

**CTO- Financial and Cost  
Accounting  
T151  
Tuesday, 20/11/2018  
08:30 am - 11:30 am**

WORKFORCE DEVELOPMENT AUTHORITY



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**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2018,  
TECHNICAL AND PROFESSIONAL STUDIES**

**EXAM TITLE: FINANCIAL AND COST ACCOUNTING**

**OPTION: CUSTOMS AND TAX OPERATIONS (CTO)**

**DURATION: 3 hours**

**INSTRUCTIONS**

The paper is composed of **two Parts with 4 sections as follows:**

**Part I: Financial Accounting**

Section A: Attempt all questions **30 marks**

Section B: Attempt two (2) questions of your choice **20 marks**

**Part II: Cost Accounting**

Section A: Attempt all questions **30 marks**

Section B: Attempt two (2) questions of your choice **20 marks**

1. All working must be done in the worker answer sheet
2. Silent, non-programmable scientific calculators may be used.

**Note:**

***Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.***

## PART I: FINANCIAL ACCOUNTING

50 marks

### Section A: Answer all questions

30 marks

(01) Distinguish credit note from debit note.

(2 marks)

**Answer:**

A credit note is raised by the firm and issued to the debtor when the debtor returns some goods back to the firm while a debit note is raised by the creditor and issued to the firm when the firm returns some goods to the creditor.

(02) Write up a two-column cashbook from the following details, and balance off as at the end of the month:

(3 marks)

2003

May	1	Started business with capital in cash £1,000.
"	2	Paid rent by cash £100.
"	3	F Lake lent us £5,000, paid by cheque.
"	4	We paid B McKenzie by cheque £650.
"	5	Cash sales £980.
"	7	N Miller paid us by cheque £620.
"	9	We paid B Burton in cash £220.
"	11	Cash sales paid direct into the bank £530.
"	15	G Moores paid us in cash £650.
"	16	We took £500 out of the cash till and paid it into the bank account.
"	19	We repaid F Lake £1,000 by cheque.
"	22	Cash sales paid direct into the bank £660.
"	26	Paid motor expenses by cheque £120.
"	30	Withdrew £1,000 cash from the bank for business use.
"	31	Paid wages in cash £970.

**Answer**

3 Marks

Cash Book					
	Cash	Bank		Cash	Bank
Capital	1000		Rent	100	
F. Lake (Loan)		5000	B McKenzie		650
Sales		980	B Burton	220	
N Miller		620	Bank C	500	
Sales		530	F Lake (loan)		1000
G Moores	650		Motor Expenses	<del>120</del>	100
Cash C		500	Cash C		1000
Sales		660	Wages	970	
Bank C	1000	1000	Balances c/d	<del>1240</del>	4540
	<u>3630</u>	<u>7310</u>		<u>3630</u>	<u>7310</u>

2650 8290

(03) Discuss the Petty Cash Book and the imprest system of Accounting.

(2 marks)

Petty Cash Book is a record of all the petty cash vouchers raised and kept by the cashier. The petty cash vouchers will show summary expenses paid by the cashier and this information is listed and classified in the petty cash book under the headings of the relevant expenses such as:

- Postage and stationery; Traveling; Cleaning expenses.

The format is as shown:

Petty Cash Book

Receipts	Date	Detail	Payments Amount	Expenses			The Ledger
				Postage	Stationary	Traveling	

The Imprest system

This system of accounting operates on a simple principle that the cashier is refunded the exact amount spent on the expenses during a particular financial period. At the beginning of each period, a cash float is agreed upon and the cashier is given this amount to start with. Once the cashier makes payments for the period he will get a total of all the payments made against which he will claim a reimbursement of the same amount that will bring back the amount to the cash float at the beginning of the period.

**(04)** A cashier in a firm starts with £2,000 in the month of March (that is the cash float). In the following week, the following payments are made:

	£
1 <sup>st</sup> March – bought stamps for	80
2 <sup>nd</sup> March – paid bus fare for	120
2 <sup>nd</sup> March – cleaning materials	240
3 <sup>rd</sup> March – bought fuel	150
3 <sup>rd</sup> March – cleaning wages	300
4 <sup>th</sup> March – bought stamps	200
4 <sup>th</sup> March – paid L. Thompson (creditor)	400
5 <sup>th</sup> March – fuel costs	150

On the 5<sup>th</sup> of March the cashier requested for a refund of the cash spent and this amount was reimbursed back.

