INSTITUTE OF CHARTERED ACCOUNTANT OF NIGERIA
MANAGEMENT ACCOUNTING
PILOT QUESTIONS AND ANSWER 1

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. Adickson Manufacturing has four types of cost, A1, A2, A3 and A4. The total cost for each type at two different production levels is:

Cost type	Total cost for 125 units	Total cost for 150 units
	₦	₦
A1	437,500	525,000
A2	312,500	382,500
A3	456,250	547,500
A4	562,500	675,000

Which type of cost is semi variable?

A. A1
B. A2
C. A3
D. A4

2. AY Limited manufactures and sells a single product. The following data relate to a weekly output of 2,880units:

	₦
Selling price	400
Variable production cost	150
Other variable cost	50
Fixed cost	125
	325
Profit	75

What is the weekly breakeven point?

A. 1,800 units
B. 1,440 units
C. 900 units

D. 720 units

3. ABC manufacturing Limited has a lot of customers order to meet in a particular week and the production workers were asked to work overtime. The amount of overtime premium paid to the production workers would normally be classed as:

A. Part of prime cost
B. Factory overheads
C. Direct labour costs
D. Administrative overheads

4. The following data relate to the overhead expenditure of Adept Cleaners for two weeks:

Areas cleaned($M^{2)}$	Overheads
13,500	₦965,500
15,950	₦1,095,350

Next week Adept budgeted to clean 18,300 square metres. What is the budgeted overhead for the week?

A. ₦969,900
B. ₦1,219,900
C. ₦1,308,789
D. ₦1,256,734

5. The probability of Adek Limited making a profit of ₦1,800,000 next year is half the probability of it making a profit of ₦750,000. What is Adek's expected profit for next year?

A. ₦1,100,000
B. ₦1,450,500
C. ₦1,650,000
D. ₦2,550,000

6. Which of the following statements is NOT true?

A. Spreadsheets make the calculation and manipulation of data easier and quicker.
B. Spread sheet makes scenario analysis easier to perform
C. Spreadsheets are very useful for word-processing
D. Budgeting can be done very easily using spreadsheet

Use the following to answer questions **7 and 8**.
Alvo Limited has the following actual and budgeted data for 2024.

	Budget	Actual
Production units	8,000 units	9,000 units
Variable production overhead per unit	₦3	₦3
Fixed production overheads	₦360,000	₦432,000
Sales	6,000 units	8,000 units

Overheads are absorbed using a rate per unit, based on budgeted output and expenditure.

7. The fixed production overhead absorbed in 2024 was:

   A. ₦459,000
   B. ₦432,000
   C. ₦405,000
   D. ₦384,000

8. In 2024, fixed production overhead was:

   A. under absorbed by ₦27,000
   B. under absorbed by ₦72,000
   C. under absorbed by ₦75,000
   D. over absorbed by ₦27,000

9. Debaco Nigeria Limited issued ₦100,000 of material from stores, 25% of which did not relate directly to production. How would the transaction be recorded in Debaco's ledger accounts?

A.	Debit: Work in Progress	₦100,000	Credit: Material Control Account	₦100,000
B.	Debit: Material Control Account	₦100,000	Credit: Work in Progress	₦100,000
C.	Debit: Work in Progress	₦75,000	Credit: Material Control Account	₦100,000
	Debit: Factory Overheads	₦25,000		
D.	Debit: Material Control Account	₦100,000	Credit: Work in Progress	₦75,000
			Credit: Factory Overheads	₦25,000

10. The following data relate to work at a pure water factory.

Normal working day	8 hours
Basic rate of pay per hour	₦600
Standard time allowed to produce 1 unit	2 minutes

Premium bonus 80% of time saved at basic rate
What will be the labour cost in a day when 350 units are made?

   A. ₦4,800
   B. ₦5,600
   C. ₦6,560
   D. ₦7,000

11. Which of the following statements is NOT true?

    A. Variances from ideal standards are useful for pinpointing areas where a close examination might result in large cost savings.
    B. Basic standards may provide an incentive to greater efficiency even though the standard cannot be achieved.
    C. Ideal standards cannot be achieved and so there will always be adverse variances. If the standards are used for budgeting, an allowance will have to be included for these 'inefficiencies'.
    D. Current standards or attainable standards are a better basis for budgeting, because they represent the level of productivity which management will wish to plan for.

