 3 different types (A, B, C) of electronic accessories with contribution margin of \$3, \$2, and \$1, respectively. The expected sales are 20,000, 100,000, and 80,000 units of A, B, and C, respectively. The fixed costs = \$255,000. Assuming the product mix is maintained, calculate:

(a) Contribution margin of the bundle (~~17~~ \$)

ratio  $\rightarrow$  1:5:4

$$1 \times 3 + 5 \times 2 + 1 \times 4 = 17$$

(b) Total number of units from all types to breakeven (~~150000~~).

$$BFP_{in\ bundle} = \frac{F}{CM_{pb}} = \frac{255000}{17} = 15000 \text{ bundle}$$

$$A \rightarrow 15000 \times 1$$

$$B \rightarrow 15000 \times 5 \quad + \quad \rightarrow 150000 \text{ units}$$

$$C \rightarrow 15000 \times 4 \quad +$$

(c) The operating income when 200,000 units are sold (~~85000~~ \$).

$$OI = CM - F$$

$$OI = (3 \times 20000 + 2 \times 100000 + 1 \times 80000) - 255000$$

$$= 85000 \text{ \$}$$

6

(d) Calculate the operating leverage when the total number of units from all types is 200,000 units (4).

$$CM = 3 \times 20000 + 2 \times 100000 + 1 \times 80000$$

$$CM = 340000$$

$$OL = \frac{CM}{OI} = \frac{340000}{85000} = 4$$



Q 2 (6 pts) Company ABS is a chain of electronic stores that sells 10 different types of electronic accessories. Identical unit cost and selling price. Given the following data:

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Cost of electronic unit (V)	19.5	Salaries (F)	\$ 260,000
Sales commission (V)	5% sales	Advertising (F)	\$ 100,000
Selling price (V)	30	Quantity sold	35,000 units

Calculate:  $V_c = 19.5$   $F = 360000$   
 $SP = 30$   
 $Q = 35000$

(a) Contribution margin per unit (9.4)

$$30 - 0.05 \times 30 - 19.5 = 9$$

(b) The annual breakeven point in revenues (40000 units)

$$BEP = \frac{F}{CMU} = \frac{360000}{9} = 40000$$

(c) Operating income (loss) = (-45000 \$)

$$OI = CM - F$$

$$= (30 - 0.05 - 19.5) \times 35000 - 360000$$

$$OI = -45000$$

Q3 (4 pts). Given the following information (1000 \$) about ABC Company.

Direct material purchased	175	Direct material inventory Jan, 2021	
Direct manufacturing labor	195	Work-in-process inventory Jan, 2021	
Overhead costs = 35% conversion costs		Finished goods inventory Jan., 2021	
Prime costs	309	Costs of goods available for sale	4
Gross margin percentage based on revenues	25 %	Revenues	5

Calculate for December 2021 the following:

(a) Finished goods inventory (78750 \$)

$$GM = R - CGS$$

$$0.25R = R - CGS$$

$$CGS = 0.75 \times 515000$$

$$CGS = 386250 \quad \text{Ending FG} = 465000 - 386250 = 78750$$

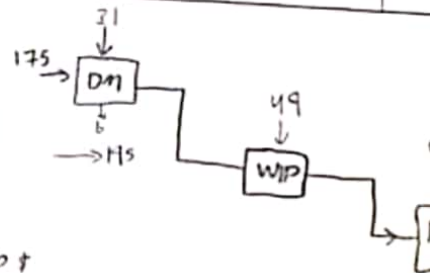
(b) Direct materials inventory (92000 \$)

$$\text{prime costs} = DM + DML$$

$$309000 = DM + 195000$$

$$DM = 114000$$

$$\text{Ending DM} = 175000 + 31000 - 114000 = 92000$$



4

2