

**INSTITUTE OF CHARTERED ACCOUNTANT OF NIGERIA**  
**MANAGEMENT ACCOUNTING**  
**PILOT QUESTIONS AND ANSWER 2**

**SECTION A: MULTIPLE-CHOICE QUESTIONS (20 MARKS)**  
**INSTRUCTION: YOU ARE REQUIRED TO ANSWER ALL QUESTIONS IN THIS SECTION**

**Write ONLY the alphabet (A, B, C or D) that corresponds to the correct option in each of the following questions/statements:**

1. Adak Nigeria recorded a marginal costing profit of ₦85,000. Its opening inventory was 400 units and closing inventory was 850 units. The fixed production overhead absorption rate was ₦8 per unit.

What was the profit under absorption costing?

- A. ₦82,400  
B. ₦85,000  
C. ₦88,600  
D. ₦92,200
2. Alate Nigeria Limited uses limiting factor analysis to determine optimal production plan when there is a scarce resource.

The following applies to the three products of the company in 2024

Product	Tan	Tac	Tad
	₦	₦	₦
Direct materials (at ₦500/kg)	2,500	2,500	1,500
Direct labour (at ₦1400/hour)	2,800	3,500	4,200
Variable overheads (₦200/hour)	400	500	600
	<u>5,700</u>	<u>6,500</u>	<u>6,300</u>
Maximum demand (units)	5,000	6,000	4,000
Optimal production plan	600	6,000	4,000

How many kilograms of material were available for use in production in 2024?

- A. 10,600 kg  
B. 15,000 kg  
C. 45,000 kg  
D. 67,000 kg
3. Costs that remain constant over a certain activity range and then increase but remains the same over a revised activity range in the short term are known as:

- A. Fixed costs
- B. Variable costs
- C. Semi-variable costs
- D. Stepped fixed costs

4. Which of the following statements about cost behaviour is/ are correct

- i. A fixed cost is a cost that is the same amount during a given period of time and does not change with variations in the volume of activity.
- ii. A variable cost is a cost that is a variable amount per unit for every unit of activity.
- iii. Total variable costs increase in direct proportion to increases in the volume of activity.

Which of these statements are correct?

- A. (i) and (ii)
- B. (i) and (iii)
- C. (ii) and (iii)
- D. (i), (ii) and (iii)

5. A flexed budget can be described in which one of the following ways?

- A. A budget prepared at the beginning of a budget period, and which is designed to show the results that would be expected at different levels of activity.
- B. A budget prepared at the end of a budget period, and which is designed to show the results that would be expected at different levels of activity.
- C. A budget prepared at the beginning of a budget period and looks back at what costs, revenues and profits should have been in a period (based on actual activity levels).
- D. A budget prepared at the end of a budget period and looks back at what costs, revenues and profits should have been in a period (based on actual activity levels).

6. The data below relates to the labour costs of Adekson Limited for the past three months:.

Output	Total cost
Units	₦
18,500	640,000
19,250	662,500
21,000	715,000

In the past, when output levels exceed 25,000 units, fixed costs are seen to increase by ₦20,000.

Use high/low analysis to estimate the total cost of producing 28,000 units budgeted for the following month.

- A. ₦925,000
- B. ₦945,000

- C. ~~₦~~952,000  
D. ~~₦~~954,000
7. AY Restaurant employs a dispatch rider to deliver food to its customers. The dispatch rider's salary is:
- A. A selling and distribution overhead
  - B. A direct expense
  - C. Part of production overhead
  - D. Part of the prime cost
8. The management accountant produces information that....
- A. Are mainly for external use.
  - B. Records financial performance.
  - C. Follows accounting standards.
  - D. The time period is historical and futuristic.
9. Ade Enterprises rent a photocopying machine with the following monthly rental payment, ₦25,000 per month plus ₦15 per copy photocopied in the month. This is an example of....
- A. Current cost
  - B. Mixed cost
  - C. Total cost
  - D. Fixed cost
10. From the data below, determine marginal cost:
- Total variable cost for level (1) - ~~₦~~1,500,000 for 300 units  
Total variable cost for level (2) - ~~₦~~2,500,000 for 500 units
- A. ~~₦~~5,000
  - B. ~~₦~~6,000
  - C. ~~₦~~7,000
  - D. ~~₦~~8,000
11. Adeiche Limited have in its employment 1,450 employees at the end of the year. During the year 180 employees left the company and 120 joined. What was the labour turnover rate for the year?
- A. 4.1%
  - B. 8.3%
  - C. 12.2%
  - D. 12.4%