12. A control technique which compares standard costs and revenues with actual results to obtain variances which are used to stimulate improved performance is known as:

    A. Standard costing
    B. Variance analysis
    C. Budgetary control
    D. Budgeting

13. The total production cost for one unit of product Tan is ₦400. To achieve a profit margin of 40% of sales, the selling price would be ….

    A. ₦533.33
    B. ₦560.00
    C. ₦640.00
    D. ₦666.67

14. Fixed production overhead volume variance can be defined as

    A. the difference between the budgeted fixed production overhead cost and the standard fixed production overhead cost absorbed by actual production.
    B. the difference between the standard fixed production overhead cost absorbed by actual production and the actual fixed overhead cost incurred.
    C. the difference between the budgeted and actual fixed production overhead cost.
    D. the difference between the budgeted fixed production overhead cost and the budgeted production at the actual absorption rate incurred.

Use the following to answer questions 15 and 16.
Taki Nigeria Limited distributes a household product, Tak, that it purchases from a local producer. In a four-week period, the company plans to sell 800 cartons at a unit price of ₦300, which would give a contribution to sales ratio of 40%.

Actual sales for the period were 770 cartons at an average selling price of ₦275, while the actual contribution to sales ratio averaged 27%

15. The sales price variance was

A ₦20,000 (A)
B ₦19,250(F)
C ₦19,250 (A)
D ₦20,000 (F)

16. The sales volume variance was

A ₦3,600 (A)
B ₦3,600 (F)
C ₦2,228 (A)
D ₦2,228 (F)

17. Adefem is preparing its cash budget for the next quarter. Which of the following items should NOT be included in the cash budget?

A. Payment of tax due on last year's profits
B. Gain on the disposal of a piece of machinery
C. Repayment of the capital amount of a loan
D. Receipt of interest from short term investments

18. A master budget comprises the

A. budgeted income statement and budgeted cash flow statement only.
B. budgeted income statement and budgeted statement of financial position only.
C. budgeted income statement and budgeted capital expenditure only.
D. budgeted income statement, budgeted statement of financial position and budgeted cash flow statement only.

19. Which of the following are benefits of budgeting?

I. It helps coordinate the activities of different departments
II. It fulfils legal reporting obligations
III. It establishes a system of control

IV. It is a starting point for strategic planning

A. I and IV only
B. I and III only
C. II and III only
D. II and IV only

20. Under which of the following labour remuneration methods will direct labour cost always be a variable cost?

A. Day rate
B. Piece rate
C. Differential piece rate
D. Group bonus scheme

SECTION B: YOU ARE REQUIRED TO ATTEMPT FOUR OUT OF THE SIX QUESTIONS IN THIS SECTION (40 MARKS)

Questions 1

Adekem Nigeria Limited manufactures four products, Pen, Pan, Pet and Pot, using the same single item of direct material in the manufacture of all the products. Adekem budgeted data for 2024 is as follows:

Product	Pen	Pan	Pet	Pot
Sales demand (units)	4,000	4,000	6,000	3,000
	Per unit	Per unit	Per unit	Per unit
	₦	₦	₦	₦
Direct materials cost	500	400	800	600
Direct labour cost	400	600	300	500
Variable overhead	100	150	75	125
Fixed overhead	800	1,200	600	1,000
Full cost	1,800	2,350	1,775	2,225
Sales price	5,000	3,150	5,975	5,425
Profit per unit	3,200	800	4,200	3,200

Due to restricted foreign exchange, only ₦7,800,000 of direct materials will be available for production during the year.

You are required to:

(a) Advise Adekem on the quantities of production and sales of each product that would maximise annual profit in 2024. (15 marks)
(b) Calculate the resulting optimal annual profit (5 marks)

(Total20 marks)

Questions 2

Delton Nigeria Limited (DNL) has been approached by one of its customers for a special contract of ₦3,000,000. In deciding whether or not to accept the contract, Delton management has identified the following:

i. The special contract requires 250 hours of labour at ₦600 per hour. Employees possessing the necessary skills are already employed by DNL but are currently idle due to a recent downturn in business.

ii. Materials A and B will be used. 100 kgs of material A will be needed and sufficient material is in inventory as the material is in common use by the company. Original cost of material in inventory was ₦1,500 per kg but it would cost ₦1,800 per kg to replace if used in this contract. Material B is in inventory as a result of previous over-purchasing. The original cost of material B was ₦50,000 but it has no other use. Unfortunately, material B is toxic and if not used in this contract DNL must pay ₦240,000 to dispose of it.

iii. The contract will require the use of a storage store for three months. Delton is committed to rent the store for one year at a rental of ₦80,000 per month. The store is not in use at present. However, a neighbouring business has recently approached DNL offering to rent the store from DNL for ₦110,000 per month.

iv. Overheads are absorbed at ₦7,500 per labour hour which consists of ₦5,000 for fixed overhead and ₦2,500 for variable overhead. Total fixed overheads are not expected to increase as a result of the contract.

