

CAT

Certified Accounting Technicians Examination

Stage: Level 2 L2.3

Subject Title: Management Accounting

Revision Guide

INSIDE COVER - BLANK

CONTENTS

Title	Page
Study Techniques	3
Examination Techniques	4
Assessment Strategy	9
Learning Resources	10
Revision Questions and Solutions	10

BLANK

STUDY TECHNIQUE

What is the best way to manage my time?

- Identify all available free time between now and the examinations.
- Prepare a revision timetable with a list of “*must do*” activities.
- Remember to take a break (approx 10 minutes) after periods of intense study.



What areas should I revise?

- Rank your competence from Low to Medium to High for each topic.
- Allocate the least amount of time to topics ranked as high.
- Allocate between 25% - 50% of time for medium competence.
- Allocate up to 50% of time for low competence.

How do I prevent myself veering off-track?

- Introduce variety to your revision schedule.
- Change from one subject to another during the course of the day.
- Stick to your revision timetable to avoid spending too much time on one topic.

Are study groups a good idea?

- Yes, great learning happens in groups.
- Organise a study group with 4 – 6 people.
- Invite classmates of different strengths so that you can learn from one another.
- Share your notes to identify any gaps.

EXAMINATION TECHNIQUES

INTRODUCTION

Solving and dealing with problems is an essential part of learning, thinking and intelligence. A career in accounting will require you to deal with many problems.

In order to prepare you for this important task, professional accounting bodies are placing greater emphasis on problem solving as part of their examination process.

In exams, some problems we face are relatively straightforward, and you will be able to deal with them directly and quickly. However, some issues are more complex and you will need to work around the problem before you can either solve it or deal with it in some other way.

The purpose of this article is to help students to deal with problems in an exam setting. To achieve this, the remaining parts of the article contain the following sections:

- Preliminary issues
- An approach to dealing with and solving problems
- Conclusion.

Preliminaries

The first problem that you must deal with is your reaction to exam questions.

When presented with an exam paper, most students will quickly read through the questions and then many will ... **PANIC!**

Assuming that you have done a reasonable amount of work beforehand, you shouldn't be overly concerned about this reaction. It is both natural and essential. It is natural to panic in stressful situations because that is how the brain is programmed.

Archaeologists have estimated that humans have inhabited earth for over 200,000 years. For most of this time, we have been hunters, gatherers and protectors.

In order to survive on this planet we had to be good at spotting unusual items, because any strange occurrence in our immediate vicinity probably meant the presence of danger. The brain's natural reaction to sensing any extraordinary item is to prepare the body for 'fight or flight'. Unfortunately, neither reaction is appropriate in an exam setting.

The good news is that if you have spotted something unusual in the exam question, you have completed the first step in dealing with the problem: its identification. Students may wish to

use various relaxation techniques in order to control the effects of the brain's extreme reaction to the unforeseen items that will occur in all examination questions.

However, you should also be reassured that once you have identified the unusual item, you can now prepare yourself for dealing with this, and other problems, contained in the exam paper.

A Suggested Approach for Solving and Dealing with Problems in Exams.

The main stages in the suggested approach are:

1. Identify the Problem
2. Define the Problem
3. Find and Implement a Solution
4. Review

1. Identify the Problem

As discussed in the previous section, there is a natural tendency to panic when faced with unusual items. We suggest the following approach for the preliminary stage of solving and dealing with problems in exams:

Scan through the exam question

You should expect to find problem areas and that your body will react to these items.

PANIC!!

Remember that this is both natural and essential.

Pause

Take deep breaths or whatever it takes to help your mind and body to calm down.

Try not to exhale too loudly – you will only distract other students!

Do something practical

Look at the question requirements.

Note the items that are essential and are worth the most marks.

Start your solution by neatly putting in the question number and labelling each part of your answer in accordance with the stated requirements.

Actively reread the question

Underline (or highlight) important items that refer to the question requirements. Tick or otherwise indicate the issues that you are familiar with. Put a circle around unusual items that will require further consideration.

2. Define the Problem

Having dealt with the preliminary issues outlined above, you have already made a good start by identifying the problem areas. Before you attempt to solve the problem, you should make sure that the problem is properly defined. This may take only a few seconds, but will be time well spent. In order to make sure that the problem is properly defined you should refer back to the question requirements. This is worth repeating: Every year, Examiner Reports note that students fail to pass exams because they do not answer the question asked. Examiners have a marking scheme and they can only award marks for solutions that deal with the issues as stipulated in the question requirements. Anything else is a waste of time. After you have re-read the question requirements ask yourself these questions in relation to the problem areas that you have identified:

Is this item essential in order to answer the question?

Remember that occasionally, examiners will put 'red herrings' (irrelevant issues) into the question in order to test your knowledge of a topic.

What's it worth?

Figure out approximately how many marks the problem item is worth. This will help you to allocate the appropriate amount of time to this issue.

Can I break it down into smaller parts?

In many cases, significant problems can be broken down into its component parts. Some parts of the problem might be easy to solve.

Can I ignore this item (at least temporarily)?

Obviously, you don't want to do this very often, but it can be a useful strategy for problems that cannot be solved immediately.

Note that if you leave something out, you should leave space in the solution to put in the answer at a later stage. There are a number of possible advantages to be gained from this approach:

- 1) It will allow you to make progress and complete other parts of the question that you are familiar with. This means that you will gain marks rather than fretting over something that your mind is not ready to deal with yet.

- 2) As you are working on the tasks that you are familiar with, your mind will relax and you may remember how to deal with the problem area.
- 3) When you complete parts of the answer, it may become apparent how to fill in the missing pieces of information. Many accounting questions are like jigsaw puzzles: when you put in some of the parts that fit together, it is easier to see where the missing pieces should go and what they look like.

3. Find and Implement a Solution

In many cases, after identifying and defining the problem, it will be easy to deal with the issue and to move on to the next part of the question. However, for complex problems that are worth significant marks, you will have to spend more time working on the issue in order to deal with the problem. When this happens, you should follow these steps:

Map out the problem

Depending on your preferred learning style, you can do this in a variety of ways including diagrams, tables, pictures, sentences, bullet points or any combination of methods. It is best to do this in a working on a separate page (not on the exam paper) because some of this work will earn marks. Neat and clearly referenced workings will illustrate to the examiner that you have a systematic approach to answering the question.

Summarise what you know about the problem

Make sure that this is brief and that it relates to the question requirements. Put this information into the working where you have mapped out the problem. Be succinct and relevant. The information can be based on data contained in the question and your own knowledge and experience. Don't spend too long at this stage, but complete your workings as neatly as possible because this will maximise the marks you will be awarded.

Consider alternative solutions

Review your workings and compare this information to the question requirements. Complete as much of the solution as you can. Make sure it is in the format as stipulated in the question requirements. Consider different ways of solving the problem and try to eliminate at least one alternative.

Implement a solution

Go with your instinct and write in your solution. Leave extra space on the page for a change of mind and/or supplementary information. Make sure the solution refers to your workings that have been numbered.

4. Review

After dealing with each problem and question, you should spend a short while reviewing your solution. The temptation is to rush onto the next question, but a few moments spent in reviewing your solution can help you to gain many marks. There are three questions to ask yourself here:

Have I met the question requirements?

Yes, we have mentioned this already. Examiner Reports over the years advise that failure to follow the instructions provided in the question requirements is a significant factor in causing students to lose marks. For instance, easy marks can be gained by putting your answer in the correct format. This could be in the form of a report or memo or whatever is asked in the question. Likewise, look carefully at the time period requested. The standard accounting period is 12 months, but occasionally examiners will specify a different accounting period.

Is my solution reasonable?

Look at the figures in your solution. How do they compare relative to the size of the figures provided in the question?

For example, if Revenue were 750,000 and your Net Profit figure was more than 1 million, then clearly this is worth checking.

If there were some extraordinary events it is possible for this to be correct, but more than likely, you have misread a figure from your calculator. Likewise, the depreciation expense should be a fraction of the value of the fixed assets.

What have I learned?

Very often in exams, different parts of the solution are interlinked. An answer from one of your workings can frequently be used in another part of the solution. The method used to figure out an answer may also be applicable to other parts of your solution.

