CERTIFIED PUBLIC ACCOUNTANT

FOUNDATION LEVEL 2 EXAMINATIONS

F2.1 MANAGEMENT ACCOUNTING

DATE: WEDNESDAY, 30 MARCH 2022

MODEL ANSWERS AND MARKING GUIDE

QUESTION ONE

Marking guide

a) Relationship between management accounting and financial accounting	**Marks**
They are all channels of accounting information	2
Both provide information for management decisions	2
Both are the application of accounting techniques	2
Common source of information for financial accounts and management accounts	2
Both forms belong to general accounting information system	2
Economic events are treated under both systems of accounts	2
The system of accounts summarizes accounting information for reporting purpose	2
Both determines and measures costs	2
The same accounting principles and concepts are applied	2
Any Valid Point	2
Maximum	**10**
b) Calculate cost per unit of each product using ABC Method	
Step 1: calculation of Cost per driver (1Mark per each cost driver)	4
Step 2: Allocation of Overheads for each product (0.3333 Marks per each cost drive per each product)	4
Step 3: Determination of overhead per unit of for each product	0.5
Step 4: Determination the material cost per unit for each product	0.5
Step 5: Determination the labour cost per unit of for each product	0.5
cost per unit	0.5
Maximum	**10**
Total	**20**

Detailed answer

(a) Relationship between Management Accounting and Financial Accounting is explained as below:

- Cost accounting is part of management accounting which establishes budgets, standard costs and actual costs, process, product costs and analysis of variances, profitability, or the social use of funds and they all continue processing their last information through financial accounting
- Management accounting is the application of accounting techniques and financial management to provide information that help management in the formulation of policies and strategies, planning and controlling the activities, decision making and optimization of use of resources. Management information provides a common source from which is drawn information for financial accounts and management accounts.

- The data used to prepare financial accounts and management accounts are the same
- Both forms of accounting are important for operating a business. It is essential to execute them during the early stages of setting up a business and use them alongside each other while making decisions that affect the business.
- Both forms belong to general accounting information system, which finally end with the same results to form bases of economic decisions
- Economic events are treated under both systems of accounts regarding the same business organizations.
- The system of accounts is summarizing the accounting information for the preparation of financial statements.
- Both determines and measures costs for different accounting periods and even for different departments and sections.
- The same accounting principles and concepts are applied in both system of accounts for the purpose of cost accumulation and cost allocation.

(b) Calculate cost per unit of each product using ABC Method

Step 1: calculation of Cost per unit					
	FRW	**cost drivers**		**FRW**	**Cost per**
Machine set up costs	531,000	76	No of productions runs	6,986.84	Machine set up
Machine running costs	1,328,000	1,500.000	Machine hours	0.89	Machine run
Procurement costs	960,000	188	No of purchase orders	5,106.38	Purchase order
Delivery costs	1,086,400	218	No of deliveries	4,983.49	Delivery
Total	**3,905,400**				

Step 2: Allocation of Overheads for each product				
	U	V	W	Total
Machine set up costs	251,526.32	167,684.21	111,789.47	531,000
Machine running costs	265,600.00	424,960.00	637,440.00	1,328,000
Procurement costs	245,106.38	285,957.45	428,936.17	960,000
Delivery costs	478,414.68	299,009.17	308,976.15	1,086,400
Total	**1,240,647**	1,177,611	1,487,142	**3,905,400**
Step 3: Determination of overhead per unit of for each product				
	U	V	W	

Total overheads	1,240,647	1,177,611	1,487,142
Quantity	300,000	240,000	360,000
Overhead per unit	4.14	4.91	4.13
Step 4: Determination the material cost per unit of for each product			
	U	V	W
Material usage per unit	20	30	40
Price of kg of raw material	240	240	240
Material cost per unit	**4,800**	**7,200**	**9,600**
Step 5: Determination the labour cost per unit of for each product			
	U	V	W
Labour hours per unit	2	3	4
Labour cost per hour	2800	2800	2800
Labour cost per unit	**5,600**	**8,400**	**11,200**
Total cost per unit (sum of step 3,4 and 5)			
	10,404.30	**15,604.98**	**20,803.94**

QUESTION TWO

Marking guide	**Marks**
a)	
Step 1: calculation of overhead absorption rate OAR for each cost center	3
Step 2: Determination of material cost	1
Step 3: Determination of labour cost	4
Step 4: Computation of production overheads	3
Step 5: production overheads	1
Step 6: Computation of non- production overheads	3
Step 7: Analysis of Job number 900	2
Proper presentation of job analysis	1
Maximum	**18**
b) Appropriate advice to management	**2**
Total	**20**