A Bookkeeper has calculated that it will cost ₦3,590,000 to deliver the contract, as shown below and concluded that the contract should therefore not be accepted for ₦3,000,000.

Description	Relevant cost ₦
Labour: 2,000 hours x ₦600	1,200,000
Material A: 100 kgs x ₦1,500	150,000
Material B: Original cost	500,000
Storage: 3 months x ₦80,000	240,000
Overheads: ₦7,500 x 200	1,500,000
Total	3,590,000

Required:

(a) Advise whether the contract should be accepted or not on financial grounds. (12 marks)

(b) Provide reasons for the treatment of each of items (i) to (iv) (8 marks)

(Total 20marks)

Questions 3

(a) Explain the concept of cost behaviour (4 marks)

(b) Delware has identified that total fixed costs increase by ₦150,000 when activity level equals or exceeds 190,000 units. The variable cost per unit is constant over this range of activity.

The company has identified the following costs at two activity levels:

	Production (units)	Total cost (₦)
High	220,000	1,950,000
Low	170,000	1,650,000

The company is planning to produce 200,000 units in the coming month.

Required

Determine the total cost to produce the 200,000 units. (16 marks)

(Total 20 marks)

Questions 4

Adebak Nigeria Limited is setting up a new branch in Ibadan and is preparing a budget for the first 12 months of operation in the branch.

The following information is relevant:

Forecast sales:

Months 1 to 6	₦100,000 per month
Months 7 to 12 (and thereafter)	₦110,000 per month
Budgeted gross profit margin	20%
Credit given to customers	2 months
Credit taken from suppliers	2 months

The branch is required to hold inventory of 3 months demand at the end of each month.

Monthly operating expenses (excluding depreciation) ₦10,000

At the start of the budget period a non-current asset with a carrying amount of ₦600,000 and useful life of 6 years is to be transferred to the branch and ₦400,000 cash provided for running expenses.

Required:

Prepare:

(a) Budgeted statement of profit or loss for the year (10 marks)

(b) Budgeted statement of financial position for the branch at the end of the year. (10 marks)

(Total 20 marks)

Questions 5

Adrac Nigeria Plc. makes three products, Deto, Deta and Detu using the same direct labour employees and the same machine for production.

Production details for the three products for the month of June, 2025 are as follows:

	Labour hours per unit	Machine hours per unit	Material cost per unit (₦)	Number of units produced
Deto	0.25	0.75	1,000	15,000
Deta	0.75	0.50	600	25,000
Detu	0.50	1.50	1,200	140,000

Direct labour costs ₦1,600 per hour.

Total production overheads are ₦13,090,000 and further analysis shows that the total production overheads can be divided as follows:

	₦
Costs relating to machinery	1,963,500
Costs relating to inspection	4,581,500
Costs relating to set-ups	3,927,000
Costs relating to materials handling	2,618,000
Total production overhead	13,090,000

The following total activity volumes are associated with each product for the period:

	Number of Inspections	Number of set-ups	Number of movements of materials	Machine hours
Product X	360	80	40	1,125
Product Y	80	120	80	1,250
Product Z	960	500	280	21,000
	1,400	700	400	23,375

Machine costs are absorbed on a machine hour basis.

Required

Calculate the total production costs per unit for each of the products using the ABC approach of overhead absorption. **(20 marks)**

Questions 6

Galatex Nigeria Company specialises in the manufacture of Adire for export and the local market. The following information relates to the Company's budget for a particular month.

