The University of Jordan

Instructor: Prof. Abbas Al-Refaie
Course: Cost Accounting (**First Exam 20 %, 3/4/2022**)

Name: ----------
ID: ---------- **Section:** ----------

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

11. Costs of materials used and machining are the conversion costs when the cost driver is quantity produced. (prime)
12. Rent and lease costs in a merchandize sector are treated as merchandize costs. (period)
13. Mineral water purchased for resale by Safeway is a period cost. (merchandize)
14. Merchandizing companies have no inventories and, hence, one inventoriable costs. (Service , no)
15. Freight-in costs in a manufacturing sector are charged to WIP costs. (Raw materials)
16. The sales manager's overtime would be charged as period cost. (T)
17. Depreciation on an equipment used in a manufacturing industry is charged as indirect cost. (T)
18. Plant insurance taxes on sales building are charged as overhead costs. (period)
19. For a purchasing department, the number of purchases can be used as the relevant range. (cost driver)
20. Allocated design costs of a specific product may be regarded as direct costs. (indirect)

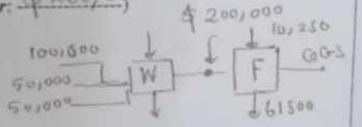
Q2 (6 pts) The costs (million $) incurred to produce 10,000 units in metal manufacturing firm which began production and sales operations on January 1, 2009 are as follows (**V: stands for variable; F: stands for fixed**):

Description	Fixed ($)	Variable ($)
Purchases of raw materials		150,000
Direct material used costs		100,000
Prime costs		150,000
Plant energy costs		10,000 T
Depreciation, rent and machines' indirect costs	10,000 I	10,000 I
Indirect manufacturing labor costs	10,000 I	10,000 I
Marketing, distribution, and customer-service costs	10,000	20,000
Finished-goods inventory ($) January 1, 2009		**10, 250**
Finished-goods inventory ($) January 31, 2009		**61,500**
Gross Margin		**30% revenues**

Variable manufacturing costs are variable with respect to units produced. Variable marketing, distribution and customer-service costs are variable with respect to units sold. The beginning and ending finished-goods inventory is carried out at the average unit manufacturing cost.

(1) Calculate the Cost of Goods Manufactured in January, 2009. (*Answer*: $200,000)

= Prime Cost + indirect Costs
= 150,000 + 50,000 = $200,000



(2) Calculate the costs of goods sold. (*Answer*: $148,750)

COGS = 200,000 + 10,250 − 61,500
= $148,750

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 g 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 (0.75 $ / direct labor cost.

ind rate = Budgeted overhead cost / Budgeted direct labor cost.

= 3000 / 4000 = 0.75

(b) The total cost of batches A and B using normal costing (7092.75). 6

A

0.75 * 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

= Actual indirect cost incurred - Indirect cost allocated

= 2500 - 0.75 * 3600

= -200

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

Budgeted direct labor cost rate = Budgeted direct labor costs / Budgeted direct labor hours