12. Overheads are over absorbed when \_\_\_\_\_
- A. Actual output is lower than budgeted output
  - B. Actual overheads incurred are higher than the amount absorbed
  - C. Actual overheads incurred are lower than the amount absorbed
  - D. Budgeted overheads are lower than the overheads absorbed
13. The costing technique where variable costs are charged to cost units and fixed costs are written off as period costs is known as .....
- A. Absorption costing
  - B. Marginal costing
  - C. Activity based costing
  - D. Kaizen costing
14. Adele Nigeria Limited needs to produce 340 litres of Ted. There is a normal loss of 10% of the material input into the process. During a given month, Adele produced 340 litres of good production, although there was an abnormal loss of 5% of the material input into the process.
- How many litres of material were input into the process during the month?
- A. 394 litres
  - B. 450 litres
  - C. 391 litres
  - D. 400 litres
15. Abdec Nigeria manufactures a single product, "Zobo". Budgeted production output of product Zobo during December is 200 units. Each unit of product Zobo requires 6 labour hours for completion. Labour is paid at a rate of N700 per hour. The direct labour cost budget for September is
- A. ~~N~~672,000
  - B. ~~N~~840,000
  - C. ~~N~~1,040,000
  - D. ~~N~~1,030,000
16. If budgeted sales is 210,000 units and the opening inventory is 50,000 units while closing inventory is expected to be one-third of sales units, determine the quantity to be produced for the period.
- A. 230,000 units
  - B. 250,000 units
  - C. 280,000 units
  - D. 330,000 units

17. Lolab Limited manufactures product Mande, which requires 1.35 hours of active labour time. Budgeted idle time is 10% of total hours paid for and is incorporated into the standard data for product Mande. Semi-skilled workers who are paid ₦180 per hour are employed to make product Mande.

What is the standard labour cost of one unit of product Mande?

- A. ₦240.30
  - B. ₦260.73
  - C. ₦270.00
  - D. ₦300.00
18. Adeigbe Company uses a standard full costing system. The following budget and actual data relate to 2024:

Budget fixed overhead cost	₦1,000,000
Budget production (units)	20,000
Actual fixed overhead cost	₦1,100,000
Actual production (units)	19,500

What is the fixed overhead volume variance?

- A. ₦5,000 adverse
  - B. ₦25,000 adverse
  - C. ₦100,000 adverse
  - D. ₦175,000 adverse
19. Olotu Nigeria Limited's fixed overhead per annum is ₦10,000,000, variable expenses is ₦1,000 per unit and the selling price is ₦1,500 per unit. What is its break-even point?
- A. 15,000 units
  - B. 17,500 units
  - C. 20,000 units
  - D. 22,500 units

20. In order to manufacture a new product, Tadex Nigeria needs two materials, Yan and Thread. There are ample quantities of both in stock. Yan is commonly used within the business whereas Thread is now no longer used for other products. Relevant information for the two types of material is:

	Quantity required per unit	Original cost	Replacement cost	Scrap value
	kg	₦/kg	₦/kg	₦/kg
Yan	2	240	420	180
Thread	3	100	140	40

The opportunity cost of materials to be used in making one unit of the new product is:

- A. ₦480
- B. ₦780
- C. ₦960
- D. ₦1,260

## SECTION B: OPEN-ENDED QUESTIONS (80 MARKS)

**INSTRUCTION: YOU ARE REQUIRED TO ATTEMPT ANY FOUR OUT OF THE SIX QUESTIONS IN THIS SECTION**

### Question 1

Wazobia Nigeria Limited operates a standard cost system. The following information relates to the first quarter of 2025.

