Problem II (15 min., 10 pts)

Smith Co. Uses **normal costing** and allocates manufacturing overhead based on **direct labor hours**. Information related to manufacturing overhead and labor for the coming year is listed below:

Estimated manufacturing overhead	$70,000
Actual manufacturing overhead	$75,000
Direct labor hours estimated	2,500 hours
Direct labor hours incurred	2,400 hours

Instructions:

1) Calculate the Budgeted manufacturing overhead rate. **(2 pts)**

2) Is the manufacturing overhead under or over-allocated and by how much? Show your computation. **(2 pts)**

3) Prepare the journal entry to write off any under or over-allocated manufacturing overhead directly to COGS. **(2 pts)**

4) The below information is available for job #561: **(4 pts)**

	Job 561
Direct materials	$12,000
Direct labor costs	$17,700
Direct Labor hours	140 hours

Calculate the total manufacturing cost of Job #561.

Problem I (15 min., 12 pts)

Bingo Manufacturing Co. had the following information for its product:

Sales price per unit	$180
Variable cost per unit	108
Contribution margin per unit	$72
Total fixed costs	$2,160,000

Instructions:

1. *How many units must be sold to break even?* **(3 pts)**

2. What is the total sales that must be generated for the company to earn an operating income of $180,000? **(3 pts)**

3. *If the company is presently selling 90,000 units, but plans to spend an additional $216,000 on marketing, how many* **additional** units must the company sell to earn the same operating income it is now making? **(3 pts)**

4. Using the original data in the problem, compute a new break-even point in units if the unit sales price is increased 20%, unit variable cost is increased by 10%, and total fixed costs are increased by $270,000. **(3 pts)**

Problem V (20 min., 20 pts)

Al Jawhari Co. is a manufacturer of high quality carpets. The following information related to the budgeted sales and production level at Al Jawhari for the coming year is available:

Budgeted Sales quantity	2,500 units
Selling price per unit	$3,200
Beginning Finished Goods Inventory	400 units
Target Ending Finished Goods Inventory	250 units
Direct material needed per carpet	10 square meters
Beginning Direct material inventory	8,000 square meters
Ending Direct material inventory	1,000 square meters
Direct Material Cost per unit	$200 per square meter
Direct labor hours per carpet	6 hours
Direct labor cost/hour	$22 per hour

Instructions:

1) Determine Al Jawhari's Revenues Budget from the sale of Carpets. **(3 pts)**

2) Prepare Al Jawhari's production Budget for the current year. **(6 pts)**

3) Prepare Al Jawhari's direct material purchase budget in <u>units</u> (square meters) and in <u>dollars</u>. **(7 pts)**

4) Prepare the Al Jawhari's direct labor budget in dollars. **(4 pts)**

Problem VI (20 min., 20 pts)[redacted]

Arcom Inc. has the following Actual and budgeted price and cost information:

	Actual	Budgeted
Sales Price	$800 per unit	$850 per unit
Variable Manufacturing Costs	$560 per unit	$440 per unit
Total Fixed Costs	$780,000	$470,000
Production and sales	15,000 units	12,500 units

Required:

1) Complete the below table by showing actual results, static budget, flexible budget(FB), the flexible budget variances (FBV) and Sales Volume Variances (SVV). Determine whether the variances as favorable (F) or unfavorable (U). (15 pts)

	Actual Results	Flexible Budget Variance (FBV)	Flexible Budget (FB)	Sales Volume Variance (SVV)	Static Budget
Number of units					
Sales Revenues					
Variable manufacturing costs					
Contribution Margin					
Fixed Costs					
Operating Income					

2) Refer to your answer in part 1 to calculate the static budget variance (SVV) (**Level 1 analysis**)? **(3 pts)**

	SBV (Level 1)
Number of units	
Sales Revenues	
Variable manufacturing costs	
Contribution Margin	
Fixed Costs	
Operating Income	

riefly **comment** on your findings in part 1. **(2 pts)**

Problem IV (15 min., 10 pts)

Kitchinet Company produces two types of kitchen accessories, Small and Large. During 2019, Kitchinet expects to sell 16,000 units of product Small at $300/unit and 20,000 units of product Large at $450/unit. Kitchinet expects to have an inventory of 4,000 units of **Large** on hand at the end of the period. Currently, Kitchinet has 1,500 units of **Large** on hand.