**Required:**

Prepare a detailed petty cash book showing the balance to be carried forward to the next period and the relevant expense accounts, as they would appear on the General Ledger. **(5 marks)**

**Answer**

Receipts	Date	Detail	Payments	Expenses			THE LEDGER
(£)			Amount (£)	Postage (£)	Cleaning (£)	Travel (£)	(£)
2000	1/3	Bal b/d					
	1/3	Stamps	80	80			
	2/3	Bus Fare	120			120	
	2/3	Cleaning Materials	240		240		
	3/3	Fuel	150			150	
	3/3	Cleaning wages	300		300		
	4/3	Stamps	200	200			
	4/3	L Thompson	400				400
	5/3	Fuel	<u>150</u>			<u>150</u>	
			1640	<u>280</u>	<u>540</u>	<u>420</u>	<u>400</u>
<u>1640</u>	5/3						
	5/3	Bal c/d	<u>2000</u>				
<u>3640</u>			<u>3640</u>				
2000	6/3	Bal b/d					

**(05)** From the following details draw up the trading account of Springs for the year ended 31 December 2002, which was his first year in business.

	£
Carriage inwards	6,700
Returns outwards	4,950
Returns inwards	8,900
Sales	387,420
Purchases	333,330
Stock of goods: 31 December 2002	74,890

**(5 marks)**

**Answer:**

**Springs**

**Trading Account for the year ended 31 Dec 2002**

	£	£
Sales		387,420
Less: Returns Inwards		<u>8,900</u>
		378,520
<b>Less cost of sales</b>		
Purchases	333,330	
Add: Carriage Inwards	<u>6,700</u>	
	340,030	
Less: Returns outwards	<u>4,950</u>	
	335,080	
Less: Closing stock	<u>74,890</u>	<u>260,190</u>
Gross Profit		<u>118,330</u>

**(06)** You are to enter up the sales journal from the following details. Post the items to the relevant accounts in the sales ledger and then show the transfer to the sales account in the general ledger. **(5 marks)**

2003

Mar	1	Credit sales to J Gordon	£1,870
"	3	Credit sales to G Abrahams	£1,660
"	6	Credit sales to V White	£120
"	10	Credit sales to J Gordon	£550

"	17	Credit sales to F Williams	£2,890
"	19	Credit sales to U Richards	£660
"	27	Credit sales to V Wood	£280
"	31	Credit sales to L Simes	£780

**Answer**

SALES JOURNAL			Page 10
Date (2003)	Detail	Folio	Amount
1/3	J. Gordon		1,870.00
3/3	G. Abrahams		1,660.00
6/3	V. White		120.00
10/3	J. Gordon		550.00
17/3	F. Williams		2,890.00
19/3	U. Richards		660.00
27/3	V. Wood		280.00
31/3	L. Simes		780.00
			8,810.00

**Sales Ledger**

**J Gordon**

2003	£	2003	£
1/3	1,870		
10/3	550		

**G Abrahams**

2003	£	2003	£
3/3	Sales 1,660		

**V White**

2003	£	2003	£
6/3	Sales 120		

**F Williams**

2003	£	2003	£
17/3	Sales 2890		

**U Richards**

2003	£	2003	£
19/3	Sales 660		

**V Wood**

2003	£	2003	£
27/3	Sales 280		

**L Simes**

2003	£	2003	£
31/3	Sales 780		

**Sales a/c**

2003	£	2003	£
			Credit Sales

- (07)** Describe any two errors that are not revealed by the trial balance and support your answers by examples. **(5 marks)**

**Answer**

**Errors of Original entry**

These errors originate from source documents e.g. Invoices, voucher, receipts, bank paying slips etc. These errors are carried throughout the accounting process i.e. from the journal through the ledger to the trial balance and eventually to the final accounts.

For instance, goods were sold to John on credit for 2,300,000 but was recorded in the sales invoice as 3,200,000, a wrong figure will be journalized, posted to the ledger and will end up in the trial balance. Since double entry is effected through with a wrong figure, the trial balance will still balance and cannot detect such an error.

**Errors of Commission**

These errors are committed when an entry is made on a wrong person's account or account title but the double entry properly effected. For instance, goods worth 2,000,000 were sold to Jane on credit but Jone's account was debited instead of the correct account of Jane.