	Actual	Budget
Sales volume (units)	4,900 units	5,000
Sales price per unit (₦)	₦4,500	₦4,000
Production volume	5,400 units	5,000 units
Direct material usage (total)	10,600 kgs	10,000 kgs
Direct material - price/kg	₦600	₦500
Direct labour (hours per unit)	0.55 hrs	0.50 hrs
Direct labour (price per hour)	₦380	₦400
Fixed production overhead	₦10,300,000	₦10,000,000
Fixed administration	₦3,100,000	₦3,000,000

**Required:**

- (a) Calculate the total budgeted profit (8 marks)  
 (b) Calculate the actual total profit (8 marks)  
 (c) State FOUR reasons why the actual profit was different from the budgeted profit (4 marks)  
**Total 20 Marks**

**Question 2**

Toblac Nigeria Manufacturing Limited produces 3 products Tat, Tom and Tal from a joint process. Joint production cost for the year was ₦ 2,500,000.

Product Tat may be sold at the split-off point or processed further. The additional processing requires no special facilities and all additional processing costs are variable. Sales values and costs needed to evaluate the company's production policy regarding product Tat are:

Units produced	5,000
Sales value after split-off	₦ 900,000
Additional cost after further processing	₦ 300,000
Additional sales value after further processing	₦ 1,500,000

**Required:**

- a. Explain joint cost and by-product (4 Marks)  
 b. Advise if product Tat should be sold at the split-off point or processed further.

Show your calculations, using total project, incremental and opportunity cost approaches.

**(12 Marks)**

- c. State reason for inclusion or exclusion of joint production costs (4 Marks)

**Total 20 Marks**

**Question 3**

Duduyemi Manufacturing Limited prepared the following budgeted profit statement for 2026, when it is expected to be operating at 75% capacity level .

		₦000	₦000
Sales 9,000 units at N320			2,880,000
Less: direct materials		540,000	
Direct wages		720,000	
Production overhead:	fixed	420,000	
	variable	180,000	
			<u>1,860,000</u>
Gross profit			1,020,000
Less: Administration, selling &			
Distribution costs:	fixed	360,000	
	variable	270,000	
			<u>630,000</u>
Net profit			<u><u>390,000</u></u>

**Required**

Calculate the following:

- (a) The breakeven point in units and in value. (7 Marks)
- (b) The contribution/sales ratio. (2 Marks)
- (c) The number of units that must be sold to earn a profit of N520,000. (4 Marks)
- (d) The profit that would be expected if the company operated at full capacity. (7Marks)

**Total: 20 Marks**

**Question 4**

Catheco Nigeria Limited produces two products with the following costs and revenue per unit:

	<b>Deco</b>	<b>Becco</b>
	<b>₦</b>	<b>₦</b>
Sales price	2,000	1,000
Variable cost	800	600
Fixed cost	400	300
	units	units
Sales demand	2,000	3,000

There are only 7,000 machine hours available, and Deco requires 4 machine hours per unit and Becco requires 1 machine hour per unit

**Required**

- (a) Calculate the profit-maximising production and sales mix. (10 Marks)
  - (b) Assume that all the data is the same, except that Catheco is able to sub-contract the products for an additional variable cost of ₦100 per unit for Deco and ₦50 per unit for Becco. (10 marks)
- (Total: 20 Marks)**

**Question 5**

Fatol Nigeria Limited produces and sell a special Flash Band. The following is the standard cost and budget for 100,000 units for production and sales in 2026:

		<b>N</b>
Direct material	(0.05kg @ N1000 per kg)	50.00
Direct Labour	(0.5hrs @ N240 per hr)	120.00
Variable overhead	(0.5hrs @ N180 per hr)	90.00
Fixed overhead	(0.5hrs @ N120 per hr)	60.00
		<u>320.00</u>
Standard selling price		350.00
Actual result for period 1 was as follows:		
Sales	105,000 units @ N380.00	
Production		110,000 units
Direct materials	5,700kg/@ N1,050 per kg	
Direct wages	54,000hrs @ N125 per hour	
Variable overhead		N4,600,000



Fixed overhead

N3,500,000

**Required:**

Calculate the following variances for product FLA:

- (i) Material price variance
- (ii) Material usage variance
- (iii) Labour rate variance
- (iv) Labour efficiency variance
- (v) Variable overhead expenditure variance
- (vi) Variable overhead efficiency variance
- (vii) Fixed overhead expenditure variance
- (viii) Fixed overhead efficiency variance
- (ix) Sales margin price variance
- (x) Sales margin volume variance

**(20 Marks)**

**Question 6**

- (a) Production costs include direct and indirect costs. Direct costs are assigned to products, while indirect costs must be distributed across products, leading to overhead absorption issues.