Conclusion

In order to pass your exams you will have to solve many problems. The first problem to overcome is your reaction to unusual items. You must expect problems to arise in exams and be prepared to deal with them in a systematic manner. John Foster Dulles, a former US Secretary of State noted that: *The measure of success is not whether you have a tough problem to deal with, but whether it is the same problem you had last year.* We hope that, by applying the principles outlined in this article, you will be successful in your examinations and that you can move on to solve and deal with new problems.

ASSESSMENT STRATEGY

Examination Approach

Questions in this examination are structured to ensure that students may demonstrate their knowledge and understanding of the principles and techniques of cost and management accounting at an introductory level.

Where appropriate, students are expected to apply and integrate relevant learning from other syllabi with their learning from the Management Accounting syllabus. This is achieved through a blend of theoretical and numeric questions, often set in the context of a scenario.

Examination Format

Examination Duration: 3 Hours

The examination is unseen, closed book.

The paper has 6 questions. Questions 1 and 2 are compulsory. Students are required to answer 3 of the remaining 4 questions. Generally the examination consists of 1 essay/memorandum-type question and 5 computational-type questions. A multiple choice question may be included as one of the computational questions. Some of the computational questions may require brief commentary on salient points related to the computations carried out.

Marks Allocation

Question	Marks
1	25
2 (students have a choice part A or B)	15
Choice of 3 questions out of 4	<u>60</u> (20 marks each)
Total	100

LEARNING RESOURCES

Core Texts

Drury, C., Cost and Management Accounting – An Introduction, 7th ed. / Cengage 2011 / ISBN: 97814032138

Manuals

Institute of Certified Public Accountants of Rwanda – L2.3 Management Accounting

Supplementary Texts and Journals

Lucey, T., /Costing / 7th ed. 2009 / Thomson Learning / ISBN 13-9781844809431 / ISBN 10-1844809439.

C. Drury / Management and Cost Accounting (7th edition) Cengage 2008 / ISBN 13-9781844805662 / ISBN 10-1844805662.

Horngren, Foster & Datar/ Cost Accounting – A Managerial Emphasis/ Pearson 14th ed 2011 ISBN-10- 0132109174.

Useful Websites (as at date of publication)

www.accountingeducation.com

<http://www.icparwanda.com/services.php>

L2.3 MANAGMENT ACCOUNTING
REVISION QUESTIONS AND SOLUTIONS

PRINCIPLES OF COSTING

REVISION QUESTION

1. Answer any one of the following three questions.

- (a) Imagine that you and a friend have recently established a small business. You are the “financial brains” of the business and your friend is the “technical/production expert”.

Prepare a briefing for your friend setting out the role you will play as the management accountant in the business. Your answer should make reference to issues such as:

- The importance of financial information to a business.
- The categories of financial information (Strategic, Tactical and Operational) and the users of such information.
- The role of the management accountant in the organisation.

You may address any other issue(s) in your briefing, which you feel would be important to your friend’s understanding of your role in the business.

5 marks

- (b) “A graphical representation of cost/volume/profit [CVP] relationships has more impact than a written statement”.

Briefly outline the major assumptions of CVP analysis.

Using a fictitious example, draw two fully labelled charts, one of which should be a breakeven chart, which are commonly used in CVP analysis to represent financial information. Use graph paper to prepare the charts.

5 marks

- (c) Outline the principal differences between standard absorption costing and standard marginal costing and the arguments offered in favour of each method. Your answer should include a brief numerical example demonstrating the differences you describe.

5 marks

PRINCIPLES OF COSTING

ANSWER TO REVISION QUESTION

1. (a) The answer should address the following general issues:

- A wide range of entities may be interested in the financial activities of a business- owner/manager, investors, suppliers, customers, banks and tax authorities. In broad terms, financial information is an essential element in the process of evaluation, formulation, development and implementation of strategic plans. It is used for strategic planning purposes, for establishing selling prices, costs and for product profitability analysis. It is also used for evaluating performance of individuals and business units.
- Different information is required for different purposes. Information can be conveniently categorised under three headings. Strategic information, which is typically used by senior management is characterised as having a broad focus (particularly looking at the 'big global picture' of the external environment) with a long time frame, typically up to a decade ahead. Strategic information consists of aggregated data rather than large amounts of detail. Tactical information, which is typically used by middle management, is narrower in its focus and has a significantly shorter time frame (typically up to 1 year). It is more precise than strategic information and focuses principally on the internal workings of the organisation with some reference to the external environment. Low level employees use operational information. It is principally concerned with the efficient use of resources in order to achieve tactical plans.
- The role of the management accountant is to provide useful information to assist management in planning, controlling and making decisions. The management accountant fulfils this role in various ways. In the planning field, the management accountant is a central figure in the budgeting process. S/he will also contribute to determining product costs. The management accountant assists in the control function by monitoring outcomes of decisions or performance on an ongoing basis. A traditional example of this is the preparation of periodic variance analysis reports by means of which management can identify possible difficulties in the manufacturing process. Management accountants in many world-class

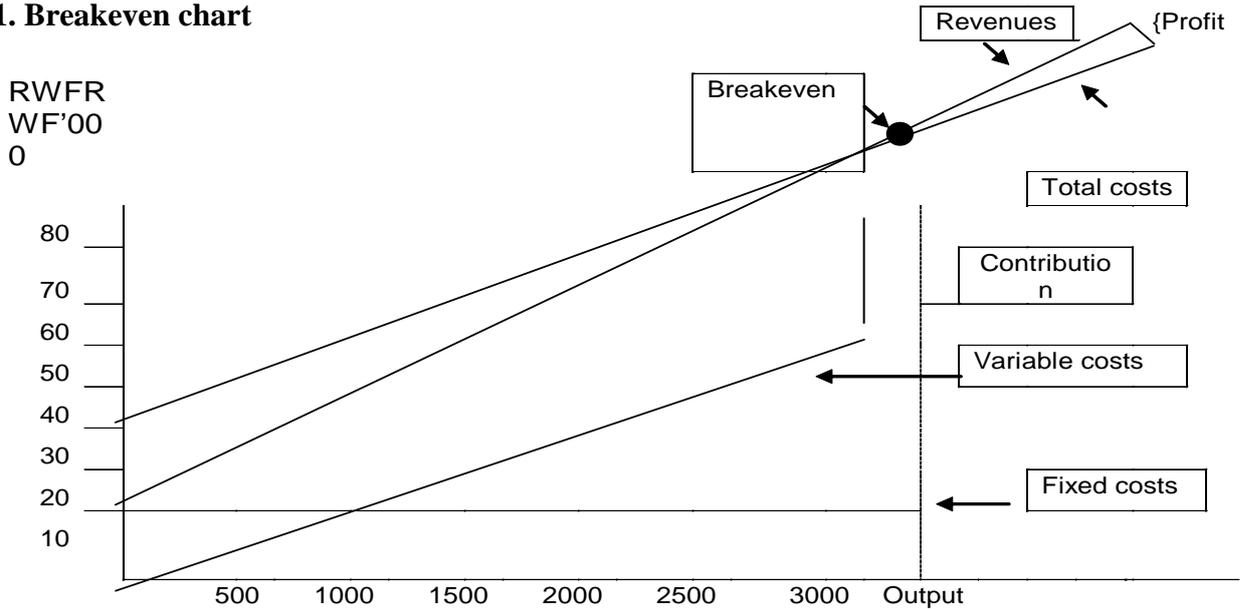
companies commonly monitor the quality of output for the purpose of control.