= 4000 / 200 = 20 $ per hour

3

7

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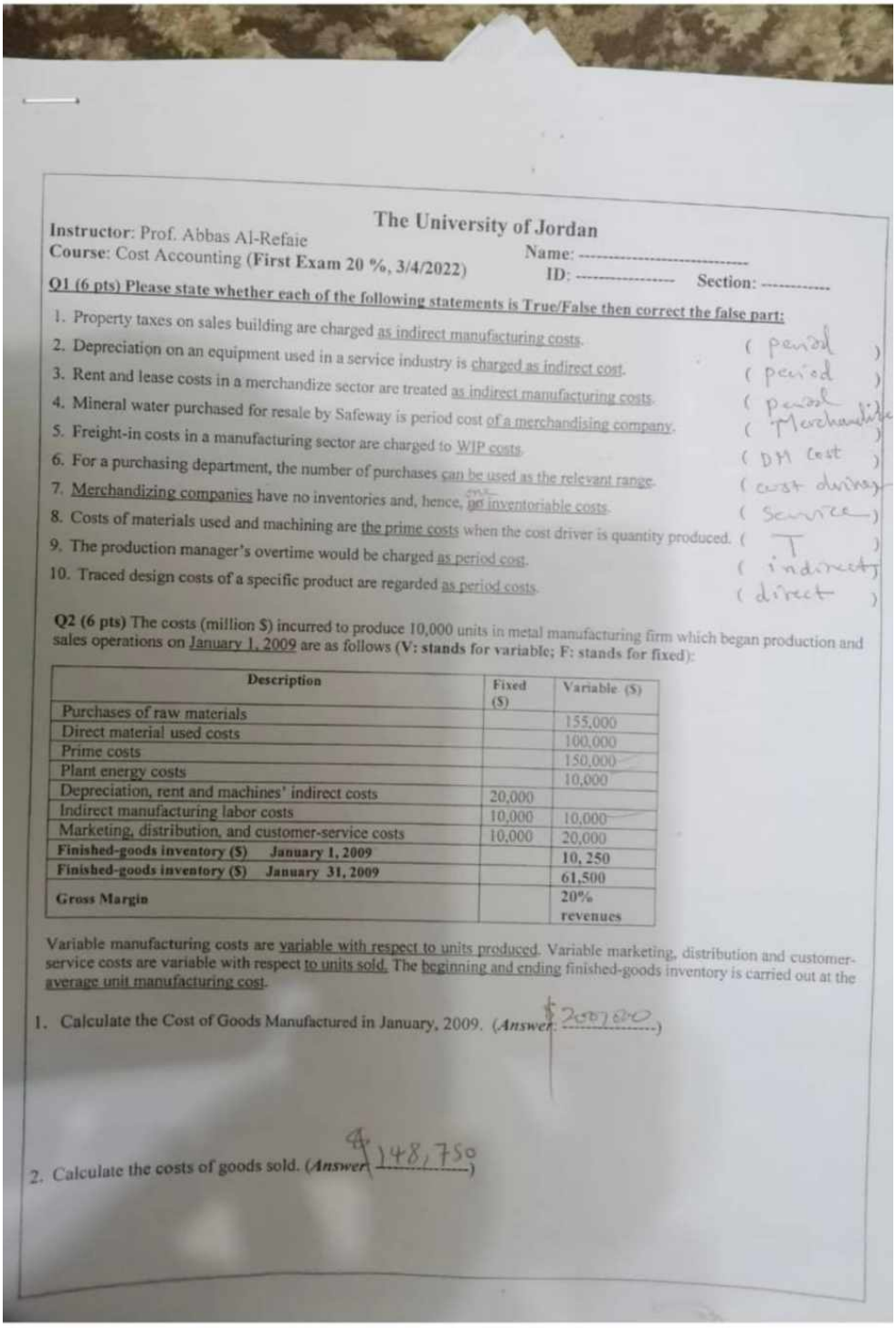

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Q1 (6 pts) Please state whether each of the following statements is True/False then correct the false part:

1. Property taxes on sales building are charged as indirect manufacturing costs. (period)
2. Depreciation on an equipment used in a service industry is charged as indirect cost. (period)
3. Rent and lease costs in a merchandize sector are treated as indirect manufacturing costs. (period)
4. Mineral water purchased for resale by Safeway is period cost of a merchandising company. (Merchandise)
5. Freight-in costs in a manufacturing sector are charged to WIP costs. (DM cost)
6. For a purchasing department, the number of purchases can be used as the relevant range. (cost driver)
7. Merchandizing companies have no inventories and, hence, no inventoriable costs. (Service)
8. Costs of materials used and machining are the prime costs when the cost driver is quantity produced. (T)
9. The production manager's overtime would be charged as period cost. (indirect)
10. Traced design costs of a specific product are regarded as period costs. (direct)