**Required:**

Describe how to handle under- and over-absorbed factory overheads. List three causes of under- or over-absorption of factory overheads.

**(6 marks)**

- (b) On January 1, 2025 Zeico Press Limited purchased a new cutting machine for ~~N~~10,300,000 to augment the capacity of five existing machines in the cutting department. The new machine has an estimated life of 10 years after which its scrap value is estimated at ~~N~~1,000,000. It is the policy of the company to charge depreciation on straight line basis.

The new machine will be available to the cutting department with effect from February 1, 2025. It is budgeted that the machine will work for 2,600 hours in 2025. The budgeted hours include:

- i. 80 hours for setting up the machine; and
- ii. 120 hours for maintenance.

The related expenses, for the year 2025 have been estimated as follows:

- i. Electricity used by the machine during the production will be 10 units per hour @ ~~N~~80.50 per unit.
- ii. Cost of maintenance will be ~~N~~250,000 per month.
- iii. The machine requires replacement of a part at the end of every month which will cost ~~N~~100,000 on each replacement.
- iv. A machine operator will be employed at ~~N~~90,000 per month.
- v. It is estimated that on installation of the machine, other departmental overheads will increase by ~~N~~50,000 per month.

The cutting department uses a single rate for the recovery of running costs of the machines. It has been budgeted that other five machines will work for 12,500 hours during the year 2025, including 900 hours for maintenance. Presently, the cutting department is charging ~~N~~3,900 per productive hour for recovery of running cost of the existing machines.

**Required:**

Compute the revised machine hour rate which the cutting department should use during the year 2025.

**(14 marks)**

**(Total: 20 marks)**

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**SUGGESTED SOLUTIONS**

**Section A: MCQ**

1. C
2. C
3. D
4. B
5. D
6. B
7. A
8. D
9. B
10. A
11. C
12. C
13. B
14. D
15. B
16. D
17. C
18. B
19. C
20. C

**Workings**

1. If inventory levels increase in a period, absorption costing shows a higher profit than marginal costing.

Difference in profit	= Change in inventory × Absorption rate per unit
	= (850 - 400) × <del>N</del> 8
	= <del>N</del> 3,600
Marginal costing profit	= <del>N</del> 85,000
Absorption costing profit	= <del>N</del> 85,000 + <del>N</del> 3,600
	= <del>N</del> 88,600

2.

Optimal production plan	Tan	Tac	Tad	Total
Kg material required per unit	600	6,000	4,000	
Kg material available	5	5	3	
Optimal production plan	3,000	30,000	12,000	45,000

6.

	Output Units	Total cost ₦
High: Total cost of	21,000	715,000
Low: Total cost of	18,500	640,000
Difference: Variable cost of	<u>2,500</u>	<u>75,000</u>

Variable cost per unit =  $\text{₦}75,000 / 2,500 = \text{₦}30$  per unit

Substitute in the 'high' equation:

Total cost for 21,000 units =  $\text{₦}176,000$

Fixed cost =  $\text{₦}715,000 - (21,000 \times \text{₦}30) = \text{₦}85,000$

Fixed cost at output levels > 25,000 units =  $\text{₦}(85,000 + 20,000) = \text{₦}105,000$

Estimated total cost of 28,000 units =  $\text{₦}105,000 + (28,000 \times \text{₦}30) = \text{₦}945,000$

10.

Level	total variable cost	Units
Level 2	₦2500,000	500
Level I	₦1,500,000	300
Difference	₦1,000,000	200
Marginal cost per unit	$\text{₦}1,000,000 / 200$	
	$= \text{₦}5,000.$	

11. Employees at the beginning of the year =  $1,450 + 180 - 120 = 1,510$

Average number of employees =  $(1,450 + 1,510) / 2 = 1,480$

Labour turnover =  $(180 / 1,480) \times 100\% = 12.2\%$

14.