(b) Assumptions of CVP analysis

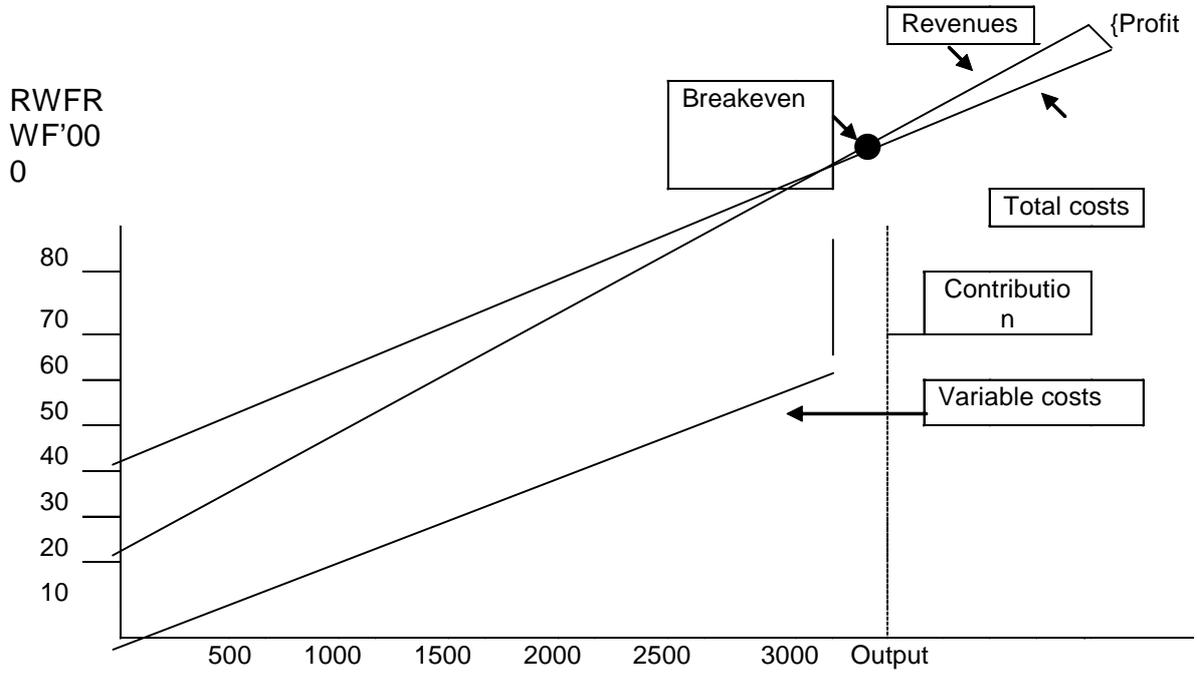
- Selling price is constant throughout the entire relevant range.
- Total costs can be separated into fixed and variable components.
- Unit revenues and costs are known with certainty. Costs are linear throughout the entire relevant range. Both variable cost per and total fixed costs do not change.
- In multi-product companies, the sales mix remains constant.
- Stock levels do not change.

Candidates should draw the following breakeven chart and one of the other charts following it:

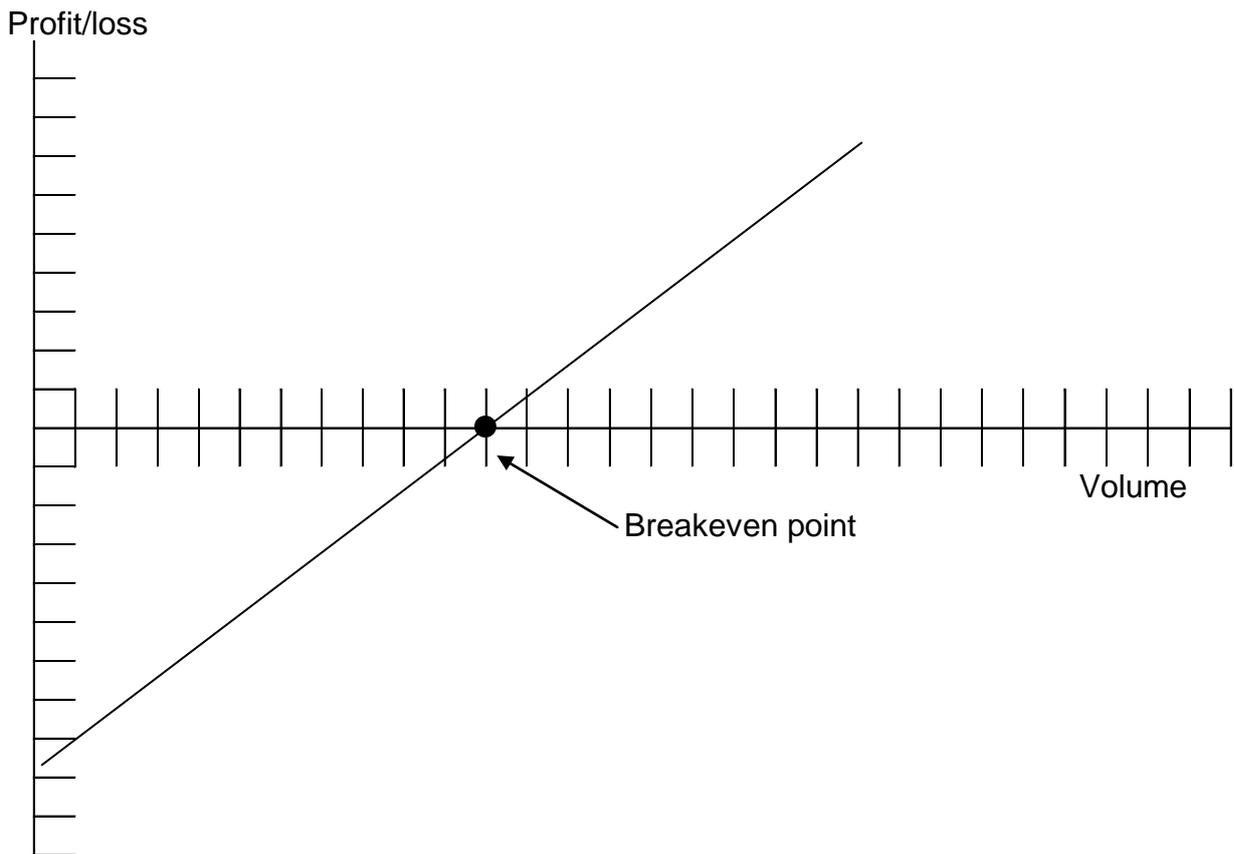
1. Breakeven chart



2. Contribution chart



3. Profit / volume chart



(c) Marginal costing and absorption costing

Candidates should identify the following points in their solutions:

- Under absorption costing, all production costs - both fixed and variable- are attributed to output. Under marginal costing, only variable production costs are attributed to production, with fixed production costs treated as a period cost rather than a product cost.
- Proponents of marginal costing argue that absorption of fixed costs is both illogical and potentially confusing. They argue that it is illogical because such costs do not accrue as production increases. Rather, they accrue as time passes. Accordingly, the costs should be treated as a period cost rather than as a product cost. Furthermore, the technique can be confusing to some members of management, as it may imply that fixed costs vary in accordance with production- the greater the level of production, the greater the level of absorbed overhead and vice-versa. Marginal costing principles are also considered to be more useful in a short-term decision making context because they highlight contribution as opposed to profit. Under absorption costing, short-term profits increase as stock levels are built up. This may tempt managers to engage in stock building, with the associated costs and risks of obsolescence and theft.
- Proponents of absorption costing argue that fixed costs are a necessary cost of production. If such costs are ignored or overlooked, a business is likely to face losses in the medium to long term. In a seasonal business, where stock building occurs during periods of low revenues, absorption costing avoids reporting 'fictitious losses' (which would arise under marginal costing) because the fixed costs would be included as part of stock until the stock itself is expensed when sold. Additionally, financial reporting standards mandate the use of absorption costing for the purpose of external reporting.
- Numerical example:
Candidates are expected to demonstrate their understanding of the impact of increasing/decreasing and static stocks. This would be achieved by preparing a three period financial statement for each system, with each period demonstrating an aspect of the effect of stock movements.

COST BEHAVIOUR PATTERNS

REVISION QUESTIONS

1. Answer all parts of this question.

(a) Select the statement that most precisely defines each of the following terms:

(i) A combined cost represents:

- (a) Expenditure incurred in previous years which has no impact on decisions affecting the future.
- (b) The forecasted expenditure on acquiring assets of a capital nature.
- (c) A future cash outflow that will be incurred regardless of current decisions.
- (d) Any cost which, within certain production limits, does not vary with the production of goods.