Production Quantity 120,000 metres

Direct material:
Material A - 0.5 kg (₦1,200 per kg)
Material B 0.5 kg ₦1,600 per kg)
Direct labour: 30 mins. ₦6,000 per hour)
Variable Overhead ₦30 million
Fixed Overheads: ₦15 million

Production overhead is absorbed on the basis of Direct labour hours.
Actual results achieved during June 2024 are as follows:
Production - 130,000 metres

Direct material purchased:
Material A 80,000 kg costing ₦88 million
Material B 70,000kg Costing ₦98 million
Direct Labour Hours 80,000 hours worked costing ₦400 million.
Variables overheads: ₦28 million
Fixed Overheads: ₦18 million

Required:

(a) Prepare the standard costs card for the product (4 marks)

(b) Calculate the relevant cost variances arising from the month's production operations. (16 marks)

(Total 20 marks)

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2025 PILOT QUESTIONS
MANAGEMENT ACCOUNTING

Solutions

Section A: MCQ

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

Workings

1. CS ratio is 200 ÷ 400 = .5 or 50%
   Total fixed cost = 2,880 × 125 = 360,000

Break even in ₦ = 360,000 ÷ .5 = 720,000
Break even in units = 720,000 ÷ 5 = 1,800units

2. Determination of fixed element: ₦(1,095,350 – 965,500) ÷ (15,950 – 13,500) = ₦53
Total variable costs of 13,500 = 13,500 × ₦53 = ₦715,500
Fixed costs = ₦965,500 – ₦715,500 = ₦250,000
Total costs of 18,300m^2 = (18,300 × 53) + 250,000 = 1,219,900

5. Expected profit = (₦1,800,800 × 1/3) (₦750,000 × 2/3) = ₦1,100,000

7. O/h absorption rate = ₦360,000 ÷ 8,000 = ₦45
Overhead for actual production = 9,000 × ₦45 = ₦405,000

8. Actual overhead = ₦432,000
Overhead absorbed = ₦405,000
Under absorbed overhead = 432,000 – 405,000 = ₦27,000.

10. Standard time for 350 units (2 minutes) 700 minutes
Actual time (8 hours per day) 480 minutes
Time saved 220 minutes

Bonus = 80% 220minutes ₦600 per hour 1,760
Basic pay = 8 hours ₦600 4,800

Total labour cost ₦6,560

13. Assume selling price = 100%
Profit margin = 40% x 100
Cost of sales will therefore be (100 – 40)%= 60% or 400.
Selling price will then be 400/60 X 100 = ₦666.67

15. (275-300) x 770 = ₦19,250 (A)
16. (0.4 x ₦300) x (770-800) = ₦3,600 (A)

Section B

Answers 1

a. **Calculation of the contribution per unit of goods produced**

Product	**Pen**	**Pan**	**Pet**	**Pot**
Sales price	5,000	3,150	5,975	5,425
Direct materials cost	500	400	800	600
Direct labour cost	400	600	300	500

Variable overhead	100	150	75	125
Variable cost per unit	(1,000)	(1,150)	(1,175)	(1,225)
Contribution per unit	4,000	2,000	4,800	4,200

Identification of scarce resource (materials)

Contribution per ₦ of material	4,000/500	2,000/400	4,800/800	4,200/600
	8	5	6	7
Ranking	1st	4th	3rd	2nd

The products should be made and sold in the order Pen, Pot, Pet and then Pan, up to the total sales demand for each product and until all the available direct labour hours (limiting factor resources) are used up

Production plan to maximise contribution

Product	Sales units	Direct material used	Contribution per unit	Total contribution
			₦	₦
Pen(1st)	4,000 (maximum)	1,600,000	8	12,800,000
Pot (2nd)	3,000 (maximum)	1,800,000	7	12,600,000
Pet (3rd)	5,500 (balance)	4,400,000	6	26,400,000
		7,800,000		51,800,000

b. Resulting optimal profit

	₦
Total contribution (a) above	51,800,000
Annual fixed cost	14,600,000
Total optimal profit	**37,200,000**

Working
Total budgeted fixed overhead

Product	Sales in unit	Cost per unit	Total
		₦	₦
Pen	4,000	800	3,200,000
Pan	4,000	1,200	4,800,000
Pet	6,000	600	3,600,000
Pot	3,000	1,000	3,000,000
Total			**14,600,000**

Answers 2

Special contract decision

a. Total relevant costs

Description	**Relevant cost ₦**
Labour	nil
Material A	1,800,000
Material B	(240,000)
Storage	330,000
Overheads	625,000
Total	2,515,000

Conclusion: The contract should be accepted as it would make an incremental profit to Delton of ₦485,000 (revenue of ₦3,000,000 less relevant costs of ₦2,515,000).

b. **Reasons for the treatment of each of items (i) to (iv)**

i. The relevant cost of labour is zero as no extra cost will be incurred as a result of this contract.