Detailed answer

(a) OAR=Budgeted Overheads/Basis of production overhead absorption

Cost centre	Budgeted production O/H FRW	Basis of production overhead absorption		OAR
Processing	80,000	40,000	machine hours	2.00
Assembling	152,000	42,760	machine hours	3.55
Finishing	90,000	50,800	labour hours	1.77

Step 2: Determination of material cost for job number 900

	FRW
Direct material requisitioned	240,000
Direct material returned to stores	(8,000)
Cost material used	**232,000**

Step 3: Determination of labour cost

Cost center	Used hours	cost per hour (FRW)	Total
Processing	5	4,800	24,000
Assembling	4	7,000	28,000
Finishing	2	6,000	12,000
Total			**64,000**

Step 4: Computation of production overheads

Cost centre	OAR	Recorded machine hours	Total
Processing	2	2000	4000
Assembling	3.55	3000	10,066
Total			**14,066**

Step 5: Total overheads

	Cost (FRW)
Material cost	232,000
Labour cost	64,000
Production overheads	14,066
Total	**310,066**

Step 6: Computation of non- production overheads

Basis of overheads		Calculation of O/H		Overhead
Administrative and general O/H	5%	of production cost	310,066	15503.3
Selling and distribution O/H	10%	of labour cost	64,000	6,400
Total				**21,903.3**

Step 7: Analysis of JOB NUMBER 900

Particulars	Amount (FRW)
Selling price	600,000
Production costs	-297,466
Gross profit	**302,534**
Other non-production overheads	-21,273
Net profit	**281,260**

(b) Management is advised to continue with JOB NUMBER 900 since it is profitable

QUESTION THREE

Marking guide	**Mark(s)**
a)	
Setting agreed targets	2
Identification of problems	2
Identification of scope for Improvement	2
Improved co-ordination	2
Control	2
Maximum	**10**
b)	
Complete introduction summarizing ZBB	2
Decision Packages	2
Ranking and Evaluation	2
Need for Educated Managers	2
Implications and Value of ZBB and comparing with traditional budgeting	2
Maximum	**10**
Total	**20**

Detailed Answer

(a) The role of budgeting for company's operations

Setting agreed targets

Budgets establish targets for each aspect of a company's operations. These targets are set in conjunction with each manager. In this way managers are committed to achieving their budgets. This commitment also acts as a motivator.

Identification of problems

Budgets systematically e*amine all aspects of the business and identify factors that may prevent a company achieving its objectives. Problems are identified well in advance, which in turn allows a company to take the necessary corrective action to alleviate the difficulty. For e*ample, a budget may indicate that the company will run short of cash during the winter period because of the seasonal nature of the service being provided. By anticipating this position, the company should be able to take corrective action or arrange additional financing.

Identification of scope for Improvement

Budgets will identify all those areas that can be improved, thereby increasing efficiency and profitability. Positive plans for improving efficiency can be formulated and built into the agreed budget. In this way a company can ensure that its plans for improvement are implemented.

Improved Co-ordination

All managers will be given an outline of the company's objectives for the following year. Each manager will then be asked to formulate their own plans so as to ensure that the company's overall objectives are achieved. All the managers' plans will be combined and evaluated so that a total budget for the company can be prepared. During this process the company will ensure that each individual plan fits in with the company's overall objectives.

Control

It is essential for a company to achieve, if not exceed, its budget. Achievement of budget will be aided using a budgetary control system which constantly monitors actual performance against the budget.

All variances will be monitored, and positive action taken in order to correct those areas of the business that are failing to perform.

Raising Finance

Any provider of finance will want to satisfy itself that the company is being managed correctly and that a loan will be repaid, and interest commitments honoured. The fact that a company has established a system of budgetary control will help to demonstrate that it is being managed correctly. The budget will also show that the company is able to meet all its commitments.

(b) How the system works

Where ZBB differs from the traditional approach is that managers must scrutinise very carefully from scratch their future requirements. In other words, in principle it ignores all previous expenditure and performance associated with the company's activities and looks afresh at these activities with a view to possible **cost reduction**, **elimination** of an activity, **new ways** of achieving objectives, or **redistribution** of resources.

A company operating ZBB demands full co-operation and participation from its managers in producing their respective assessments of requirements. They are made fully responsible for their decisions. The process requires each manager to **justify his total budget** (and, subsequently, justify the use of resources).