(1 mark)

(ii) The master budget:

- (a) Consists of the Capital Expenditure budgets of profit centres only.
- (b) Comprises the summarised budgeted Profit & Loss account, budgeted Balance Sheet and cash budget of the entire company.
- (c) Consists of the budgeted Profit & Loss account, budgeted Balance Sheet and cash budget of Head office only.
- (d) Consists of the qualitative Mission Objectives of the entire company.

(1 mark)

(iii) A profit centre is:

- (a) A business unit accountable for both costs and revenues.
- (b) A committee established by management which is responsible for overseeing the budgeting process.
- (c) The area in a breakeven chart where total revenues exceed total costs.
- (d) The sales quantity, expressed in numbers of units sold, after which a company earns enough to cover total fixed costs.

(1 mark)

(iv) The relevant range defines:

- (a) The range of variation incorporated into sales forecasts to allow for uncertainty of demand.
- (b) The process of adjusting a budget for a period so that the budgeted costs for the actual volume of production of the period can be compared with the actual costs incurred.
- (c) The activity levels within which assumptions about cost behaviour in a breakeven chart remain valid.
- (d) The budget period for the short to medium term, usually not exceeding 12 months.

(1 mark)

- (b) “Cost classifications and groupings help to identify relevant and irrelevant costs and are important for the purposes of cost-volume-profit analysis”.

Explain (with the aid of appropriate diagrams) each of the following patterns of cost behaviour.

- Variable costs
- Fixed costs
- Step costs
- Semi-variable costs.

(11 marks)

[Total: 15 marks]

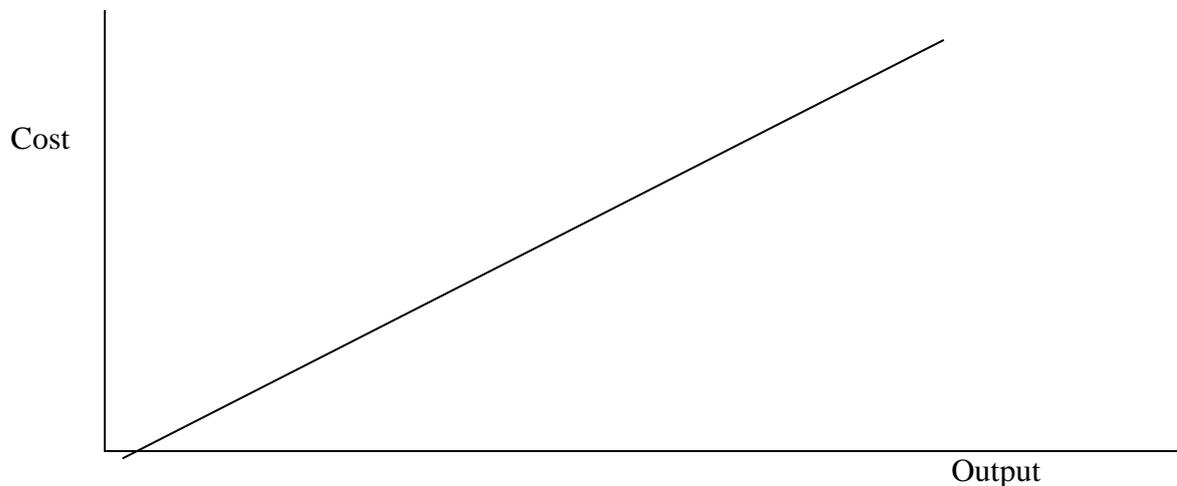
COST BEHAVIOUR PATTERNS

ANSWER TO REVISION QUESTIONS

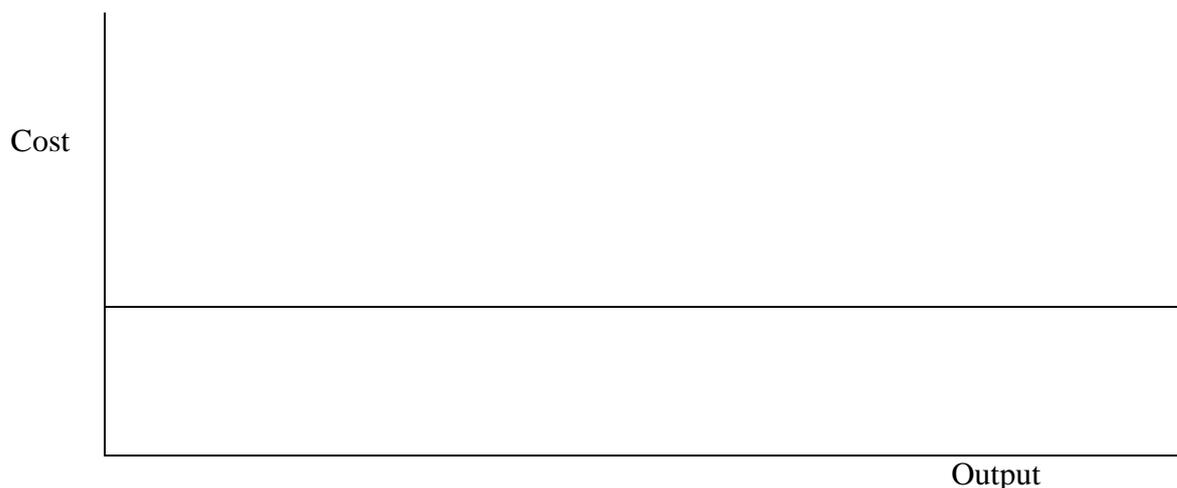
1. (a) (i) c is correct
(ii) b is correct
(iii) a is correct
(iv) c is correct

(b) Main points to be discussed:

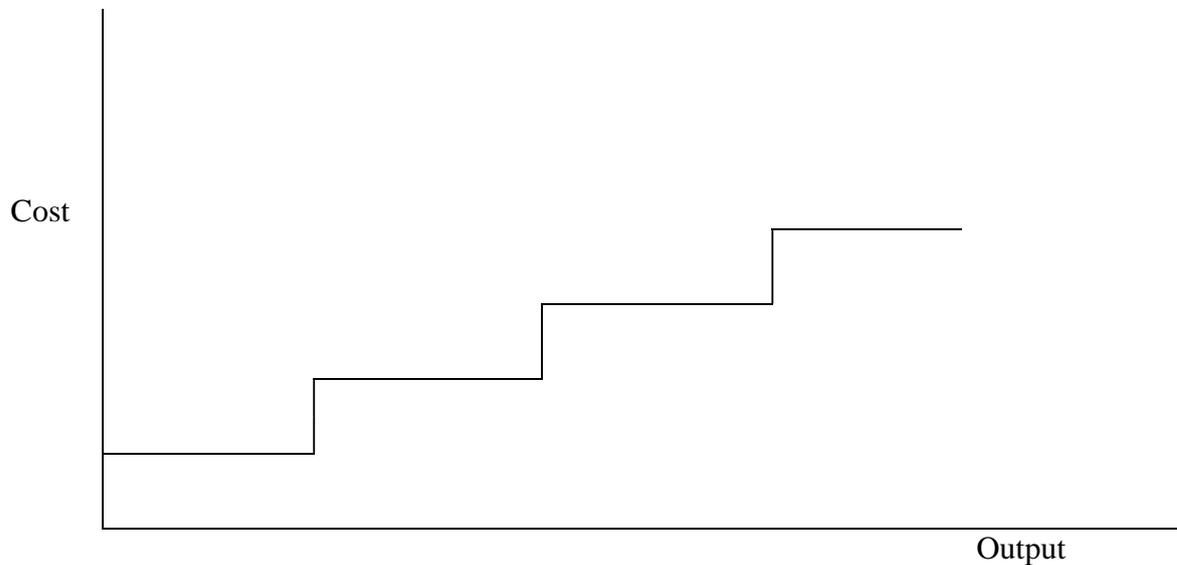
Variable costs vary as a function of the level of output or sales. Examples include raw materials or labour paid on an hourly basis.