- (08)** A tenant was made to pay rent of FRW 1,800,000 cash for a period of 1 ½ years.
- (i) Journalize the entries when the rent was paid
  - (ii) Journalize the adjusting entry at the end of the financial year (1st 12 months)

**(3 marks)**

**Answer**

(i) Dr	Cash A/C	1,800,000	
Cr	Unearned rent Income A/C		1,800,000
		<u>1,800,000</u>	

Monthly rent payment = 18  
= 100,000  
Rent earned for the year = 100,000 x 12  
= 1,200,000

The following entry is then performed to recognize the income which was hitherto unearned but has now been earned

(ii) Dr	Un earned rent income A/C	1,200,000	
	Cr Earned rent income A/C		1,200,000

Readers are referred to the realization concept in connection with recognition of income.

**Section B: Attempt any two (2) questions of your choice**

**(10 marks each)**

(09) The accountant of Starlight Limited prepared a trial balance for his company for the month of December 2007 but it failed to balance. The total on the debit side was more than the total on the credit side by 33,000/=. He opened a suspense account for the difference and proceeded to prepare final accounts. He reported a net profit of 1,400,000/=

During the month of January 2018, he discovered the following mistakes which had been made in December 2007:

- The purchases account had been undercast by 2,000/= ✓
- Payment of 555,000/= by cheque for insurance was properly recorded in the cash book but was posted to insurance account by mistake as 515,000/= ✓
- A sales invoice of 300,000/= was not recorded in the sales day book and therefore not posted to the ledger ✓
- The credit side of the sales account was under added by 4,000/= ✓
- Motor vehicle repairs costing 50,000/= ✗
- Payment of 680,000/= cash to John a creditor was properly recorded in John's account but was wrongly recorded in the cash book as 670,000/= ✓
- The bookkeeper had made a mistake by debiting ledger fee of 15,000/= to the cash book but properly recorded it in the ledger fee account. ✗



- Sale of goods for 600,000/= on credit to Tino was properly recorded in the sales account but was recorded by error to Tina account ✓
- The bank column of the cash book credit side was over added by 1,000/=
- A credit note issued for 800,000/= was properly recorded in the customer's account but was wrongly recorded in the other account necessary for completion of double entry as 820,000/=
- Discount received of 6,000/= was debited to discount allowed account.

**Required: Journal entries to correct all errors.**

	Account titles	LP	Dr.	Cr.
(a)	Purchases		2,000	
	Suspense			2,000
(b)	Insurance		40,000	
	Suspense			40,000
(c)	A/Cs receivable (debtors)		300,000	
	Sales			300,000
(d)	Suspense		4,000	
	Sales			4,000
(e)	Repairs		50,000	
	Motor vehicle			50,000
(f)	Suspense		10,000	
	Cash			10,000
(g)	Suspense		30,000	
	Bank			30,000
(h)	Tino		600,000	
	Tina			600,000
(i)	Bank		1,000	
	Suspense			1,000
(j)	Suspense		20,000	
	Returns inwards			20,000
(k)	Suspense		12,000	
	Discount allowed			6,000
	Discount received			6,000

(10) You are to enter the following items in the books, post to personal accounts, and show transfers to the general ledger.

19x5

July 1 Credit purchases from: K Hill £3800; M Norman £500; N Senior £106.  
 " 3 Credit sales to: E Rigby £510; E Phillips £246; F Thompson £356.  
 5 Credit purchases from: R Morton £200; J Cook £180; D Edwards £410; C Davies £66.  
 " 8 Credit sales to: A Green £307; H George £250; J Ferguson £185.  
 " 12 Returns outwards to: M Norman £30; N Senior £16.  
 " 14 Returns inwards from: E Phillips £18; F Thompson £22.  
 " 20 Credit sales to: E Phillips £188; F Powell £310; E Lee £420.  
 " 24 Credit purchases from: Ferguson £550; K Ennevor £900.  
 " 31 Returns inwards from: E Phillips £27; E. Rigby £30.  
 " 31 Returns outwards to: J Cook £13; C Davies £11.

**Solution**

SALES JOURNAL		
DATE	DETAIL	AMOUNT (£)
3 July	E. Rigby	510
3 July	E. Phillips	246
3 July	F. Thompson	356
8 July	A. Green	307
8 July	H. George	250
8 July	J. Ferguson	185
20 July	E. Phillips	188
20 July	F. Powell	310
20 July	E. Lee	420
TOTAL		2,772 <i>A</i>