ii. The relevant cost of a material that is used regularly is its replacement cost. Additional inventory of the material must be purchased for use in this contract. The relevant cost of material A is therefore ₦1,800 per kg i.e. ₦1,800 x 100 = ₦1,800,000

iii. There is a relevant saving from using material B from not having to pay the disposal cost of ₦240,000.

iv. As Delton is already committed to rent the storage unit for one year the monthly rental cost is not relevant to the contract. However, the opportunity cost is the foregone rental income that Delton would have made from the neighbouring business for the three months needed for this contract. i.e. 3 x ₦110,000 = ₦330,000

v. The fixed overhead is not relevant because there is no increment to fixed overheads expected as a result of this contract. Therefore, the relevant overhead cost is just the variable part of ₦2,500 per hour x 250 hours = ₦625,000

Answers 3

A company has identified that total fixed costs increase by ₦15,000 when activity level equals or exceeds 19,000 units. The variable cost per unit is constant over this range of activity.
The company has identified the following costs at two activity levels. (Step 1)

	Production (units)	Total cost (₦)
High	220,000	1,950,000
Low	170,000	1,650,000

Adjustment for the step in fixed costs.

		Production (units)	Total cost (₦)
High		220,000	1,950,000
Low	(1,650,000 + 150,000)	170,000	1,800,000

Calculation of variable cost:

	Production (units)	Total cost (₦)
High	220,000	1,950,000
Low	170,000	1,800,000
	50,000	150,000

Therefore: 50,000 units cost an extra ₦150,000.
Therefore: The variable cost per unit = ₦150,000/50,000 units = ₦3 per unit

Total cost of 220,000 units:
Fixed cost + Variable cost = ₦1,950,000
Fixed cost + (220,000 x ₦3) = ₦1,950,000
Fixed cost + ₦660,000 = ₦1,950,000
Fixed cost = ₦1,950,000 - ₦660,000 = ₦1,290,000

Total cost function (unadjusted level) above 190,000 units
Total cost = a +bx = 1,290,000 + 3x

Total cost function below 190,000 units

Total cost = a +bx = (1,290,000 - 150,000) + 3x

Total cost = a +bx = 1,140,000 + 3x

b. Delware is planning to make 200,000 units and wishes to estimate the total costs associated with that level of production.
Total cost = ₦1,290,000 + ₦3x
Total cost of 200,000 units = 1,290,000 + (₦3 x 200,000) = ₦1,890,000

Answers 4

a. Budgeted statement of profit or loss can be prepared as follows:

	₦
Sales (6 x 100,000) + (6 x110,000)	1,260,000
Cost of sales (80%)	(1,008,000)
Gross profit (20%)	252,000

Expenses:

Depreciation (600,000/6 years)	(100,000)
Operating expenses (12 x 10,000)	(120,000)
Budgeted profit	32,000

b. Budgeted statement of financial position

	₦
Non-current assets (600,000 - 100,000)	500,000
Current assets:	
Inventory (3 x 110,000 x 80%)	264,000
Receivables (2 x 110,000)	220,000
Cash (balancing figure	224,000
Current liabilities (2 x 11,000 x 80%)	(176,000)
	1,032,000
Capital	
Opening capital (600,000 + 400,000)	1,000,000
Budgeted profit for the year	32,000
	1,032,000

Answers 5

Costs per unit for each product using ABC

Cost per activity

	Activity Cost allocated (₦)	Cost driver	Activity per period	Overhead absorption rate
Inspection	4,581,500	Inspections	1,400	₦3,272.50 per inspection
Set-ups	3,927,000	Set-ups	700	₦5,610 per set-up
Materials handling	2,618,000	Movements	400	₦6,545 per movement
Machinery operations	1,963,500	Machine hrs	23,375	₦84 per machine hour
Total	13,090,000			

Allocation of overheads to product types based on cost per activity and cost drivers

	Deto ₦	Deta ₦	Detu ₦
Set-ups			
80 set ups x ₦5610	448,800		
120 set ups x ₦5610		673,200	
500 set ups x ₦5610			2,805,000
Inspection			
360 set ups x ₦3,272.5	1,178,100		
80 set ups x ₦3,272.5		261,800	
960 set ups x ₦3,272.5			3,141,600
Materials handling			
40 movements x ₦6,545	261,800		
80 movements x ₦6,545		523,600	
280 movements x ₦6,545			1,832,600
Machinery operations			
1,125 hours x ₦84	94,500		
1,250 hours x ₦84		105,000	
21,000 hours x ₦84			1,764,000
Overhead costs per product	1,983,200	1,563,6	9,543,200