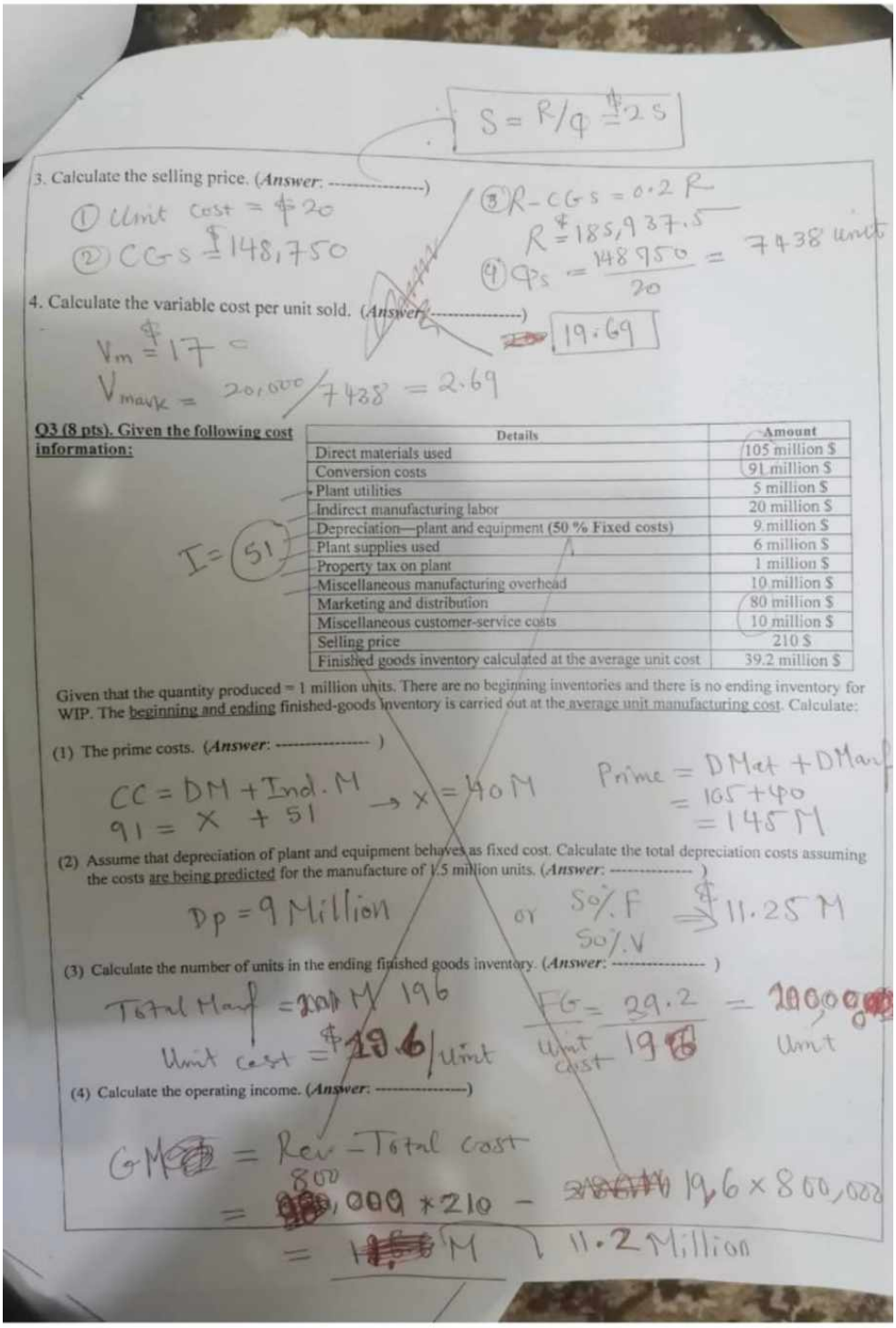
Q2 (6 pts) The costs (million $) incurred to produce 10,000 units in metal manufacturing firm which began production and sales operations on January 1, 2009 are as follows (**V: stands for variable; F: stands for fixed**):

Description	Fixed ($)	Variable ($)
Purchases of raw materials		155,000
Direct material used costs		100,000
Prime costs		150,000
Plant energy costs		10,000
Depreciation, rent and machines' indirect costs	20,000	
Indirect manufacturing labor costs	10,000	10,000
Marketing, distribution, and customer-service costs	10,000	20,000
Finished-goods inventory ($) January 1, 2009		**10, 250**
Finished-goods inventory ($) January 31, 2009		**61,500**
Gross Margin		**20% revenues**

Variable manufacturing costs are variable with respect to units produced. Variable marketing, distribution and customer-service costs are variable with respect to units sold. The beginning and ending finished-goods inventory is carried out at the average unit manufacturing cost.

1. Calculate the Cost of Goods Manufactured in January, 2009. (*Answer*: $ 250,000)

2. Calculate the costs of goods sold. (*Answer*: $ 148,750)



$S = R/q = \$25$

3. Calculate the selling price. (*Answer*: ----------)

① Unit cost = \$20

② CGS = \$148,750

③ R − CGS = 0.2 R

R = \$185,937.5

④ qs = 148950 / 20 = 7438 unit

4. Calculate the variable cost per unit sold. (*Answer*: ----------)

V_m = \$17

V_{mark} = 20,000 / 7438 = 2.69

19.69

Q3 (8 pts). Given the following cost information:

Details	Amount
Direct materials used	105 million $
Conversion costs	91 million $
Plant utilities	5 million $
Indirect manufacturing labor	20 million $
Depreciation—plant and equipment (50 % Fixed costs)	9 million $
Plant supplies used	6 million $
Property tax on plant	1 million $
Miscellaneous manufacturing overhead	10 million $
Marketing and distribution	80 million $
Miscellaneous customer-service costs	10 million $
Selling price	210 $
Finished goods inventory calculated at the average unit cost	39.2 million $

I = 51

Given that the quantity produced = 1 million units. There are no beginning inventories and there is no ending inventory for WIP. The beginning and ending finished-goods inventory is carried out at the average unit manufacturing cost. Calculate:

(1) The prime costs. (*Answer*: ----------)

CC = DM + Ind. M

91 = X + 51 → X = 40 M

Prime = DMat + DMan

= 105 + 40

= 145 M

(2) Assume that depreciation of plant and equipment behaves as fixed cost. Calculate the total depreciation costs assuming the costs are being predicted for the manufacture of 1.5 million units. (*Answer*: ----------)

Dp = 9 Million or 50% F ⇒ \$11.25 M

50% V

(3) Calculate the number of units in the ending finished goods inventory. (*Answer*: ----------)

Total Manf = 200 M 196

Unit cost = \$19.6/unit

FG = 39.2 / 19.6 = 2000000 Unit

(4) Calculate the operating income. (*Answer*: ----------)

GM = Rev − Total cost

= 800,000 × 210 − 19.6 × 800,000

= M ⟩ 11.2 Million

Q2 (5 pts) Please state whether each of the following statements is True/False. Please correct the false part:

1. Documented rent and lease costs in the merchandise sector are treated as direct and fixed manufacturing costs. (---------) period costs
2. Distribution and sales costs in an industrial sector are treated as indirect costs. (---period cost---)
3. A merchandising company has one inventoriable cost. (---True---)
4. Administrative plant costs are treated as period costs. (---True---)
5. Depreciation on equipment used in a service industry is charged as a variable period cost. (---fixed period cost---)
6. Period costs are all costs in the income statement other than gross margin. (---cost of goods sold---)
7. The number of produced batches by a production department can be used as a cost object. (---cost driver---)
8. Allocated design costs to serve sales are regarded as indirect period costs (---True---)
9. Fire insurance costs on factory buildings are considered direct and fixed costs. (---Indirect if fixed---)
10. Shipping costs of services to customers are charged as merchandise costs. (---period---)

4.5

dep = 3000/year (fixed), cost per unit = $50 (variable), overhead = 3000/m (15000/60 costs)

Q3 (6 pts) ABS manufactures mechanical parts in a fully automated machine that can make 2,500 mechanical parts per month. The machine costs $15,000 and is depreciated using straight-line depreciation over 60 months, assuming zero residual value. Rent and other fixed manufacturing overhead cost total $3,000 per month. ABS currently makes and sells 2,000 mechanical parts per month. Materials cost $50 per mechanical part. Next year, ABS manufacture expects demand to increase by 200%. At 200 % volume of materials purchased, it will get a 5 % discount on the price, while at 300 % volume of materials purchased, it will get a 7.5% discount on the price. Annual rent and other fixed manufacturing overhead costs will increase by 10 %.

4.0

capacity = 2500 x 12
demand = 2000 x 12

1. How, if at all, will total annual fixed and variable manufacturing costs change next year? Assume that if it needs ABS manufacturer could buy two identical machines, each at the same cost as the one it already has.

capacity (3 machines) = 2500 x 12 x 3 = ~~90,000~~, demand = 2000 x 12 + 4000 x 12 = 72,0

- fixed cost = 9,000 + 3,000 x 12 = ~~72,000~~ + 0.1(~~72,000~~) = ~~79,200~~ (fixed cost will increase due to two machines)
  x1.1 → 45,000 → 45000 = 49500
- variable cost = $50 x 0.95 = $47.5 (variable cost will decrease due to discounts)

2. If the ABS manufacturer decides to increase its production capacity by 100 %, what is the annual relevant range of the output? annual relevant range with 100% capacity requires two machines

→ (30,000 – 60,000) (2 machines) 2.0
(0 – 30,000) (1 machine)

3. If the ABS manufacturer decides not to increase its production capacity, calculate the annual variable and fixed costs.