Normal Loss is	10%
Abnormal Loss is	5%
Total Loss	15%

Good production	85%
	100%

$$85\% = 340 \text{ litres}$$

$$100\% = \underline{400 \text{ litres}}$$

15. Units to produce 200 units

Labour hrs/unit	6
Total labour hrs needed	1200 units
Labour hourly rate	<del>N</del> 700
Labour budget	<del>N</del> 840,000

16.

	Units
Sales	210,000
Add: Closing inventory ( $\frac{1}{3} \times 210,000$ )	70,000
	<hr/> 280,000
Less: Opening inventory	50,000
Production	<hr/> 230,000

17.

$$\text{Active hours required per unit} = 1.35 \times 100\% / 90\% = 1.50 \text{ hours}$$

$$\text{Labour cost per unit} = 1.50 \text{ hours} \times \del{N}180 = \del{N}270.00.$$

18. Standard fixed overhead cost per unit = ~~N~~1,000,000/20,000 = ~~N~~50.

Fixed overhead volume variance

$$= (\text{Actual units produced} - \text{Budgeted units}) \times \text{Standard fixed overhead per unit}$$

$$= (19,500 - 20,000) \text{ units adverse} \times \del{N}50 = \del{N}25,000 \text{ Adverse}$$

19. Breakeven I units = Fixed costs/Contribution per unit

$$= 10,000,000/1,500 - 1,000$$

$$10,000,000/500 = 20,000\text{units}$$

20. Yan  $2 \times 420 = \text{N} 840$

$$\text{Thread} = 3 \times 40 = \text{N} 120$$

$$\text{N}960$$

## Section B: Essay Questions

a) Budgeted profit

### Per unit

Selling price  
Direct materials ((10,000 kgs/5,000 units) × ~~N~~500)  
Direct labour (0.5 hours × ~~N~~400)  
Production overhead (~~N~~10,000,000/ 5,000 units)  
Standard production cost per unit

**N**

4,000

1,000

200

2,000

(3,200)

800

### In total

Sales volume (units)

5,000

4,000,000

(3,000,000)

Administration overhead

Budgeted profit

1,000,000

b) Actual profit

**N**

Sales (4,900 units × ~~N~~4,500)

22,050,000

Direct materials (10,600 kgs × ~~N~~600 per kg)

6,360,000

Direct labour (5,400 units × 0.55 hours per unit × ~~N~~380 per hour

1,128,600

Production overhead

10,300,000

17,788,600

Closing inventory ((5,400 units – 4,900 units) × ~~N~~3,294 per unit)

(1,647,000)

(16,141,600)

5,908,400

Administration overhead

(3,100,000)

Actual profit

2,808,400

- c) Reasons why the actual profit was different from the budgeted profit are:
- Actual sales was 4,900 units, instead of 5,000 units budgeted;
  - Actual selling price per unit is 4,500 instead of 4,000 budgeted;
  - Labour took 0.55 hour to produce a unit instead of 0.50 hour budgeted;
  - Labour was paid 380 per hour, instead of 400 per hour budgeted;
  - Direct material was purchased at 600 per kg, instead of 500 per kg budgeted;
  - Fixed production overhead was 10,300,000, instead of 10,000,000 budgeted; and
  - Fixed administration overhead was 3,100,000 instead of 3,000,000 budgeted.

## SOLUTION 2

- a. Joint production costs refer to all costs incurred up to the split-off point in a manufacturing process that yields multiple products. These costs include direct materials, direct labour, and manufacturing overheads collectively used to produce the group of joint products.

Types of joint costs:

- Raw material cost used for all products pre split-off.
- Labor and overheads involved in shared processing.
- Utilities or depreciation for equipment used in joint production.

After the split-off point, any additional processing costs are considered separable costs and are allocated to the individual products.

By-products are secondary outputs from a joint production process that have low sales value compared to the main products. While they may generate some revenue, by-products are typically not the primary focus of production.