The production of the Large product requires two direct labor operations, merging and painting. Each unit of Large requires two hours of merging and one hour of painting. The direct labor rate for merging is $25 per merging hour and the direct labor rate for painting is $32 per painting hour.

Instructions:

1) Prepare a **revenues budget** for Kitchinet Manufacturing for 2019. **(3 pts)**

2) Prepare the **production budget** for Large in 2019. **(4 pts)**

3) Prepare the **direct labor budget** for Large in 2019. **(3 pts)**

Problem III (15 min., 12 pts)

Four Seasons Company makes snow blowers. Materials are added at the beginning of the process (100% complete) and conversion costs are uniformly incurred. At the beginning of September work in process is 40% complete and at the end of the month it is **60% complete**.

Instructions: You were hired as the new accountant for Four Seasons and you were asked to complete the below production cost report by filling the highlighted boxes.

Flow of production	Physical Units	Direct Materials	Conversion
Work in process, beginning	1,600		
Started during period	2,000		
To account for	3,600		
Units completed	3,200		
Work in process, ending	400		
Accounted for	3,600		

Costs	Totals	Direct Materials	Conversion
Work in process, beginning	$ 236,080		$82,080
Costs added during period		260,000	200,000
Total costs to account for	$696,080	$414,000	
Divided by equivalent units			
Equivalent unit costs			
Assignment of costs			
Completed and transferred out			
Work in process, ending			
Costs accounted for			

Problem VII (20 min., 16 pts) [redacted]

Amazonia manufactures fake trees. It has set up the following **standards** per finished unit for direct materials and direct manufacturing labor:

Direct materials: 200 lb. at $0.75 per lb.

Direct manufacturing labor: 3 hour at $15 per hour

Actual results in the current month were as follows:

Direct materials **purchased and used** 198,000 lb. at $1/lb. (total=$198,000)

Direct manufacturing labor: 7,200 hours at $17.5/ hour (Total:$126,000)

The actual number of finished units (fake trees) produced was 1,200 units.

Required:

1) Calculate the following variances for Amazonia:

(a) Direct Materials price variance (PV). **(2 pts)**

(b) Direct Materials efficiency variance (EV). **(2 pts)**

(c) Direct Labor price variance (PV). **(2 pts)**

(d) Direct Labor efficiency variance (EV). **(2 pts)**

(2) Prepare the journal entry or entries to record the purchase and usage of Direct Material. **(4 pts)**

(3) Prepare the journal entry to record the incurrence of Direct Labor. **(4 pts)**

Problem 1:

1. $BE(Q) = \dfrac{FC}{UCM} = \dfrac{\$2{,}160{,}000}{72} = 30{,}000$ units

2. $Sales(\$) = \dfrac{FC + TOI}{CM\%} = \dfrac{\$2{,}160{,}000 + \$180{,}000}{40\%} = \$5{,}850{,}000$

3- Additional Units $= \dfrac{\$216{,}000}{\$72} = 3{,}000$ units

4- $\left.\begin{array}{l} \text{New SP} = \$216 \\ \text{New VC} = 118.8 \end{array}\right\}$ New UCM $= \$97.2$

New $BE(Q) = \dfrac{\$2{,}430{,}000}{97.2} = 25{,}000$ units

Problem 3

Part 1	Physical Units	DM	CC
Beginning WIP	1,600		
Units Transferred-In	2,000		
To Account For	**3,600**		
Completed and Transferred-Out	3,200	3,200	3,200
WIP: Ending	400	400	240
To Account For	**3,600**	**3,600 EU**	**3,440 EU**

PART 2	Total Cost	DM	CC
Beginning WIP Cost	$236,080	$154,000	$82,080
Costs added in Current Period	460,000	260,000	200,000
Total Cost to Account For	**$696,080**	**$414,000**	**$282,080**
Total Units to Account For		3,600	3,440
Cost Per Equivalent Unit		**$115.00**	**$82.00**

Part 3	Total Cost	DM	CC
Completed and Transferred out cost	$630,400	$368,000	$262,400
WIP Ending	$65,680	$46,000	$19,680
To Account For	**$696,080**	**$414,000**	**$282,080**

Problem 2.