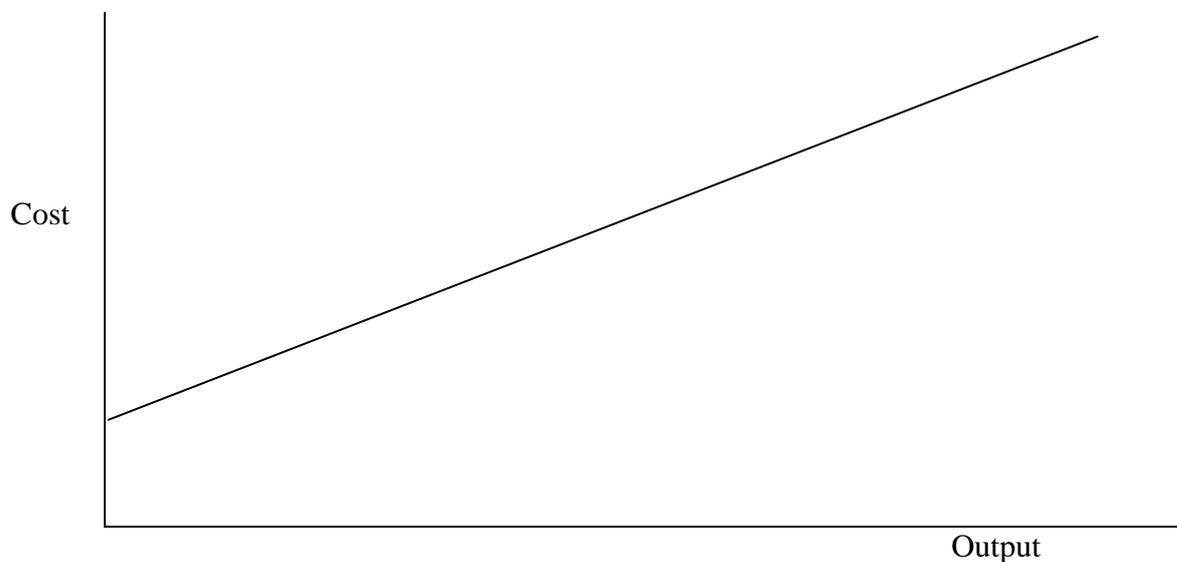
Fixed costs are those costs which are likely to remain unchanged regardless of the level of output or the particular decision under consideration. The term “fixed” refers primarily to the short term. Examples of fixed costs include rent, directors salaries.



Step costs are costs which change in discrete “steps”. They are similar to variable costs except that each change in the level of cost is usually caused by a larger change in input levels than is the case for “true” variable costs. A typical example would be a supervisors cost – for production of, say, 5,000 units 1 supervisor may be required; for 5,001 to 10,000 units, a second supervisor may be required etc.



Semi-variable costs are costs which possess both a fixed and variable cost component. A typical example is telephone charges which have a fixed rental charge and a variable unit rate. Note that the starting point is not at the origin as for normal variable costs.



MATERIALS AND STOCK CONTROL

REVISION QUESTION

1. FN Distribution has recorded the following transactions in respect of raw material "RM-01" for the month of April 2010:

Date	Details	No. of units
Apr 3	Materials received, RWF12,000	1,500
Apr 8	Materials issued	1,700
Apr 9	Materials received, RWF12,880	1,600
Apr 13	Materials issued	900
Apr 19	Materials issued	450
Apr 26	Materials received, RWF16,000	2,000
Apr 30	Materials issued	300

At the start of April, the company had 1,200 units of RM-01 in stock made up of the following batches

Remainder of a batch purchased mid March:	200	units costing RWF7.95 each
Full batch received on 30 th March:	1,000	units costing RWF7.97 each

REQUIREMENT:

- (1) Briefly outline the advantages and disadvantages of the FIFO (First-in, First-out) method and the LIFO (Last-in, First-out) method of valuing stocks.
(6 marks)
- (2) Calculate the total value of each of the material issues in April (and of the Closing Stocks of RM-01 at the end of April using the FIFO method).
(6 marks)
- (3) "It is necessary to set off the costs of holding a large stock against the advantages derived from holding it". List and briefly explain the typical advantages and costs of holding large stocks.
(8 marks)

[Total: 20 marks]

MATERIALS AND STOCK CONTROL

ANSWER TO REVISION QUESTION

1. FN Distribution Ltd

(1) Workings

Supervisors costs.

Total costs 16,000

75 % production 12,000 = RWF150 per production employee

25 % service 4,000 = RWF200 per service employee

Note:

An equally acceptable basis of appropriating the production departments supervisory overhead would be on the basis of production hours worked.

SOLUTION

Advantages of FIFO

1. Logical – it corresponds to what happens in most businesses as the older stock is used up first.
2. Easy to understand
3. Generally results in closing stocks being valued at the most current price.
4. Required under SSAP 9.

Disadvantages of FIFO

1. Understates the cost of material issues in times of high inflation.
2. Cumbersome to operate.
3. Can cause some confusion for decision making purposes when the same material is issued at varying prices.

Advantages of LIFO

1. Stock issues approximate current market price.
2. Decision making may be easier due to 1 above.

Disadvantages of LIFO

1. Cumbersome to operate.
2. Generally would not reflect actual practice in a stockroom.
3. Does not comply with the SSAP 9.

(2)

Date	Details	Qty in	Qty out	Value (ref)		Cl. balance
Aug 1	Opening Balance	1,200		9,560	(1)	9,560
Aug 3	Receipt	1,500		12,000		21,560
Aug 8	Issue		1,700	(13,560)	(2)	8,000
Aug 9	Receipt	1,600		12,880		20,880
Aug 13	Issue		900	(7,200)	(3)	13,680
Aug 19	Issue		450	(3,618)	(4)	10,062
Aug 26	Receipt	2,000		16,060		26,122
Aug 31	Issue		300	(2,415)	(5)	23,707

Workings

1. $(200 @ \text{RWF}7.95) + (1,000 @ \text{RWF}7.97) = \text{RWF}9,560$
2. $\text{RWF}9,560 + (500 @ (\text{RWF}12,000 / 1,500)) = \text{RWF}13,560$
3. $(900 @ (\text{RWF}12,000 / 1,500)) = \text{RWF}7,200$
4. $(100 @ (\text{RWF}12,000 / 1,500)) + (350 @ (\text{RWF}12,880 / 1,600)) = \text{RWF}3,618$
5. $(300 @ (\text{RWF}12,880 / 1,600)) = \text{RWF}2,415$

(3) Advantages of holding large stocks

1. Form a buffer against “stock-outs”.
2. Can enable discounts to be negotiated.
3. In some cases, quality will be more consistent as they originate from a larger batch rather than from numerous small batches.
4. In times of inflation, large stockholding may provide a competitive edge to a firm as their stocks will have cost less than stocks bought at current prices

Costs of holding large stocks

- a. Large stockholding results in high financing costs.
- b. Storage and insurance costs are higher.
- c. Risks of obsolescence and theft/pilferage are greater.
- d. Spoilage and obsolescence risks increase.

LABOUR

REVISION QUESTION

1. Given the following information, calculate for workers (A) to (J) using a Rowan system:

- (a) Time saved;
- (b) Earnings (at RWF4 per hour);
- (c) Effective hourly rate.

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(J)
Time allowed	10	10	10	10	10	10	10	10	10
Time taken	9	8	7	6	5	4	3	2	1

3 marks

LABOUR

ANSWER TO REVISION QUESTION

1. You should concentrate on one of the formulae and use it constantly. I prefer the second (see (c) below).

(a) Time saved:

(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(J)
1	2	3	4	5	6	7	8	9

(b) Earnings (at RWF4 per hour):

(A)	RWF39.60	(D)	RWF33.60	(G)	RWF20.40
(B)	RWF38.40	(E)	RWF30.00	(H)	RWF14.40
(C)	RWF36.40	(F)	RWF25.60	(J)	RWF7.60

(c) Using the second formula, we find:

$$\begin{aligned} \text{Time taken} &= 9 + \frac{\text{Time taken } 9 \times \text{Time saved } 1}{\text{Time allowed } 10} \times \text{Time rate per hour RWF4} \\ &= 9 + \frac{9 \times 1}{10} \times 4 = \text{RWF39.60} \end{aligned}$$

Effective hourly rate:

(A)	RWF4.40	(D)	RWF5.60	(G)	RWF6.80
(B)	RWF4.80	(E)	RWF6	(H)	RWF7.20
(C)	RWF5.20	(F)	RWF6.40	(J)	RWF7.60

You should note that the effective hourly rate rises RWF0.40 for every hour saved. It does not offer any special incentive for exceptional effort.