### Sales Ledger

E Rigby

19x5	£	19x5	£
3/7	Sales 510	3/7	Returns 30 Inwards

E Phillips

19x5	£	19x5	£
3/7	Sales 246	14/7	Returns 18
20/7	Sales 188	31/7	Returns in 27

F. Thompson

19x5	£	19x5	£
3/7	Sales 356	14/7	Returns 22 in

J. Ferguson

19x5	£	19x5	£
8/7	Sales 185		

Green

19x5	£	19x5	£
8/7	Sales 307		

F. Powell

19x5	£	19x5	£
20/7	Sales 310		

H George

19x5		19x5	£
8/7	Sales 250		

E Lee

19x5	£	19x5	£
20/7	Sales 420		

*0.5 x 4 = 2*

### PURCHASES JOURNAL

DATE	DETAIL	AMOUNT (£)
1 July	K. Hill	3800
1 July	M. Norman	500
1 July	N. Senior	106
5 July	R. Mortan	200
5 July	J. Cook	180
5 July	D. Edwards	410
5 July	C. Davies	66
24 July	C. Ferguson	550
24 July	K. Ennevor	900
Total		<del>3,292</del> <i>6712/1</i>

**Purchases Ledger**

N. Senior

1995		£	1995		£
12/7	Returns out	16	1/7	Purchases	22

M. Norman

1995		£	1995		£
30/7	Returns out	30	1/7	Purchases	500

J. Cook

1995		£	1995		£
31/7	Returns out	13	5/7	Purchases	180

C. Davies

1995		£	1995		£
31/7	Returns out	11	5/7	Purchases	60

K. Hill

1995		£	1995		£
			1/7	Purchases	3800

R. Morton

1995		£	1995		£
			5/7	Purchases	200

D. Edwards

1995		£	1995		£
			5/7	Purchases	410

C. Ferguson

1995		£	1995		£
			27/7	Purchases	550

K. Ennevor

1995		£	1995		£
			24/7	Purchases	300

*2.5 x 4 = 2.*

RETURNS INWARDS JOURNAL		
DATE	DETAILS	AMOUNT
14 July	E. Phillips	18
14 July	F. Thompson	22
31 July	E. Phillips	27
31 July	E. Rigby	30
		97

RETURNS OUTWARDS JOURNAL		
12 July	M. Norman	30
12 July	N. Senior	16
31 July	J. Cook	13
31 July	C. Davies	11
		70/9

### General Ledger

#### Sales a/c

1995	£	1995	£
		31/7 Sundry debtors	2772

#### Purchases a/c

1995	£	1995	£
31/7 Sundry creditors	3292		

#### Returns Inwards a/c

1995	£	1995	£
31/7 Sundry debtors	97		

#### Returns Outwards a/c

1995	£	1995	£
		31/7 Sundry creditors	70 <i>0.5 x 4 = 2</i>

(11) RUNDA Ltd pays an annual dividend of \$45 per share of common stock. Its earnings after tax during the past four quarters of operations were \$ 2,150,000. The company has 100,000 shares of \$100 per value common stock and 50,000 shares of \$50 par value, 10% preferred stock outstanding. The market price of common shares is \$150.

- Required:**
- Calculate the earnings per share of the common stock (EPS)
  - Calculate the price-earnings ratio for the common stock (P/E)
  - What is the current dividend yield on the common stock?

**Answer**

- a)  $EPS = (\text{Net Profit} - \text{Dividend on Preference shares}) / \text{Number of common shares}$ .

$$EPS = [2,150,000 - 250,000] / 100,000$$

$$EPS = \$ 19$$

b) P/E Ratio= Market price per share/ EPS

P/E Ratio= 150/19

**P/E Ratio= 7.89 times**

c) Dividend Yield Ratio= Common dividend per share/ Market price

Dividend Yield Ratio= 45/150

**Dividend Yield Ratio= 30%**

**(12) XL Company limited** has made plans for the next year. It is estimated that the company will employ total assets of FRW 800,000; 30% of the assets being financed by borrowed capital at an interest cost of 10% per year. The cost of goods sold for the year is estimated at FRW 480,000 and all other operating expenses are estimated at FRW 80,000. The goods will be sold to customers at 150% of the cost of goods sold. Tax rate is estimated at 30%.

**Required:**

a) Calculate the net profit margin

b) Calculate the return on assets

c) Compute the return on owners' Equity

**Answer**

<b>Workings</b>	
Total Assets	800,000
Borrowed capital	240,000
Interest	24,000
Cost of goods sold	480,000
operating expenses	80,000
Sales	720,000
Tax rate	30%

<b>Income statement</b>	
Sales	720,000
Cost of goods sold	( 480,000)
<b>Gross profit</b>	<b>240,000</b>
Operating expenses	(80,000)
<b>Operating profit</b>	<b>160,000</b>