fixed cost = 3,000 + 3,000 x 12 = ~~72,000/year~~ = 39,000/year
x1.1

variable cost = $50/product ? x²

1 - v

with the company

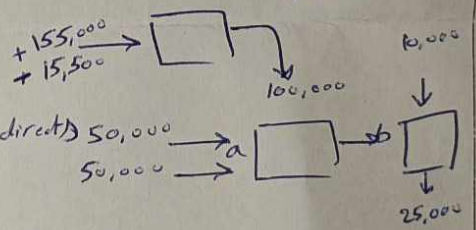
buy third machine? if no

Q1 (9 pts) A metal manufacturing firm began production and sales operations on January 1, 2009. Costs ($) incurred to produce **10,000 units** in 2009. Variable manufacturing costs are variable with respect to units produced. Variable marketing, distribution, and customer-service costs are variable with respect to units sold. The beginning and ending finished goods inventories are carried out at the average unit manufacturing cost. There is no WIP beginning and ending inventory.

Description	Fixed ($)	Variable ($)
Purchases of raw material (orders)		155,000
Discount on purchased material		10 %
Direct material used costs		100,000
Prime costs (direct mat + direct cost)		150,000
Plant energy costs		25,000
Depreciation, rent, and machines' indirect costs	10,000	
Indirect manufacturing labor costs	5,000	10,000
Marketing, distribution, and customer service costs	10,000	15,000
Finished-goods inventory ($) January 1, 2009	**10,000**	
Finished-goods inventory ($) December 31, 2009	**25,000**	
Gross Margin	**15 % sales revenues**	

1. *Calculate the average unit manufacturing cost.* ***Ans:*** $20

cost per unit = $\frac{200,000}{10,000}$ = $20



2. *Calculate the inventoriable costs in 2009.* ***Ans:*** $200,000

100,000 + 50,000 + 50,000 = 200,000

3. *Calculate the costs of goods sold.* ***Ans:*** $125000

200,000 + 10,000 − 25,000

Revenue = x

x − 185,000 = 0.15x

x = 217,647

x = Revenue

4. *Calculate the selling price.* ***Ans:*** $23.52

# of units sold = $\frac{185,000}{20}$ = 9250 units, selling price = $\frac{217,647}{9250}$ = $23.52

5. *Calculate the variable cost per unit sold.* ***Ans:*** $25.12

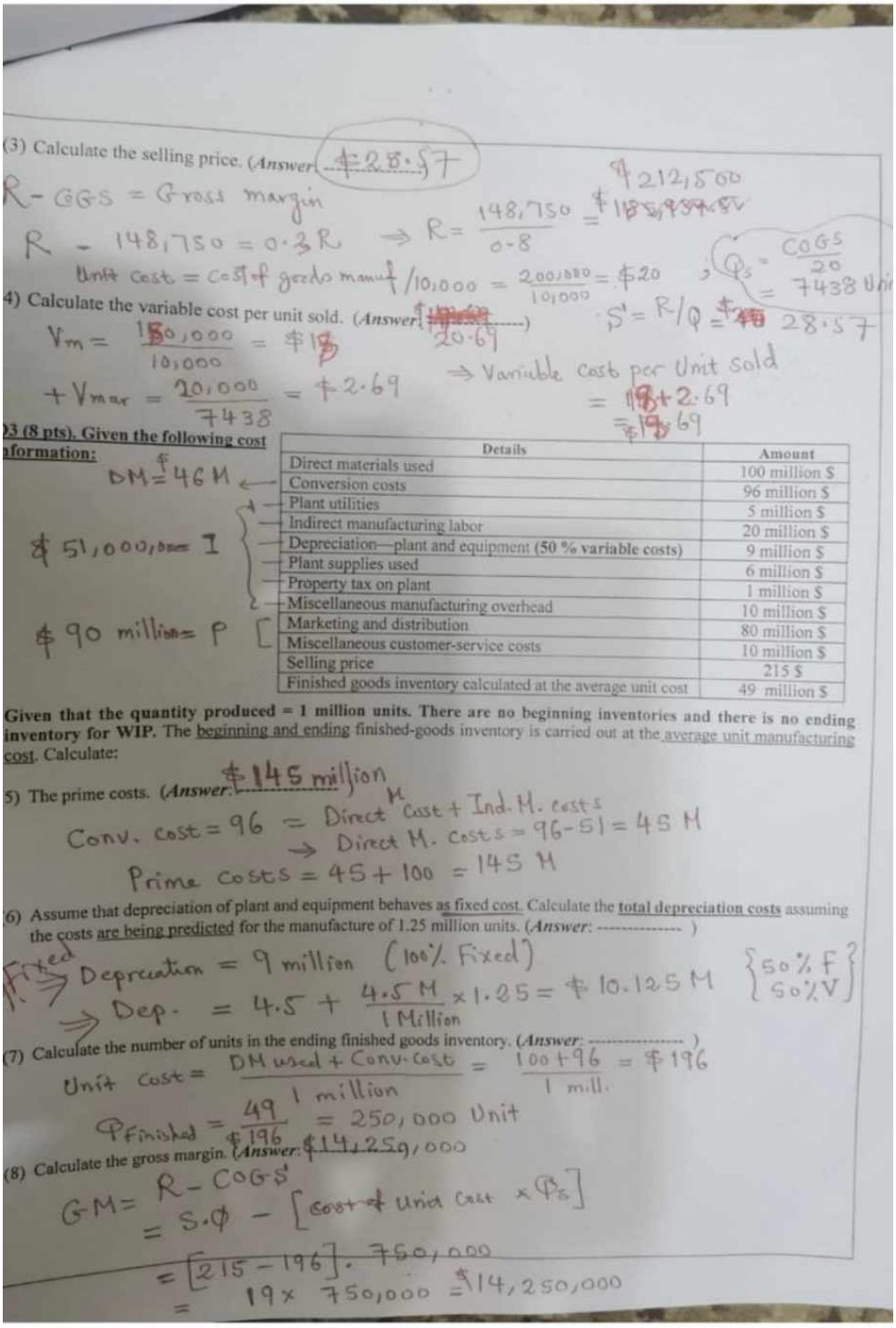
= $\frac{100,000 + 50,000 + 25,000 + 10,000}{10,000}$ + $\frac{15,000}{9250}$ = $25.12