OVERHEADS AND ACTIVITY BASED COSTING

REVISION QUESTIONS

1. TBA Ltd manufactures and sells a range of steam, water and gas valves. The valves are produced by passing components through a series of production processes - preparation, assembly and finishing - which are backed up by service functions for material receipt and inspection, maintenance and material handling.

REQUIREMENT:

- (a) (i) Prepare a diagram to illustrate the physical and service flows of the existing system.

(3 marks)

- (ii) Explain the procedure by which product cost accumulation and responsibility accounting will operate in the system if a traditional absorption cost approach is used.

(7 marks)

- (b) Explain how activity-based costing and the use of cost drivers may help to improve both product cost data and the effectiveness of responsibility accounting in TBA Ltd.

(10 marks)

[Total: 20 marks]

2. FVD Limited produces two products - 'Newthings' and 'Oldthings'. Each product uses similar processes and equipment, but 'Newthings' are produced in large volumes whereas 'Oldthings' are produced in smaller volumes. At present, overheads are apportioned to products using a traditional absorption costing basis.

You are the cost accountant at FVD Limited and, as a result of the large amount of discussion in the management literature of Activity Based Costing; you are considering changing from absorption costing to Activity Based Costing for the purposes of charging overheads to production.

You have decided to prepare a comparison of the product costs using both the current method and an Activity Based Costing method prior to making a final decision and have accumulated the following summarised data from next year's budget:

Cost category	RWF	Current basis of apportionment
Volume related costs	320,000	Machine hours
Purchasing related costs	156,000	Labour hours
Set-up costs	<u>44,000</u>	Labour hours
	<u>520,000</u>	

Extracts from the standard cost cards for 'Newthings' and 'Oldthings' show the following:-

	Newthings	Oldthings
Labour hours per unit	3	2
Machine hours per unit	1	1
Budgeted production next year	30,000 units	10,000 units
Number of purchase orders per annum	170	90
Number of machine set-up per annum	76	56

REQUIREMENT:

- (a) Prepare calculations showing the overheads charged to each product using:
- the proposed Activity Based Costing system
 - the current (traditional) costing system

(12 marks)

- (b) "The ABC system recognises that some activities are unrelated to volume by using allocation bases that are independent of production volume."

Briefly explain how traditional costing systems can result in distorted product costs using the example of FVD Limited to illustrate your point.

(8 marks)

[Total: 20 Marks]

OVERHEADS AND ACTIVITY BASED COSTING

ANSWERS TO REVISION QUESTIONS

1. TBA Ltd.

(a)(i)

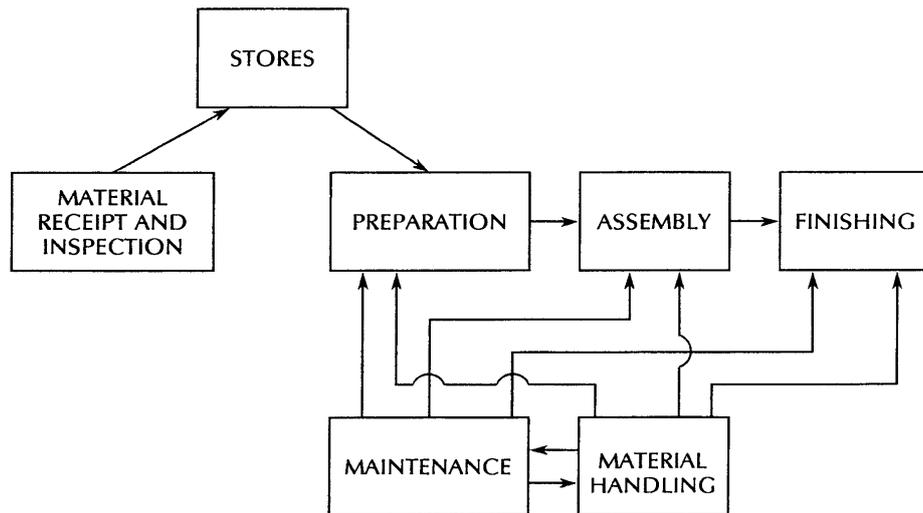


Figure 4.1

- (ii) Product cost responsibility accounting operates on a system of cost centres. These cost centres are decided by breaking down the physical operations under the responsibility of each manager and by attaching costs to product units as they go through production. An appropriate absorption basis is decided upon for the overhead costs.

Figure 4.1 illustrates production cost centres (e.g. preparation, assembly, finishing) and service cost centres (maintenance and material handling).

Labour and overhead costs are allocated to specific cost centres if possible. Where allocation is not possible an appropriate apportionment will be made (e.g. maintenance at an apportionment rate per labour-hour and material handling per unit of, say, 500 valves moved; material receipt and inspection could also be charged to batches of valves).

Total labour and overhead costs of the production centres, together with apportioned service centre costs, would then be charged to valve batches. It is

likely that this would be based on time spent on each batch of valves in the appropriate cost centre.

The system can then be controlled by use of standard costing or budgetary control (both of which we will look at later in the course) through the analysis of variances.

- (b) Activity-based costing links cost to activity and considers that costs incurred above an acceptable minimum are due to lack of control of activities causing costs to occur, known as cost drivers.

To take the process of receipt and inspection of material, cost drivers in this activity could be:

- The relative importance of component inspection (e.g. glassware used in valves might require a high degree of inspection, whereas moulded plastic might need just a sampling).
- The bulk of material involved (e.g. it may require four trips to transport 1,000 valves of one size and a single trip to transport 1,000 smaller valves).

Any relationship between the cost drivers and the actual cost of material used is likely to be simply accidental, so an apportionment using absorption costing could bear no resemblance to the charge calculated using cost drivers under activity-based costing. The examples above give illustrations of how this could occur.

Looking at maintenance charges, these may not be driven by time spent (under absorption costing), but by type of valve produced - some causing far more wear on machines than others.

Actually identifying cost drivers can be difficult but, once identified, they are useful in focusing on activities which cause costs to be incurred. This gives management a target on which to concentrate when seeking to reduce costs which are considered to be their responsibility. For instance, machines could be checked carefully before producing batches of valves which usually cause high machine maintenance, as a way of reducing breakdown and interruption of production.

2. FVD Ltd

(a) (i) **Overhead per unit under an Activity Based Costing system**

Overhead	Total overhead	Cost driver	Cost driver total	Rate per cost driver
Volume related costs	RWF320,000	Total units	40,000 units	RWF8
Purchase related costs	RWF156,000	Purchase orders	260 orders	RWF600
Set-up costs	RWF44,000	Set-up qty.	132 set-ups	RWF333.33

∴ the overheads charged to the total units are as follows:

	Newthings	Oldthings
Volume related costs	RWF240,000	RWF80,000
Purchase related costs	RWF102,000	RWF54,000
Set-up related costs	<u>RWF25,000</u>	<u>RWF18,667</u>
	<u>RWF367,333</u>	<u>RWF152,667</u>
Overhead per unit	RWF12.24	RWF15.27

(ii) **Current costing system overheads per unit**

	Newthings		Oldthings		Total
Total labour hours	90,000		20,000		110,000
Total machine hours	30,000		10,000		40,000

∴ the overhead rate per labour hour is RWF1.82 per hour (RWF200,000/110,000 hours) and the overhead rate per machine hour is RWF8 per hour (RWF320,000/40,000 hours)

The overheads charged to production under this current basis are as follows:

	Newthings	Oldthings
Labour hours	3 hours @ RWF1.82 = RWF5.46	2 hours @ RWF1.82 = RWF3.64
Machine hours	1 hour @ RWF8 = <u>RWF 8</u>	1 hour @ RWF8= <u>RWF 8</u>
Overheads per unit	RWF13.46	RWF11.64

- (b) Traditional overhead costing systems use volume-related bases to trace overheads to production

Many costs of production are not related to volume. These costs are allocated using an inappropriate base under traditional systems. High-volume products effectively subsidise the lower volume products.