(a) Decision Packages

The system requires a manager to prepare decision packages for all activities (e.g., projects, job functions) within his responsibility, and these packages must clearly lay out the minimum level of performance essential, and any additional costs and additional benefits linked with these costs. Decision packages must be produced where it is considered that there may be alternative approaches (buy-in or sub-contract, for e*ample) and finally an indication (cost effect) of **not continuing** with any activity. Decision packages represent units of intended activity.

Examples of activities within the management accountant's responsibility could be material control unit; payroll purchase ledger; sales ledger; data processing unit. The manager of each of these areas would be required to produce decision packages on the basis just outlined.

(b) Ranking and Evaluation

Having produced batches of decision packages, the manager would then rank them in order of importance, after carrying out a **cost/benefit analysis** for each package. All packages would then be forwarded to top management, who would compare and evaluate the relative organizational needs, and fund accordingly - taking due note of high and low priority packages. Their considerations would e*tend to those decision packages which might cover redundant or duplicated activities.

(c) Need for Educated Managers

In using ZBB there is a strong inference that managers are well informed in the area of information collecting and evaluation. They must, further, be trained in cost/benefit analysis, to rank the decision packages. This is a potential weakness - not in the system of ZBB itself, but in the means of producing it.

Implications and Value of ZBB

ZBB, in principle, starts from scratch but, in practice, it would start from a **minimum cost level** for each activity, and build up decision packages by changing the inputs. This contrasts with traditional budgeting which assumes all activities are **necessary and continuing** - there is very little 'weeding out'.

Managers are made aware of the **corporate effect** of their departments' operations. ZBB allows questions to be asked **before** committing funds, and not afterwards, as in traditional budgeting. **Inefficient, redundant,** or **obsolete operations** are identified before the budget is finalised. Greater **managerial detail** is available to the top management. Low and middle managers are made fully aware of the **smallest details** of the many activities for which they are responsible. Managerial education must be at a very high level, with its attendant **high training cost**.

(d) Comparison with traditional budgeting

Whereas traditional budgeting paints with a very broad brush, assuming that all activities will continue during the budget year, ZBB paints with a thin brush, providing very fine economic detail (and, thus, fine control of individual activities and operations within the organisation). Because the funding of activities is considered in detail by means of decision packages, company resources are carefully directed and monitored.

QUESTION FOUR

Marking guide	**Mark(s)**
(a)	
i.	
Break-even point in sales	2
Break-even point in volume	2
ii.Number of units that must be sold to earn a profit of FRW 1,800,000	2
Maximum	**6**
iii.	
Complete data set	2
Well drawn break-even chart with all information	3
Indication of profit, loss, and break-even areas	3
Maximum	**8**
(b)	
i. EOQ	2
ii.Number of orders	2
iii.Number of times to place an order in year	2
Maximum	**6**
Total	**20**

Detailed Answer

(a)

i.