6. *Suppose that a future quantity of 20,000 will be produced. Calculate the average unit manufacturing cost. Assume that the implied cost-behavior patterns persist.* ***Ans:*** $385,000

variable cost of manufacturing = $18.5

⇒ (20,000 × 18.5) + 15,000

= $385,000



(3) Calculate the selling price. (*Answer*: $28.57)

R - COGS = Gross margin

R - 148,750 = 0.3R ⇒ R = 148,750 / 0.8 = $212,500

Unit cost = Cost of goods manuf / 10,000 = 200,000 / 10,000 = $20

Q_s = COGS / 20 = 7438 Unit

$S' = R/Q = 28.57$

4) Calculate the variable cost per unit sold. (*Answer*: 20.69)

$V_m = 150,000 / 10,000 = \$15$

$+ V_{mar} = 20,000 / 7438 = \$2.69$

⇒ Variable cost per Unit sold = 15 + 2.69 = $17.69

3 (8 pts). Given the following cost information:

DM = $46 M

$51,000,000 = I

$90 million = P

Details	Amount
Direct materials used	100 million $
Conversion costs	96 million $
Plant utilities	5 million $
Indirect manufacturing labor	20 million $
Depreciation—plant and equipment (50 % variable costs)	9 million $
Plant supplies used	6 million $
Property tax on plant	1 million $
Miscellaneous manufacturing overhead	10 million $
Marketing and distribution	80 million $
Miscellaneous customer-service costs	10 million $
Selling price	215 $
Finished goods inventory calculated at the average unit cost	49 million $

Given that the quantity produced = 1 million units. There are no beginning inventories and there is no ending inventory for WIP. The beginning and ending finished-goods inventory is carried out at the average unit manufacturing cost. Calculate:

5) The prime costs. (*Answer*: $145 million)

Conv. cost = 96 = Direct M. Cost + Ind. M. costs

⇒ Direct M. costs = 96 - 51 = 45 M

Prime Costs = 45 + 100 = 145 M

6) Assume that depreciation of plant and equipment behaves as fixed cost. Calculate the total depreciation costs assuming the costs are being predicted for the manufacture of 1.25 million units. (*Answer*: ----------)

Fixed ⇒ Depreciation = 9 million (100% Fixed)

⇒ Dep. = 4.5 + (4.5 M / 1 Million) × 1.25 = $10.125 M {50% F, 50% V}

(7) Calculate the number of units in the ending finished goods inventory. (*Answer*: ----------)

Unit Cost = (DM used + Conv. Cost) / 1 million = (100 + 96) / 1 mill. = $196

$Q_{Finished}$ = 49 / $196 = 250,000 Unit

(8) Calculate the gross margin. (*Answer*: $14,250,000)

GM = R - COGS

= S.Q - [Cost of Unit Cost × Q_s]

= [215 - 196] . 750,000

= 19 × 750,000 = $14,250,000