ABC recognises this by using allocation bases, which are independent of volume.

In the example of FVD Limited, Set-up costs and purchase order costs were traditionally charged to units using machine hours as a base. This is not an appropriate base and resulted in Newthings being charged with more overheads even though they consumed a lower proportion of total resources than Oldthings.

JOB COSTING/BATCH COSTING

REVISION QUESTION

1. PAS Limited is a small company which manufactures furniture to order. The company uses Job costing in determining the costs and profit of each order. At the start of the financial year, the cost accountant gathered the following information in respect of the budgeted overheads for each of the three production departments as follows:

Department	Budgeted overheads	Overhead absorption basis
Carving	RWF15,000	1,000 machine hours
Assembly	RWF36,000	6,000 labour hours
Decoration	RWF19,000	1,000 labour hours

Note: These figures are based on normal activity levels.

Selling and distribution overheads are calculated as 20% of factory cost i.e. direct costs plus production overheads.

The accountant is now calculating the total net profit or loss on a recently completed order for 100 reproduction regency wardrobes. Details of this order are as follows:

- The selling price of each wardrobe was RWF270
- Materials consumed RWF8,935
- Labour: Carving department 170 hours @ RWF10 per hour
Assembly department 210 hours @ RWF12 per hour
Decoration department 40 hours @ RWF8 per hour
- Machine usage in the carving department totalled 150 hours.
- A fee of RWF500 was paid to an expert furniture historian for consultancy services provided in respect of the completion of this order.

REQUIREMENT:

- (a) Calculate the overhead absorption rates for the production departments. **(3 marks)**
- (b) Calculate:
- (i) The total cost of the batch, clearly identifying Prime Cost, Factory Cost and Total Cost. **(11 marks)**
 - (ii) The unit cost. **(3 marks)**
 - (iii) The profit or loss per wardrobe. **(3 marks)**

[Total: 20 marks]

JOB COSTING/BATCH COSTING

ANSWER TO REVISION QUESTION

(a) Overhead absorption rates for each department

Department	Overhead	Budgeted no. of Absorption units	Rate per absorption
Carving	RWF15,000	1,000 machine hours	RWF15 per hour
Assembly	RWF36,000	6,000 labour hours	RWF6 per hour
Decoration	RWF19,000	1,000	RWF19 per hour

(b) (i)

Direct costs:

Materials	8,935	
Labour-Carving	1,700	
- Assembly	2,520	
- Decoration	320	
Consultancy fee	500	
Prime cost		13,975

Production Overheads:

Machine time in carving	2,250	
Labour time in assembly	1,260	
Labour time in decoration	760	
		4,270

Factory cost 18,245

Add: 20% for selling/distribution expenses 3,649

Total cost 21,894

(ii)

Unit cost

Total cost of batch as per (a) RWF21,894
No. of units in batch 100

∴ each unit cost RWF218.94

(iii)

Profit per unit

Sales price per unit

RWF270.00

Less:

Cost per unit

RWF218.94

Profit per unit

RWF51.06

PROCESS COSTING

REVISION QUESTIONS

1. CB Limited manufactures a range of chemicals and fertilisers for agricultural purposes.

The manufacture of one of the company's products, "BeefEmUp", involves three distinct processes in which the output from Process 1 is used as the input into Process 2. Similarly, the output from Process 2 is used as input into Process 3 by which stage the final product is prepared and then packed for shipping.

The company has established standards for each process as follows:

	Process 1	Process 2	Process 3
Normal loss (%)*	5%	5%	10%
Sales value of each unit lost	RWF1.83	RWF2.00	RWF4.00

*Note: The normal loss for a process is calculated as a percentage of the units processed in that process.

The following data is available for August 2011 in respect of each of the processes:

	Process 1		Process 2		Process 3	
	Qty	RWF	Qty	RWF	Qty	RWF
Units from previous process			1,150		2,980	
Materials added	1,200	600	2,010	4,299	600	7,344
Labour incurred		1,500		1,800		900
Overheads incurred		2,000		2,200		600

At the end of process 3, a total of 3,190 fully completed units was transferred to Finished Goods.

REQUIREMENT:

Prepare each of the Process Accounts for the month of August.

[Total: 15 marks]

2. SLR Limited is a company that manufactures a range of tinned soups. The soups are made by processing raw materials through two distinct processes, Blending and Flavouring, and a process costing system is in place for the purpose of calculating the costs of finished output.

Relevant details of each of these processes for the most recent month are as follows:

	Blending	Flavouring
Expected output	95% of inputs	90% of inputs
Value of lost liquids per kg	Nil	RWF1
Materials added: 4,000 kgs	RWF11,950	
500 kgs		RWF1,000
Labour charged	RWF1,700	RWF555
Machinery time: @ RWF5 per hour	300 hours	
@ RWF7 per hour		60 hours
Output	3,700 kgs to Flavouring	3,810 kgs Finished Goods

The total departmental overhead for the month was RWF960 and is absorbed into the cost of each process using the cost of machinery for each process as a basis.

REQUIREMENT:

- (a) Prepare the following accounts for the month:
- (i) Blending process account **(8 marks)**
 - (ii) Flavouring process account **(8 marks)**
- There are no stocks at either the start or the end of the period.
- (b) Briefly outline the common features of most process costing systems. **(4 marks)**
- [Total: 20 marks]**

PROCESS COSTING 1

ANSWERS TO REVISION QUESTIONS

1. CB LIMITED

Process 1

	Units	RWF		Units	RWF
Materials	1,200	600	Normal loss	60	110
Labour		1,500	To process 2	1,150	4,025
Overheads		2,000			
Abnormal gain	10	35			
	<u>1,210</u>	<u>4,135</u>		<u>1,210</u>	<u>4,135</u>

Process 2

	Units	RWF		Units	RWF
From Process 1	1,150	4,025	Normal loss	158	316
Materials added	2,010	4,299	Abnormal loss	22	88
Labour		1,800	To process 3	2,980	11,920
Overheads		2,200			
	<u>3,160</u>	<u>12,324</u>		<u>3,160</u>	<u>12,324</u>

Process 3

	Units	RWF		Units	RWF
From Process 2	2,980	11,920	Normal loss	358	1,432
Materials Added	600	7,344	Abnormal loss	32	192
Labour		900	To Finished Goods	3,190	19,140
Overheads		600			
	<u>3,580</u>	<u>20,764</u>		<u>3,580</u>	<u>20,764</u>

Calculations

Normal Loss units Abnormal loss/(gain) units Value of good unit

Calculation

Process 1	5% * 1,200	$(1,200 * 95\%) - 1,150 = (10)$	$\text{RWF}4,100 - \text{RWF}110 / (1,200 * 95\%)$
Process 2	5% * (1,150 + 2,010)	$(3,169 * 95\%) - 2,980 = 22$	$\text{RWF}12,324 - \text{RWF}316 / (3,160 * 95\%)$
Process 3	10% * (2,980 + 600)	$(3,580 * 90\%) - 3,190 = 32$	$\text{RWF}20,764 - \text{RWF}1,432 / (3,580 * 90\%)$

2.

Blending Account

Details	Units	RWF	Details	Units	RWF
Material	4,000	11,950	Trfr. To Flav.	3,700	15,482
Labour		1,700	Norm. loss	200	

Machine time		1,500	Abn. Loss	100	418
Overhead		750			
	<u>4,000</u>	<u>15,900</u>		<u>4,000</u>	<u>15,900</u>
	<u><u>4,000</u></u>	<u><u>15,900</u></u>		<u><u>4,000</u></u>	<u><u>15,900</u></u>

Flavouring Account

Details	Units	RWF	Details	Units	RWF
Ex. Blending	3,700	15,482	Output to Stock	3,810	17,384
Material added	500	1,000	Norm. loss	420	420
Labour		555			
Machine time		420			
Overhead		210			
Ab. Gain	30	137			
	<u>4,230</u>	<u>17,804</u>		<u>4,230</u>	<u>17,804</u>
	<u><u>4,230</u></u>	<u><u>17,804</u></u>		<u><u>4,230</u></u>	<u><u>17,804</u></u>

(b) Common features of process costing systems

Main points covered should include the following:

- Continuous processes are normally a feature of this costing system e.g. chemicals.
- The output of one process is the input to a subsequent process until a completed product is made.
- Valuation of Work-in-Process requires a method for valuing homogeneous units rather than counting individual items.
- Process losses are a standard feature – evaporation, spoilage, spills etc.
- By product or joint products.