Interest	(24,000 )
<b>Profit before tax</b>	<b>136,000</b>
Tax expenses	(40,800)
<b>Net profit</b>	<b>95,200</b>

a) Net profit margin = 95,200

b) Calculate the return on assets =  $[(\text{Operating profit} / \text{Total assets}) * 100]$   
 $= (160,000 / 800,000) * 100 = 20\%$

c) Compute the return on owners' Equity =  $[(\text{Net profit} / \text{Equity}) * 100]$   
 $= (95,200 / 560,000) * 100 = 17\%$

## PART II: COST ACCOUNTING.

50 marks

### Section A: Answer all questions.

30 marks

(13) Define the following terms:

- a) Allocation
- b) Apportionment
- c) Break-Even Point
- d) CVP Analysis
- e) Margin of safety

(5 marks)

#### Answer:

Define the following terms:

##### **a) Allocation**

Allocation of overheads is the process by which the whole cost items are charged directly to a cost unit or as a cost center. Examples of such costs include the salary of a service department manager. *11*

##### **b) Apportionment**

Apportionment of overheads (primary apportionment) occurs where the total value of an overhead item is shared between two or more cost centers that use the overheads. Reapportionment of overheads (secondary apportionment) occurs when service department costs are charged to user departments. For example, the maintenance department overhead costs are summarized and then charged to the user department, which will probably include other service or non-production departments.

##### **c) Break-Even Point**

This is the level of activity at which the firm incurs neither a profit nor a loss.

##### **d) CVP Analysis**

The cost volume profit analysis, commonly referred to as CVP, is a planning process that management uses to predict the future volume of activity, costs incurred, sales made, and profits received.

##### **e) Margin of safety**

This is the excess of sales over the break-even volume in sales. It states the extent to which sales can drop before losses begin to be incurred in a firm.



- (14) A company produces three (3) products X, Y and Z. The following are the operating statement for the period (*All figures in FRW*):

Products	X	Y	Z	Total
Sales	32,000	50,000	45,000	127,000
Total costs	36,000	38,000	34,000	108,000
Net profit	(4,000)	12,000	11,000	19,000

The total cost is composed by 60% of variable costs and 40% of fixed costs. Directors of the company are considering dropping products that show loss. Based on the above data, should product X be dropped? (Suppose other factors remain constant).

(5 marks)

**Answer:**

- i) **Total cost (TC) = Variable cost (VC) + Fixed cost (FC)**

Product X = 60%(36,000) = 21,600 + 40%(36,000) = 14,400

Product Y = 60%(38,000) = 22,800 + 40%(38,000) = 15,200

Product Z = 60%(34,000) = 20,400 + 40%(34,000) = 13,600

- ii) **If the company maintain product X**

Products	X	Y	Z	Total
Sales	32,000	50,000	45,000	127,000
Less Variable cost	21,600	22,800	20,400	64,800
Contribution margin	10,400	27,200	24,600	62,200
Less fixed cost				43,200
Net profit				19,000

- iii) **If the product X is dropped**

Products	X	Y	Z	Total
Sales		50,000	45,000	95,000
Less Variable cost		22,800	20,400	43,200
Contribution margin		27,200	24,600	51,800
Less fixed cost				43,200
Net profit				8,600

**Conclusion:** The dropping of product X will lead to loss of contribution of 6,800. Therefore, directors should not drop product X.

**(15)** SINA Gerard, the famous businessman is now training local farmers to help Rwandan agricultural exporter. "My aim is to make sure Rwandan farmers, because they are rated at 90%, feel proud to be farmers" he says. I'm sure I'll achieve it because so far I have achieved a lot". Now, Gerard says he employs hundreds of workers and buys produce from thousands of farmers. Although he started out selling his food from a roadside stall, he was soon known not for his snacks, but what he put on them-his famous "**Akabanga**" chili sauce. Gerard has approached you as an expert to advise him on how he can strengthen his financial management department. He needs to understand the following.

Why you consider it important to hire a cost accountant? **(5 marks)**

**Answer**

It is important to hire a cost accountant due to the following duties of a cost accountant:

Plan a profitable future for the business

Install and maintain an accounting system to monitor the performance of business

Identify potential problems

Record transactions by producing accounting statements

Generate information to meet the following requirements:

- a. Allocating costs between cost of goods sold and inventories for internal and external reporting
- b. Helping managers make better decisions, and
- c. Planning, control and performance measurement.

**(16)** ABC Ltd has an aggregate demand of 1,200,000 units. Each time they place an order there is an ordering cost of FRW 1,000, holding cost is FRW100 per unit.