- b. The calculations using the three approaches are as follows

### Total project approach

	Sell	Process further	Difference
	N	N	N
Sales	900,000	1,500,000	600,000
Costs	<u>-</u>	<u>300,000</u>	<u>300,000</u>
Net revenue	<u>900,000</u>	<u>1,200,000</u>	<u>300,000</u>

### Incremental approach

Incremental sales revenue	600,000
Incremental cost (additional processing)	300,000
Incremental gain	<u>300,000</u>

### Opportunity cost approach

Sales Revenue after processing Tattota	1,500,000
Less costs:	
Additional processing	300,000
Net Revenue forgone (opportunity cost)	900,000
	<u>(1,200,000)</u>
Difference in favour of processing further	<u>300,000</u>

**Advice:** Product Tat should be processed further because of the additional revenue of ~~N~~300,000 earned.

- c. The joint production costs of ~~N~~2,500,000 is not considered in any of the approaches because it is a sunk cost and not relevant to the decision. These costs have already been incurred and are not relevant to the current decision to process any of the products further .

### SOLUTION 3

- a. Computation of breakeven point in units and in value

		<del>Nm</del>	<del>Nm</del>
Sales			2,880
Variable cost:			
Direct materials	540		
Direct wages	720		
Var. production overhead	180		
Var. Adm. and distr. Costs	<u>270</u>		
Total variable cost			<u>1,710</u>
Total contribution			<u>1,170</u>
Contribution/unit =	$\frac{\text{Total contribution}}{\text{Sales (Units)}}$	$1,170/9,000$	
		=	
		=	<del>N</del> 130
Break Even Point = (BEP)	$\frac{\text{Fixed Cost}}{\text{Contribution/unit}}$		
	$(420 + 360)/130$	$780/130$	<u>6,000</u> units
BEP in sales value	$\frac{\text{Fixed Cost}}{\text{Contribution/unit}} \times \text{S.P}$		



$$(780/130) \times \text{N}320$$

$$\begin{aligned}\text{BEP in sales value} &= (\text{Fixed costs} / \text{Contribution per unit}) \times \text{selling price per unit} \\ &= \text{N} (780,000 / 130) \times 320 \\ &= \text{N} 1,920,000\end{aligned}$$

$$\begin{aligned}\text{b. Contribution/sales ratio} &= (\text{Contribution/sales value}) \times 100\% \\ &= (1,170,000 / 2,880,000) \times 100\% \\ &= 40.6\%\end{aligned}$$

$$\begin{aligned}\text{c. Units to sell to make 520,000 profit} &= \text{Fixed cost} + \text{Target profit} / \text{Contribution per unit} \\ &= \text{N}780,000 + \text{N} 520,000 / \text{N} 130 \\ &= 10,000\text{units}\end{aligned}$$

$$\begin{aligned}\text{d. Profit expected if the company operates at full capacity:} & \\ \text{Current level of operation} &= 75\% \\ \text{Current level of operation in units} &= 9,000\text{units} \\ \text{Total units at 100\% capacity} &= (9,000 / 75) \times 100 \\ &= 12,000\text{units} \\ \text{Contribution per unit} &= 130\end{aligned}$$

$$\begin{aligned}\text{e. Total contribution at 100\% capacity} &= 12,000 \times \text{N} 130 \\ &= \text{N} 1,560,000 \\ \text{Profit} &= \text{total contribution} - \text{Fixed cost} \\ &= \text{N} (1,560,000 - 780,000) \\ &= \text{N} 780,000\end{aligned}$$

#### SOLUTION 4

- a. Total machine hours required to meet sales demand =  $(2,000 \times 4) + (3,000 \times 1) = 11,000$ . Since only 7,000 hours are available, machine hours are a limiting factor.

	Product A	Product B
	<del>N</del>	<del>N</del>
Sales price	2,000	1,000
Variable cost	<u>800</u>	<u>600</u>
Contribution	1,200	400
Machine hours per unit	4	1
Contribution per hour	<del>N</del> 300	<del>N</del> 400
Priority for manufacture	2nd	1st

Decision: produce and sell the following products:

Product	Units	Machine hours	Contribution per unit	Total contribution
			<del>₦</del>	<del>₦</del>
B	3,000	3,000	400	1,200,000
A (balance)	1,000	4,000	1,200	<u>1,200,000</u>
		7,000		<u>2,400,000</u>

b.