Break-even point in sales

Break-even point in sales =	Fi*ed costs / C / s ratio

$$\frac{1,440,000}{[(480-(240+60)]/480}$$

$$\frac{1,440,000}{0.375}$$

=3,840,000

Break-even point in volume

Breakeven point in volume (Quantity)=Fi*ed costs/ Contribution per unit

$$\frac{1,440,000}{480-(240+60)}$$

$$\frac{1,440,000}{180}$$

=8,000 units

ii. Number of units that must be sold to earn a profit of FRW 1,800,000

Formula=	Fixed costs+Desired profit / Contribution per unit
Where	

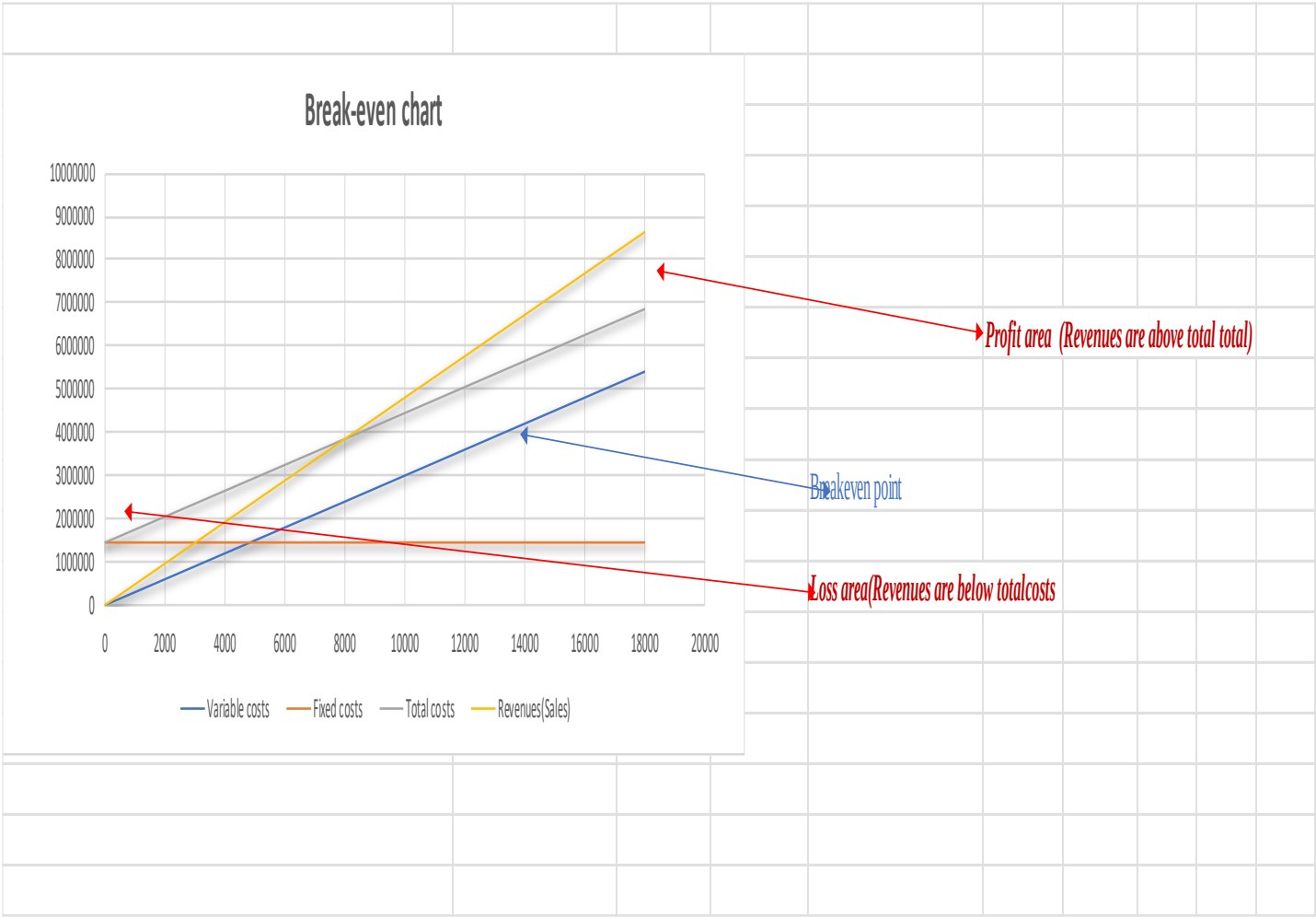
Contribution per unit=Selling price per unit -manufacturing variable cost per unit

=480-240=240

$$\frac{1,440,000+1,800,000}{180}$$

=18,000Units

Data set for the break-even chart				
Units	**Variable costs**	**Fi*ed costs**	**Total costs**	**Revenues (Sales)**
0	0	1,440,000	1,440,000	0
8,000	2,400,000	1,440,000	3,840,000	3,840,000
18,000	5,400,000	1,440,000	6,840,000	8,640,000



(b)

i.EOQ

EOQ

$$EOQ = \frac{\sqrt{2CoD}}{Ch}$$

Where
Co is cost of ordering
D= Annual demand
Ch= Cost of holding

$$EOQ = \frac{\sqrt{2x180x96{,}000}}{15\%x8000}$$

$$EOQ = \frac{\sqrt{345{,}600{,}000}}{1200}$$

EOQ=	**170units**

ii. Number of orders in year

Formula=	**D** **EOQ**
	96,000 170
No of orders=	**565 orders approximately**

iii. Frequency of placing an order

Formula=	360 Number of orders in year
=360/565	**0.6times approximately**

QUESTION FIVE

Marking guide	**Mark(s)**
(a) Well e*planation with use of meaningful key words	**4**
(b) types of standard costing and system	
Ideal Standard Costs	2
Attainable Standards	2
Basic Standard Costs	2
Current Standard Costs	2
Maximum	**8**
(c) Calculation variances	
Material cost variance	2
Material price variance	2
Material usage variance	2
Maximum	**6**
d)The causes of variances	**2**
Total	**20**

Detailed Answer

(a) The nature of operations where use of standard costing is most appropriate

Standard costing is applied most successfully to **continuous or repetitive operations**, where large volumes of a standard product are produced. The application of standard costing principles to job costing systems is more difficult, as products will vary - each one may be unique. As the products themselves are not standardized, the emphasis will be on the machines and operations concerned. Standard feeds and speeds for machines may be developed, as well as output for handwork operations. These standards will then be applied to the specifications for individual products.