**Determine:**

- i. EOQ
- ii. No. of order to be made based ECQ
- iii. Total cost of stocks based on the ECQ

**(5 marks)**

**Answer**

- i)  $EOQ = \sqrt{\frac{2DCo}{Ch}} = \frac{2 \times 1200 \times 1000 \times 1000}{100} = 4,899$  units 2
- ii) No of order =  $\frac{1,200,000}{4,899} = 244.9 \approx 245$  Orders 1
- iii) Total cost =  $\frac{DCo}{Q} + \frac{1}{2} QCh = \frac{1,200,000(1000)}{4,899} + \frac{1}{2} (4,899)100 = 489,900$  2,

**(17)** How different is cost accounting from financial accounting? **(5 marks)**

**Key differences between Cost accounting and Financial accounting**

	Cost Accounting (C.A& M.A)	Financial Accounting (F.A)
Users	Provides data for internal uses by Management.	Provides data for external uses. <span style="color: red;">1</span>
Nature	Futuristic	Historical <span style="color: red;">1</span>
Details	looks at segments of the organization	looks at the organization as a whole <span style="color: red;">1</span>
Legality	Not mandatory	Mandatory <span style="color: red;">1</span>
Format	Not governed by any principles	Follows the GAAPs <span style="color: red;">1</span>

**(18)** Aries' Jewelers Inc. purchases 15,000 one-quarter-carat diamonds each year for various mountings. The following information relating to the diamonds is available.

- Purchase cost per diamond Shs.200
- Cost to carry one diamond in inventory for one year 5
- Cost of placing one order to the company's supplier 40

The maximum order that the insurance company will permit is 750 diamonds. The minimum order that the supplier will permit is 150 diamonds, with all orders required to be in multiples of 150 diamonds. The company has been purchasing in the maximum allowable volume of 750 diamonds per order.

**Required:**

Determine the volume the company should be placing its orders. **(5 marks)**

**Answer**

The volume the company should be placing its orders

$$EOQ = \sqrt{\frac{2DCo}{Ch}} \qquad EOQ = \sqrt{\frac{2 \times 60,000 \times 40}{5}} = 979.79 \text{ units} \approx 980 \text{ units}$$

The orders must be in multiples of 150 units. Therefore, total number to be ordered should be either 900 units or 1050 units. By computing the total cost of holding and ordering the diamonds, we obtain the following summaries.

**Ordering 900 units**

$$\begin{aligned} \text{Total cost} &= (1/2 \times 900 \times 5) + (15,000/900 \times 40) \\ &= 2,250 + 667 \\ &= 2,917 \end{aligned}$$

**Ordering 1050 units**

$$\begin{aligned} \text{Total cost} &= (1/2 \times 1050 \times 5) + (15,000/1050 \times 40) \\ &= 2,626 + 575 \\ &= 3,196 \end{aligned}$$

***Therefore, the cost accountant should recommend the purchase of 900 units as it is more economical.***

**Section B: Attempt any two (2) questions of your choice**

**(10 marks each)**

**(19)** Discuss two possible causes of variances for each of the following:

- i. Material Price Variance (MPV)
- ii. Material Usage Variance (MUV)
- iii. Labour Rate Variance (LRV)
- iv. Labour Efficiency Variance (LEV)

**Answer**

**i) TWO possible causes of Material Price Variance (MPV)/ 2.5 marks**

- ✓ Actual prices may change following a change in the market conditions that cause a general price increase or decrease for the type of materials used. Thus the company may end up paying more or less than the standard price.
- ✓ Inferior quality materials, which are less expensive, may be bought thus translating to a favorable material price variance. Buying of substitute materials due to unavailability of the planned ones may translate to favorable or unfavorable material price variance.
- ✓ A shortage in materials which calls for an urgent purchase at short notice may increase the purchase costs where the company may be required to airlift the materials or pay for other costs associated with that order. This will translate to unfavorable material price variance.
- ✓ Quantity discounts lost or gained by buying in smaller or larger quantities than planned also translate to a material price variance.

**ii) TWO possible causes of Material Usage Variance (MUV)/ 2.5 marks**

- Careless handling of materials by production personnel or working with untrained workers who are poorly supervised OR extremely high quality labour than expected.
- Inferior quality materials thus requiring more input than budgeted OR higher quality materials than budgeted that reduces the quantity of material input below the budgeted.
- Faulty or inefficient machinery OR efficient machinery
- Theft and pilferage
- Changes in methods of production and quality control, greater or lower rate of scrap than anticipated

**iii) TWO possible causes of Labour Rate Variance (LRV)/ 2.5 marks**

- Negotiation of wages where the employee may demand a higher rate than the standard, this may be considered as uncontrollable as the employer has very little, if any, control on the wage rate. Higher wages than planned may be paid.
- Unexpected overtime, which has an element of premium and bonus may also cause this variance
- Misallocation of workforce, allocating semi-skilled workers

**iv) TWO possible causes of Labour Efficiency Variance (LEV)/ 2.5 marks**

- Use of poor quality materials and poorly trained workers or incorrect grade of workers and poor supervision of workers, requiring more labour time in processing.
- Use of incorrect materials or experiencing machine problems
- Use of higher or better quality materials
- Use of faulty equipment causing breakdowns and work interruptions.