Calculation overhead per unit

	Deto	Deta	Detu
Overhead costs per product	₦1,983,200	₦1,563,600	₦9,543,200
Number of units	15,000	25,000	140,000

Overhead cost per unit	₦132.21	₦62.54	₦68.17

Calculation of total production cost per unit

Production cost per unit: ABC	Deto	Deta	Detu
	₦	₦	₦
Direct materials	1,000.00	600.00	1,200.00
Direct labour	400.00	1,200.00	800.00
Production overhead	132.21	62.54	68.17
Full production cost per unit	1,532.21	1,862.542,068.17	

Answers 6

a. Standard costs card

Cost	**Standard quantity**	**Standard rate**	**Standard cost**
		₦	₦
Direct material: A	0.5kg	1,200	600
Direct material: B	0.5kg	1,600	800
Direct labour	.5hr	6,000	3,000
Variable overhead	.5hr	500	250
Fixed overhead	.5hr	250	125
			4,775

b. Variance analysis

Direct Material total cost variance
(Standard Material Cost of output produced – Actual Cost of material purchased)
Material

A ₦(130,000×0.5×1200) – ₦88,000,000	=	₦10,000,000A
B ₦(130,000×0.5×1600) – ₦98,000,000	=	₦6,000,000 F
Total material cost variance	₦4,000,000 A	

Direct Material Price Variance
(Actual Material Used × Standard Price) – Actual Cost of Material purchased
or (Actual Price – Standard Price) Actual Quantity
Material:

A (80,000 × 1200) – 88,000,000	=	8,000,000 F

B (70,000 × 1600) – 98,000,000 = 14,000,000 F
Total material price variance 22,000,000 F

Direct Material Usage Variance
(Actual Quantity – Standard Quantity) Standard Price
Material
A (80,000 – 65,000) × ₦1,200 = ₦18,000,000 A

B (70,000 – 65,000) × ₦1,600 = ₦8,000,000 A

Total materials usage variance ₦26,000,000 A

Direct labour total cost variance
(Standard Direct labour Cost – Actual Direct Labour cost) or Standard Cost – Actual Cost
(130,000 × 30/60 × ₦6,000) – ₦400,000,000 = 10,000,000 A
Direct labour Rate Variance
(Actual Rate – Standard Rate) Actual Hour Worked
₦400,000,000 – (₦6,000 × 80,000) = ₦80,000,000 F

Direct labour Efficiency Variance
[Actual Hours Worked – Standard Hours Allowed] Standard Rate
(80,000 – 65,000) × ₦6,000 = ₦90,000,000 A

Variable Overhead Cost Variance
Standard Variable Overhead Cost – Actual Variable Overhead Cost

$\left(\frac{130{,}000 \times 30{,}000{,}000}{120{,}000}\right)$ – ₦28,000,000
₦ 32,500,000 – ₦₦28,000,000 = ₦4,500,000 F

VOAR = $\frac{₦30{,}000{,}000}{60{,}000}$ = ₦500

Variable Overhead Cost Variance = (500 × 130,000 × 30/60) – 28,000,000
32,500,000 –28,000,000
= 4,500,000 F

Variable Production Overhead Expenditure Variance

Actual Variable Overhead Cost – (Actual Hours Worked × VOAR)
₦28,000,000 – (80,000 × ₦500)
₦28,000,000 – ₦40,000,000

= 12,000,000 F

Variable Production Overhead efficiency Variance
(Actual Hours Worked × VOAR) – (Standard Hours Allowed × VOAR)
(80,000 × ₦500) – (65,000 × ₦500)
₦40,000,000 – ₦32,500,000
= ₦7,500,000A
Note: VOAR = Variable Overhead Absorption Rate

Fixed Production Overhead Cost Variance
FOAR = $\frac{₦15,000,000}{60,000}$
= ₦250
Actual Fixed Overhead Cost – Standard Fixed Overhead Cost
(130,000 × 30/60 × ₦250) – ₦18,000,000
₦16,250,000 – ₦18,000,000
= ₦1,750,000 A
Fixed Production Overhead expenditure Variance
Budgeted Fixed Overhead – Actual fixed Overhead cost
(120,000 × 30/60 × ₦250) – ₦18,000,000
= ₦3,000,000A
Fixed Production Overhead Volume Variance
(Budgeted Hours – Standard Hours Allowed) x FOAR
(60,000 – 65,000) × ₦250
= ₦1,250,000 F