(b) Description types of standard costing and system

Ideal standard costs

These are based on ideal conditions - i.e., 100% efficiency is expected from workers, machinery, and management: it is only in an automatic and very efficiently run factory that ideal standard costs are likely to be achieved.

Attainable standards

These are based on **attainable** conditions, and they are more realistic than ideal standard costs. Provided that all the factors of production are made as efficient as possible **before** the standards are set, the standard costs are likely to be of great practical value. They represent, to workers and management, realistic figures, capable of achievement. The variances really do mean increased or reduced efficiency.

Basic standard costs

These are a special type of standard cost. The idea is to select a 'base year', and then set the standards (ideal or attainable **at that time**). The standard costs then remain in force for a number of years without being revised.
Their main advantage is that **trends in costs** over a number of years can be seen quite easily. Another advantage is that the **actual value** of stocks is known - and so there is no problem of converting standard costs to actual costs for use in final accounts. This assumes, of course, that it is desirable to use the actual cost of the stocks. There is a tendency to advocate the use of the standard costs for stock valuation and, if this view is taken, there is no disadvantage in using ordinary standard costs. The chief weakness of basic standards is that they do not allow the **efficiency achieved to be measured**.

Current standard costs

These are standard costs which represent **current conditions** - i.e., they are kept up to date.
Ideal standards and attainable standards are current standard costs, which are changed when conditions change (normally once a year.

(c) Calculation variances

AP= FRW2500 **SP**=FRW 2000	**AQ**=5,250 kg **SQ:**1500*4.5=6,750 kg

Required	Formula	Calculation with answer FRW
Material price variance	(AQ AP)- (AQ SP) =(AP -SP) AQ	=(2500-2000)*5,250 =13,125,000-10,500,000= 2,625,000 A
Material usage variance	(AQ SP) -(SQ SP) =(AQ- SQ) SP	=(6,750-5,250)*2000 =13,500,000-10,500,000 =3,000,000A
Material cost variance	(SQ SP) -(AQ AP)	=(6,750*2000)-5,250*2500 =13,500,000-13,125,000 =375,000F

(d) The causes of variances

- Less quantity of materials was used comparing to standard quantity leading to favorable variance
- Low standard price was set and result into adverse variance
- Low standard material price and cause adverse variance

QUESTION SIX

Marking guide	**Marks**
a) Ethical standards and resolutions	
Competence	2
Confidentiality	2
Integrity	2
Credibility	2
Resolution of ethical conflict	2
Maximum	**10**

(b) The high-low method

i) Average variable cost	2
ii) The fi*ed components of service costs	4
iii) The variable components of service costs	2

iv) High -Low Method and Regression Analysis	2
Maximum	**10**
Total	**20**

Detailed answer

(a) Ethical responsibilities of management accountants

Management accountants have an obligation to the organisations they serve, their profession, the public, and themselves to maintain the highest standards of ethics.

Management accountants should behave ethically. They have an obligation to follow the highest standards of ethical responsibility and maintain good professional image. The Institute of Management Accountants (IMA) has developed four standards of ethical conduct for management accountants and financial managers. These standards have since then been revered as the central code for accounting professionals.

1. Competence

Maintain an appropriate level of professional competence by on-going development of their knowledge and skills.
Perform their professional duties in accordance with relevant laws, regulations, and technical standards. Prepare complete and clear reports and recommendations after appropriate analyses of relevant and reliable information.

2. Confidentiality

Refrain from disclosing confidential information acquired in the course of their work except when authorized, unless legally obligated to do so.

Inform subordinates as appropriate regarding the confidentiality of information acquired in the course of their work and monito- their activities to assure the maintenance of that confidentiality. Refrain from using or appearing to use confidential information acquired in the course of their work for unethical or illegal advantage either personally or through third parties.