- (20) Evans, the Managing Director of Mambò Company, has asked for information about the cost behavior of manufacturing overhead costs. Specifically, he wants to know how much overhead cost is fixed and how much is variable. The following data are the only records available.

Month	Machine-hours	Overhead Costs
February	1,700	Shs.20,500
March	2,800	Shs.22,250
April	1,000	Shs.19,950
May	2,500	Shs.21,500
June	3,500	Shs.23,950

**Required:**

- 1) Prepare a cost function using of **high-low method**
- 2) Determine the business fixed cost and variable costs for 5000 machine hours using **regression analysis**.
- 3) Compute the correlation coefficient

**Answer**

- 1) Preparation of cost function on the basis of high-low method

i) Variable cost = Cost at high level activity- cost at low level activity  

$$= 23,950 - 19,950$$

$$= 4,000$$

ii) Unit variable cost(cost driver (b)) = Variable cost / Output units  

$$= 4,000 / (3,500 - 1,000)$$

$$= 4000/2500$$

$$b = 1.6$$

iii)  $Y = a + bx$   

$$23,950 = a + 1.6(3500)$$

$$23,950 = a + 5,600$$

$$23,950 - 5,600 = a$$

$$a = 18,350$$

**Cost function**

**$Y = 18,350 + 1.6X$**

- 2) Business fixed cost and variable costs for 5000 machine hours using regression analysis.

The general formulas used to compute a and b are as listed below. The equations are solved simultaneously to obtain the values.

$$(i) \sum Y = na + \sum bX$$

$$(ii) \sum YX = a\sum X + b\sum X^2$$

Or,

$$(i) b = \frac{n\sum XY - \sum X \sum Y}{n\sum X^2 - (\sum X)^2}$$

$$(ii) a = \frac{\sum Y}{n} - b \frac{\sum X}{n}$$

$$a = \frac{\sum Y - b \sum X}{n}$$

n	X	Y	YX	X <sup>2</sup>	Y <sup>2</sup>
February	1,700	20,500	34,850,000	2,890,000	420,250,000
March	2,800	22,250	62,300,000	7,840,000	495,062,500
April	1,000	19,950	19,950,000	1,000,000	398,002,500
May	2,500	21,500	53,750,000	6,250,000	462,250,00
June	3,500	23,950	83,825,000	12,250,000	573,602,500
	<b>11,500</b>	<b>108,150</b>	<b>254,675,000</b>	<b>30,230,000</b>	<b>2,349,167,500</b>

$$(i) b = \frac{5(254,675,000) - (11,500)(108,150)}{5(30,230,000) - (11,500)^2}$$

$$b = 1.568783068 = 1.6$$

$$a = \frac{108,150 - 1.6(11,500)}{5}$$

$$a = 17,950$$

$$Y = 17,950 + 1.6X$$

$$Y = 17,950 + 1.6(5,000)$$

$$Y = 17,950 + 8,000$$

$$Y = 25,950$$

**Note.** Someone may have used all decimals and get  $a = 18,022$  in that case he/she is not wrong.

### 3) Computation of the correlation coefficient

$$r = \frac{n \sum XY - \sum X \sum Y}{\sqrt{\{n \sum X^2 - (\sum X)^2\} \{n \sum Y^2 - (\sum Y)^2\}}}$$

Where  $-1 \leq r \leq 1$

$$\frac{5(254,675,000) - (11,500)(108,150)}{\sqrt{\{5(30,230,000) - (11,500)^2\} \{5(2,349,167,500) - (108,150)^2\}}}$$

$$\frac{1,273,375,000 - 1,243,725,000}{\sqrt{\{(151,150,000) - (132,250,000)\} \{(11,745,837,500) - (11,696,422,500)\}}}$$

$$\frac{29,650,000}{\sqrt{18,900,000 * 49,415,000}}$$

$$= 0.97$$

$r = 0.97$  (high positive correlation)

A high correlation above  $\pm 0.9$  only shows a strong association between the two variables. It may be an indicator that there is a causal relationship: a change in one variable causes change in the other.