1) $\text{OH Rate} = \dfrac{\text{Estimated OH}}{\text{Estimated DLH}} = \dfrac{\$70{,}000}{2{,}500} = \$28/\text{hour}$

2) MOH Applied = $28/hour × 2,400 = $67,200

⇒ 67,200 − 75,000 = −$7,800 ⇒ Under-allocated

3) MOH Applied ⟶ 67,200

COGS ⟶ 7,800

MOH Control ⟶ 75,000

4) Mon. Cost = DM + DL + OHA

= $12,000 + $17,700 + (140 × 28)

= $33,620

A | B

Problem 5

1) Sales Budget

Expected Sales (Units)	2,500
Unit Selling Price	$3,200
Expected Sales ($)	**$8,000,000**

2) Production Budget

Expected Sales (Units)	2,500
Add: Target Ending Inventory	250
Total Requirements	**2,750**
Less: Beginning Inventory	(400)
Units To Be Produced	**2,350**

Problem 4

3) Direct Labor Budget

	Merging	Packaging
Units To Be Produced	22,500	22,500
Standard Element	2	1
Total Hours Needed	**45,000**	**22,500**
Cost Per Hour	$25	$32
Direct Labor Cost	**$1,125,000**	**$720,000**
Total Direct Labor		**$1,845,000**

Problem 4

1) Sales Budget

	Small	Large
Expected Sales (Units)	16,000	20,000
Unit Selling Price	$300	$450
Expected Sales ($)	**$4,800,000**	**$9,000,000**
Total Sales		**$13,800,000**

2) Production Budget

	Product Large
Expected Sales (Units)	20,000
Add: Target Ending Inventory	4,000
Total Requirements	**24,000**
Less: Beginning Inventory	(1,500)
Units To Be Produced	**22,500**

Problem 5

3) Direct Material

Units To Be Produced	2,350
Standard Element (M^2/Unit)	10
Material Needed in Production	**23,500**
Add: Target Ending Inventory	1,000
Total Requirements	**24,500**
Less: Beginning Inventory	(8,000)
DM To be Purchased (M^2)	**16,500**
Cost Per Unit	**$200**
DM To be Purchased ($)	**$3,300,000**

4) Direct Labor

Units To Be Produced	2,350
Standard Element (Hour/Unit)	6
Hours Needed In Production	**14,100**
Cost Per Hour ($/Hour)	**$22**
Direct Labor Cost ($)	**$310,200**

Problem 6

1)

	Actual	Flexible Budget Variance		Flexible Budget	Sales Volume Variance		Static Budget
Number Of Units	15,000	0	—	15,000	2,500	F	12,500
Revenue	13,500,000	750,000	F	12,750,000	2,125,000	F	10,625,000
Variable Man. Cost	8,400,000	1,800,000	UF	6,600,000	1,100,000	UF	5,500,000
Contribution Margin	5,100,000	(1,050,000)	UF	6,150,000	1,025,000	F	5,125,000
Less: Fixed Costs	780,000	310,000	UF	470,000	0	—	470,000
Operating Income	4,320,000	(1,360,000)	UF	5,680,000	1,025,000	F	4,655,000

2)

	SBV (Level 1)	
Number Of Units	2,500	F
Revenue	2,875,000	F
Variable Man. Cost	2,900,000	UF
Contribution Margin	(25,000)	UF
Less: Fixed Costs	310,000	UF
Operating Income	(335,000)	UF

Problem 7.

a) $PV(D1) = (\$1 - \$0.75) \times (198{,}000) = \$49{,}500$ UF

b) $EV(D1) = [(198{,}000 - (200 \times 1{,}200)] \times 0.75 = -\$31{,}500$ F

c) $PV(D2) = (\$17.5 - \$15) \times (7{,}200) = \$18{,}000$ UF

d) $EV(D2) = [(7{,}200 - (3 \times 1{,}200)] \times 15 = \$54{,}000$ UF

(2) WIP ——→ 180,000
PV ——→ 49,500
EV ——→ 31,500
Ac/Pay ——→ 198,000

(3) WIP ——→ 54,000
PV ——→ 18,000
EV ——→ 54,000
Wage Pay ——→ 126,000

Problem 6

3) COMMENT -> The Total SBV of $335,000 UF is divided into:

AN UF Price Variance of $1,360,000 and

A F Sales Volume Variance of $1,025,000

Accordingly Favorable results were due

from Difference in Units Sold and not

from proper Price and Efficiency Management

Problem 3

Part 1	Physical Units	DM	CC
Beginning WIP	1,600		
Units Transferred-In	2,000		
To Account For	**3,600**		
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Less: Fixed Costs	310,000	UF
Operating Income	(335,000)	UF

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