3. Integrity

Avoid actual or apparent conflicts of interest and advise all appropriate parties of any potential conflict. Refrain from engaging in any activity that would prejudice their ability to carry out their duties ethically. Refuse any gift, favour, or hospitality that would influence or would appear to influence their actions. Refrain from either actively or passively subverting the attainment of the organisation's legitimate and ethical objectives.
Recognise and communicate professional limitations or other constraints that would preclude responsible judgment or successful performance of an activity Communicate unfavourable as well as favourable information and professional judgments or opinions. Refrain from engaging in or supporting any activity that would discredit the profession

4. Credibility
Communicate information fairly and objectively. Disclose fully all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, comments, and recommendations presented.

Resolution of ethical conflict
In applying the standards of ethical conduct, practitioners of management accounting and financial management may encounter problems in identifying unethical behaviour or in resolving an ethical conflict. When faced with significant ethical issues, practitioners of management accounting and financial management should follow the established policies of the organisation bearing on the resolution of such conflict. If these policies do not resolve the ethical conflict, such practitioners should consider the following courses of action:

Discuss such problems with the immediate superior except when it appears that the superior is involved, in which case the problem should be presented initially to the ne*t higher managerial level.
If a satisfactory resolution cannot be achieved when the problem is initially presented, submit the issues to the ne*t higher managerial level. If the immediate superior is the chief executive officer, or equivalent, the acceptable reviewing authority may be a group such as the audit committee, executive committee, board of directors, board of trustees, or owners. Contact with levels above the immediate superior should be initiated only with the superior's knowledge, assuming the superior is not involved. Except where legally prescribed, communication of such problems to authorities or individuals not employed or engaged by the organisation is not considered appropriate.

Clarify relevant ethical issues by confidential discussion with an objective advisor to obtain a better understanding of possible courses of action. Consult your own attorney as to legal obligations and rights concerning the ethical conflict.
If the ethical conflict still exits after exhausting all levels of internal review, there may be no other recourse on significant matters than to resign from the organisation and to submit an informative memorandum to an appropriate representative of the organization.

(b) The high-low method

(i)

$$\text{Average variable cost} = \frac{\text{High service costs-Low service costs}}{\text{High service direct labour hours-Low service labour hours}}$$

$$\text{Average variable cost} = \frac{22{,}800-15{,}000}{2{,}850-1{,}550}$$

$$\text{Average variable cost} = 7{,}800/1300=6$$

Average variable cost= FRW 6 per direct labour hour

(ii)
Fixed cost= Total cost-(average variable cost * Average variable cost)

Fixed cost=25,050-(6*2,850)
Fixed cost=5,700

(iii) **Variable costs=FRW 22,800-5,700=17,100**

(iv) High -Low Method and Regression Analysis

High-low Method is technique for determining the fixed and variable components of a total cost that uses actual observations of total cost at the highest and lowest levels of activity and calculates the change in both activity and cost**.**

Regression analysis involves estimating the cost function using past data or the dependent and the independent variables. The cost function is based on the regression of the relevant variables.

The cost function will depend on the relationship between the dependent variable and the independent variable.

QUESTION SEVEN

Marking guide

a) Types of Service Costing Each well explained answer is awarded 2 Marks	**Marks**
Transport Costing	2
Staff Canteen Costing	2
Hotel Costing	2
Boiler House Costing	2
Powerhouse Costing	2
Hospital Costing	2
Single or Output Costing	2
Maximum	**10**
b) Calculation for components regarding hotel's service	
Room occupancy	2
Average guest rate	2
Revenue utilisation	2
Cleaning cost per day	2
Average cost per occupied bed per day	2
Maximum	**10**
Total	**20**

Model answers

(a) Type 1. Transport service Costing

This type is put in place by management with the following objectives:

- To analyse operating costs such a nh67js cost of petrol, repair expenses, wages, etc.,
- To facilitate control of standing charges and running costs of the vehicles,
- To assign costs to services rendered by each vehicle or group of vehicles,
- To compare the cost of using alternative models of transport with the cost of existing one,
- To fix the charges for using the service of internal transport or the charges for hiring out the vehicles,
- To compare the cost of running and maintenance of different vehicles.

Collection of Cost Data:

A logbook is maintained, or daily log sheets are prepared for each vehicle. Logbook or log sheet provides all the details required for controlling the vehicles. It indicates the kilometre run, load or passengers carried, hours used, and delays and the reasons for delays. It also gives details of supplies made to the vehicle (e.g., petrol, oil, grease).

Repair costs, when the vehicle is away from the garage, are recorded in the logbook. Costs on repair by the company's own staff are usually collected against each vehicle or for a group of similar vehicles. It is a good practice to maintain a repair ticket for each vehicle. A repair ticket shows the history of repairs.