(21) McDermott plc is a manufacturer of beds. It uses a system of standard absorption costing and variances to monitor performance of managers and departments. A standard cost card for one of its models, the Dreamer, is given below.

	£ per unit	£ per unit
Selling price		250.00
Direct material: Wood: 12m @ £1.50 per m	18.00	
Fabric: 5m <sup>2</sup> @ £2.00 per m <sup>2</sup>	12.00	



Direct labour: 4 hours @ £6.00 per hour	24.00	
Variable overhead: 4 hours @ £15.00	60.00	
Fixed overhead: 4 hours @ £10.00	<u>40.00</u>	
		<u>154.00</u>
<b>Profit</b>		<b><u>96.00</u></b>

Budgeted production and sales are 1,000 Dreamers per month.

Actual results for the manufacture and sale of Dreamers for the most recent month are as follows:

Sales:	1,200 units @ £240 each
Production:	1,500 units
Wood	16,000m @ £1.40 per m
Fabric	7,800m <sup>2</sup> @ £2.10 per m <sup>2</sup>
Direct labour:	5,000 hours @ £7.00 per hour
Variable overhead:	5,000 hours @ £15.10 per hour
Fixed overhead:	£54,600.

There was no opening stock.

- Calculate the total variances for direct material and direct labour
- Provide an appropriate breakdown of the total variance for direct labour calculated in (a) above.

**Answer**

a) i) Total direct material variance = MPV+MUV  
= £820 (Favorable) + £5,400 (Favorable)

**Total material variance = £6,220 (Favorable)**

a) ii) Total direct labour variance = LRV+LEV  
5,000 (unfavorable) + 6,000 (favorable)

**Total direct labour variance= £1,000 (Favorable)**

- b)i)**
- MPV = AQ(AP-SP)
  - MUV = SP (AQ-SQ)

1. MPV (Wood) = 16,000m(1.4-1.5) = £1,600 (Favorable)  
MPV (Fabric) = 7,800m<sup>2</sup>(2.10-2) = £780 (Unfavorable)

**Total Material Price Variance = £1,600(Favorable) + £780 (unfavorable)  
= £ 820 (Favorable)**

2.  $MUV(\text{Wood}) = \pounds 1.5[16,000 - (1500 \times 12)] = \pounds 3,000$  (Favorable)

$MUV(\text{Fabric}) = 2[7,800 - (1500 \times 6)] = \pounds 2,400$  (Favorable)

**Total Material Usage Variance =  $\pounds 5,400$  (Favorable)**

b)ii) 1.  $LRV = (AR - SR)AH$

2.  $LEV = (SH - AH)SR$

$LRV = (7 - 6)5,000 = \pounds 5,000$  (Unfavorable)

$LEV = [(1,500 \times 4) - 5,000]6 = \pounds 6,000$  (Favorable)

(22) A factory consists of two production cost centers (G and H) and two service cost centers (J and K). The total overheads allocated and apportioned to each centre are as follows:

G	H	J	K
Shs.40,000	Shs.50,000	Shs.30,000	Shs.18,000

The work done by the service cost centers can be represented as follows:

	G	H	J	K
Percentage of service cost centre J to	30%	70%	-	-
Percentage of service cost centre K to	50%	40%	10%	-

The company apportions service cost centre costs to production cost centers using algebraic.

What are the total overheads for production cost centre H after the reapportionment of all service cost centre costs?

**Answer:**

The method that fully recognizes any work done by one service cost centre for another is **Reciprocal Method or Algebraic method (simultaneous equations)**.

Let Sa represent the total costs of service dept J

Let Sb represent the total costs of service dept K

$$Sa = 30,000 + 0.1Sb \text{ -----(i)}$$

$$Sb = 18,000 \text{ -----(ii)}$$

Substituting Equation (ii) into Equation (i) and solving, we get

$$Sa = 30,000 + 0.1(18,000)$$

$$Sa = 31,800$$

DEPARTMENTS	J	K	G	H	TOTAL
Costs before allocation	30,000	18,000	40,000	50,000	
Allocate costs J(G;H)	(31,800)	-	9,540	22,260	
Allocate costs K(G;H;J)	1,800	(18,000)	9,000	7,200	
<b>TOTAL</b>	-	-	<b>58,540</b>	<b>79,460</b>	<b>138,000</b>

The total overheads for production cost centre **H** after the reapportionment of all service cost centre costs is **Shs 79,460**

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