	Product A	Product B
	<del>₦</del>	<del>₦</del>
Extra cost of external purchase	100	50
Machine hours saved by external purchase	4	1
Extra cost per machine hour saved	<del>₦</del> 25	<del>₦</del> 50
Priority for manufacture	2nd	1st

Item	Number of units	Machine hours	Contribution per unit	Contribution
<b>Make:</b>			<del>₦</del>	<del>₦</del>
A	1,750	7,000	1,200	2,100,000
Buy:				
A (balance)	250	(1,200 – 100)	1,100	275,000
B	3,000	(400 – 50)	350	<u>1,050,000</u>
Total contribution				<u>3,425,000</u>

## SOLUTION 5

(i)	Material price variance	=	AQ (SP – AP)
		=	5700(100 – 105)
		=	5700(5)
		=	<u><del>₦28,500(A)</del></u>
(ii)	Material usage variance	=	SP(SQ – AQ)
		=	100(5,500 – 5,700)
		=	100(200)
		=	<u><del>₦20,000(A)</del></u>
(iii)	Labour rate variance	=	AH(SR – AR)
		=	54,000(24 – 12.5)
		=	54,000(11.5)
		=	<u><del>₦621,000(F)</del></u>
(iv)	Labour efficiency variance	=	SR(SH – AH)
		=	24(55,000 – 54,000)
		=	<u><del>₦24,000(F)</del></u>
(v)	Variable overhead expenditure variance	=	AH(SR – AR)
		=	54,000(18 – 8.5185)
		=	<u><del>₦512,000(F)</del></u>
(vi)	Variable overhead efficiency variance	=	SR(SH – AH)
		=	18(55,000 – 54,000)
		=	<u><del>₦18,000F</del></u>
(vii)	Fixed overhead expenditure variance		
	Actual fixed overhead – Budgeted fixed overhead		
		=	₦350,000 – (15 x 12 x 100,000)
		=	₦350,000 – 600,000
		=	<u><del>₦250,000(F)</del></u>
(viii)	Fixed overhead efficiency variance	=	SR(SH – AH)

		=	12(0.5 x 110 – 54,000)
		=	(55,000 – 54,000)
		=	<u>₦12,000(F)</u>
(ix)	Sales margin price variance		
		=	Quantity sold(Actual price – Standard price)
		=	105,000(38 – 35)
		=	<u>₦315,000(F)</u>
(x)	Sales margin volume variance		
		=	Standard margin(Budgeted volume – Actual volume)
		=	3(100,000 – 105,000)
		=	3(-5,000)
		=	<u>₦ 15,000(F)</u>

## SOLUTION 6

- a) The under or over applied overhead may be:
- treated as period cost by closing it to Cost of Goods Sold Account or directly to Income Statement.
  - apportioned between inventories and cost of goods sold.

### Reasons for Under/ Over applied Factory Overhead

- The actual hours worked may be more or less than the estimated hours.
- The estimates may not be accurate.
- Actual overhead costs and actual activity levels are different from budgeted costs and activity levels.
- Changes in the methods of production.
- Abnormal changes in the component prices of factory overheads.
- Extraordinary expenses might have been incurred during the accounting period.
- Major changes might have taken place. For example, replacement of general purpose machine with automatic high speed machines.

b) **Calculation of annual charges of new machine**

			<b>N</b>
Total budgeted costs of existing five machines		<del>(N3,900 x (12,500 - 900))</del>	45,240,000
<b>Add: Costs of new machines:</b>			
(i)	Depreciation	(10,300,000 – 1,000,000)/10 x 11/12	1,100,000
(ii)	Electricity	(2,600 x 10 x <del>N80.5</del> )	2,210,000
(iii)	Cost of maintenance	<del>(N250,000 x 11)</del>	2,750,000
(iv)	Part replacement	<del>(N100,000 x 11)</del>	1,100,000
(v)	Operator Wages	<del>(N90,000 x 11)</del>	990,000
(vi)	Departmental expenses	<del>(N50,000 x 11)</del>	550,000
	Productive Budgeted hours (12,500 + 2,600 - 900 - 120 - 80)		<u>14,000</u>
			<u>53,940,000</u>
	Adjusted machine hours rate		3,852.86
		Say	3,853.00