The Cost Unit:

For internal use, transport costs are recovered using rate per hour or a rate per kilometre, determined based on the cost summary figures. Transport organizations fix rates for charging from their clients' rate per ton-km or rate per passenger-km.

Ton-km and passenger-km are composite cost units and represent 1 km movement with 1 ton load or with one passenger.

Cost Summary and Performance Report:

A meaningful analysis of service cost requires classification of expenses under the following three headings:

(a) Fixed costs or standing charges,

(b) Operating and running costs, and

(c) Maintenance costs.

(a) Fixed Costs or Standing Charges:

Standing charges are fixed costs that do not vary with the distance travelled by the vehicle or group of vehicles. Examples are insurance premium, tax, depreciation, part of driver's wags, and interest on capital. It is inappropriate to apportion such charges to specific journeys.

(b) Operating and Running Costs:

Operating and running costs are incurred only when a vehicle is operated. Examples are cost of petrol, grease, and variable portion of driver wages. Those expenses vary, more or less, in direct proportion to the distance travelled by the vehicle or a group of vehicles.

(c) Maintenance Costs:

Maintenance costs are semi-variable in nature and include costs of wear and tear. Examples are costs of repairs, costs of servicing, overheads, and costs of painting of the vehicles. The cost of hiring vehicles when companies own vehicles are under repair should also be included in the maintenance cost.

The cost of service by each vehicle or group of vehicles is compiled periodically in a cost summary and a performance report is presented before the management.

Type 2. Staff Canteen Costing:

Most factory/office canteens are either fully or partly subsidized. Usually, the supervisor who is accountable to the personnel manager or to the works manager runs the canteen. The canteen normally provides main meals, snacks, and tea. The canteen supervisor is responsible for controlling costs and therefore collects costs in a manner that facilitates cost control.

Collection of Cost Data:

Costs are collected periodically under the following main account headings:

i. Provision – Meat, eggs, fish, vegetables, fruits, flour, rice, milk, vegetable oil, tea, coffee, sugar, soft drinks, etc.

ii. Labour – Supervisor, cooks, waiters, kitchen assistants, porters, etc.

iii.Services – Gas, power, electricity, steam, water, etc.

iv. Consumable stores – Table linen, cutlery, glass ware, crockery, cleaning materials, brushes, dustbins, etc.

v. Miscellaneous overheads – Rent and rates, depreciation, insurance premium, etc.

Revenue for the canteen comes from the sale of meals and subsidy. Usually, coupons of different colours are issued to workers, according to the type of meal (e.g. main meal, snacks, tea, etc.) provided.

Cost Unit:

Accumulation of cost with the objective of fixing prices for main meals, snacks, tea, etc. is difficult because it requires equating one type of food with another so that a common denominator can be obtained to determine the average cost per meal. However, if such a common denominator cannot be ascertained, cost per employee may be determined to facilitate control.

Although it is difficult to determine the cost per meal, the canteen supervisor with his experience estimates the cost involved for each type of meal provided. The canteen supervisor should have the knowledge of the number of meals that can be served with various combinations of meat, fish and vegetables, and how many cups of tea can be provided with one kilogram of tea or five litres of milk.

Type 3. Hotel Costing:

The hotel operation can be divided into various cost centres such as:

(a) Laundry

(b) Housekeeping

(c) Restaurant

The cost of each cost centre is collected separately and cost per unit of output is determined for each cost centre. Cost unit for measurement of output might be different for each cost centre.

E.g., the 'number of clothes washed' is the most appropriate cost unit for a laundry, while for a restaurant, the number of meals provided is the most appropriate cost unit. The aim is to satisfy the information needs of the managers who are responsible for cost management in their respective areas.

Collection of Cost Data:

Costs are collected under various 'account heading'. Costs, which are incurred for specific cost centres, are assigned directly to those cost centres. Common costs are apportioned to various cost centres on some equitable basis.

In the hotel industry most costs are fixed, some of which cannot be influenced by the individual managers. Therefore, periodical cost reports should indicate 'controllable costs' and 'uncontrollable costs' separately. These reports compare actual costs and the budget with previous period's costs.

Examples of account heading are rent, rates and taxes, depreciation, power for boiler, electricity, repairs and maintenance, and salaries and wages.

Cost Unit:

'Bed-nights available' and 'bed-nights occupied' are the possible cost units. Selection of the cost unit requires a careful consideration of cost-output relationships.

To fix tariff for accommodation or to fix a comprehensive tariff, costs are expressed as cost per 'bed-night occupied'.

Type 4. Boiler House Costing:

Costs to produce and use steam as shown in boiler house cost sheet are collected regularly by the cost office. The engineering department provides other statistical information (e.g., steam pressures, evaporation, metre readings, factory heating).

Costs may be grouped under the following headings:

i. Supervision – Salary of supervisors/engineers who are directly responsible to supervise boiler house operation and a proportion of the works manager's salary.
ii. Labour – Coal handlers, stokers and ask removers.
iii. Maintenance – Repair and maintenance of plant and equipment including renewal of fire bars, replacement of fire irons, etc.
iv. Fuel – Coal, fuel oil, etc.
v. Water – The cost of purification and softening should be included.
vi. Fixed overhead – This includes rent, rates and taxes, depreciation, insurance, and possibly interest on the capital.

Type 5. Powerhouse Costing:

Electricity can be generated using either steam or fuel oil. If steam is used to generate electricity, the cost of electricity generated can be obtained from the steam production costs as well as other costs related to electricity generation.
The 'Board of Trade Units' is used as a cost unit for electricity generation.

Type 6. Hospital Costing:

For costing purpose hospital services are divided into the following cost centres:

(a) Outpatients' department
(b) Wards
(c) Pathology centre
(d) Operation theatre
(e) Kitchen
(f) Laundry
(g) Cleaning

Costs are collected under natural account headings. Costs that can be identified with specific cost centres are assigned to them directly. Common costs are apportioned to various cost centres on some equitable basis. Fixed costs and variable costs are shown separately in the cost sheet.
Services are measured in terms of 'bed-days available' or 'bed-days occupied'. However, as the service provided to patients vary a great deal, depending upon the illness, a single cost unit might not be appropriate to measure cost effectiveness at various cost centres. Therefore, it is preferable to use different cost units for different cost centres. E.g., for the operation theatre, cost can be expressed in terms of 'each operation'.
Similarly, 'inpatient day' might be used as a cost unit for kitchen and laundry; 'outpatient visit' might be used as a cost unit for outpatient departments. Selection of the cost unit requires a careful consideration of all cost drivers.

E.g., to have better control, cost of operation theatre should be expressed in terms of ‘cost per standard operation’ and each operation, minor or major, should be converted into the number of standard operations. It is difficult to prescribe an appropriate cost unit for hospital services.

Type 7. Single or Output Costing:

Unit Costing Principle:

Unit costing is used when products are similar.

It is logical to assume that similar cost units should have similar costs and thus, cost per unit can be calculated as:

Unit cost = Total cost/Number of units

Single or Output Costing:

Single or output costing method is used when the firm produces only one product or two or more grades of the same product.

When only one product is produced, ascertainment of cost per unit involves the collection and analyses of all costs incurred and then division of the total costs by the total production. Costs are collected element-wise, and cost of each element is divided by the total production to determine the average cost per unit of each element. In this method work-in- progress is rarely considered because work-in-progress tends to remain constant.

Cost sheet prepared under this method shows the total cost and cost per unit. Figures for the previous period are shown for comparison and control.

Where several grades of products are produced, costs are apportioned to various grades on some equitable basis (e.g., market value of each grade).

Sometime, cost sheets are extended to show cost, income, and profit. The extended cost sheet is known as production account.

The fundamental difference between process costing method and output costing method is that the former is suitable for industries where the manufacturing process is continuous while the latter is used in industries where the manufacturing process is not continuous.

Output costing is suitable for assembly type production (e.g., automobile, wireless receiver, computer) and for industries, which produce homogeneous products (e.g., bricks, pencil, coal, sugar).

(b)Calculation for components regarding hotel's service

Room occupancy	Total number of rooms occupied Rooms available to let 400+60 *100 480+80 **=82.14%**
Average guest rate	Total revenue Number of guests 1,548,000 12,900 =**FRW 120**
Revenue utilisation	Actual revenue Maximum from available rooms 1,548,000 *100 (400*250+60*150)*30 days 1,548,000 *100 (100,000+9,000)*30 days 1,548,000 *100 3,270,000 =**47.33%**
Cleaning cost per day	10,000 *100 (400+60)*30 days 10,000 *100 13,800 =**72.46%**

Average cost per occupied bed per day	Total costs Number of beds occupied 300,000+10,000+45,000 19,200*2 355,000 38,400 =**FRW 9**

END OF MARKING GUIDE AND MODEL ANSWERS