PROCESS COSTING 2

REVISION QUESTIONS

1. Draw up the process accounts, normal loss account, abnormal loss/gain accounts and scrap account in the following instance:

	Process I	Process II	Finished Goods
Units going into process	8,000	7,000	6,800
Normal loss	10%	5%	
	Process I	Process II	Finished Goods
Cost of process	RWF8,000	RWF4,000	
Income from sale of scrap per 100 units	RWF4	RWF1	

(You may assume that all output from Process I enters Process II.)

There is no work-in-progress at the beginning or end of the period.

(10 Marks)

2. Given the following information show the entries which would appear on Process 4 account for period 8 of the current year, and on the scrap account, abnormal loss/gain account, and normal loss account.

Value of input to Process 4	RWF9,875
Number of units entering Process 4	9,400
Normal loss percentage	10%
Total process costs	RWF4,500
Sales value of loss	RWF5 per 100 units
Number of units entering Process 5	8,500

(10 Marks)

PROCESS COSTING 2

ANSWERS TO REVISION QUESTIONS

Question 1

Workings

Process I

Input 8,000 units.

Normal loss 800 units, scrap value RWF32.

Expected output 7,200 units

Actual output 7,000 units, i.e. abnormal loss of 200 units.

$$\text{Cost per unit of normal output} = \text{RWF}\left(\frac{8,000 - 32}{7,200}\right) = \frac{\text{RWF}7,968}{7,200}$$

$$\text{Cost of abnormal loss} = 200 \times \frac{\text{RWF}7,968}{7,200} = \text{RWF}221$$

$$\text{Cost transferred to Process II} = 7,000 \times \frac{\text{RWF}7,968}{7,200} = \text{RWF}7,747.$$

Process II

Input 7,000 units.

Normal loss 350 units, scrap value RWF3.50, say RWF4.

Expected output 6,650 units.

Actual output 6,800 units, i.e. abnormal gain 150 units.

$$\begin{aligned} \text{Cost per unit of normal output} &= \text{RWF}\left(\frac{7,747 + 4,000 - 4}{6,650}\right) \\ &= \frac{\text{RWF}11,743}{6,650} \end{aligned}$$

$$\text{Value of abnormal gain} = 150 \times \frac{11,743}{6,650} = \text{RWF}265$$

$$\begin{aligned} \text{Cost transferred to finished goods} &= 6,800 \times \text{RWF}\frac{11,743}{6,650} \\ &= \text{RWF}12,008 \end{aligned}$$

PROCESS I ACCOUNT

	Units	RWF		Units	RWF
Input in units	8,000		Normal loss	800	32
Cost of process		8,000	Abnormal loss	200	221
	_____	_____	Process II	<u>7,000</u>	<u>7,747</u>
			account		
	<u>8,000</u>	<u>RWF8,000</u>		<u>8,000</u>	<u>RWF8,000</u>

PROCESS II ACCOUNT

	Units	RWF		Units	RWF
Input in units	7,000	7,747	Normal loss	350	4
Cost of process		4,000	Finished stock	<u>6,800</u>	<u>12,008</u>
Abnormal gain	<u>150</u>	<u>265</u>		—	—
	<u>7,150</u>	RWF <u>12,012</u>		<u>7,150</u>	RWF <u>12,012</u>

NORMAL LOSS ACCOUNT

	Units	RWF		Units	RWF
Process I	800	32	Abnormal gain	150	2
Process II	350	4	Scrap a/c	800	32
	—	—	Scrap a/c	<u>200</u>	<u>2</u>
	<u>1,150</u>	<u>36</u>		<u>1,150</u>	<u>36</u>

ABNORMAL LOSS ACCOUNT

	Units	RWF		Units	RWF
Process I	200	221	Scrap	200	8
	—	—	Profit and loss	—	<u>213</u>
	<u>200</u>	<u>221</u>		<u>200</u>	<u>221</u>

ABNORMAL GAIN ACCOUNT

	Units	RWF		Units	RWF
Normal loss	150	2	Process II	150	265
Profit and loss	—	<u>263</u>		—	—
	<u>150</u>	<u>265</u>		<u>150</u>	<u>265</u>

SCRAP ACCOUNT

	Units	RWF		Units	RWF
Abnormal waste	200	8	Cash		42
Normal loss Process I	800	32			
Normal loss Process II	<u>200</u>	<u>2</u>			—
		<u>42</u>			<u>42</u>

Question 2

PROCESS NO. 4 ACCOUNT

	Units	RWF Value		Units	RWF Value
Input	9,400	9,875	Normal loss	940	47
Process cost		4,500	Process No. 5	8,500	14,396
Abnormal gain account	<u>40</u>	<u>68</u>			
	<u>9,440</u>	RWF <u>14,443</u>		<u>9,440</u>	RWF <u>14,443</u>

Calculations

(a) Normal output (9,400) less normal waste of 10% (940) = 8,460
Abnormal gain = 40 units.

(b) Normal cost in total = RWF9,875 + RWF4,500 – RWF47
Normal cost per good unit = $\frac{\text{RWF9,875} + \text{RWF4,500} - \text{RWF47}}{8,460}$

(c) Value of abnormal gain = Normal unit cost × Abnormal gain in units
= $\frac{\text{RWF9,875} + \text{RWF4,500} - \text{RWF47}}{8,460} \times 40 = \text{RWF68}$

(d) Value of units transferred to Process 5 = Normal unit cost × Output in units
= $\frac{\text{RWF9,875} + \text{RWF4,500} - \text{RWF47}}{8,460} \times 8,500 = \text{RWF14,396}$

ABNORMAL GAIN ACCOUNT

	Units	RWF		Units	RWF
Normal loss	40	2	Process 4	40	68
Profit and loss	—	<u>66</u>		—	—
	<u>40</u>	<u>68</u>		<u>40</u>	<u>68</u>

SCRAP ACCOUNT

	Units	RWF		Units	RWF
Normal loss	<u>900</u>	<u>45</u>	Cash	<u>900</u>	<u>45</u>

NORMAL LOSS ACCOUNT

	Units	RWF		Units	RWF
Process 4 a/c	940	47	Abnormal gain a/c	40	2
	—	—	Scrap a/c	<u>900</u>	<u>45</u>
	<u>940</u>	<u>47</u>		<u>940</u>	<u>47</u>

MARGINAL V ABSORPTION COSTING

REVISION QUESTIONS

1. The following information is available for XY Ltd, which manufactures a standard product. Quarterly budget for each of the quarters 3 and 4, Year 1:

	RWF	Total RWF	RWF	Per Unit RWF
Sales (30,000 units)		30,000		1.00
Production cost of sales:				
Variable	19,500		0.65	
Fixed overhead	<u>6,000</u>	<u>25,500</u>	<u>0.20</u>	<u>0.85</u>
		4,500		0.15
Selling and administration cost (fixed)		<u>2,100</u>		<u>0.07</u>
Net profit		<u>2,400</u>		<u>0.08</u>

Actual production, sales and stocks in units for quarters 3 and 4, Year 1:

	Quarter 3	Quarter 4
Opening stock	-	6,000
Production	34,000	28,000
Sales	28,000	32,000
Closing stock	6,000	2,000

You are required to produce trading and profit and loss accounts for each of the quarters:

- (a) Using absorption costing
- (b) Using marginal costing

(10 marks)

2. A manufacturer of leather handbags has been affected by competition from plastic handbags and is currently operating at between 65 and 70 per cent of maximum capacity.

The company at present reports profit on an absorption costing basis. The accountant has been criticised for reporting widely different profits from month to month. He is proposing to answer these criticisms by reporting differently in order to take into consideration the impact of the nature of costs (fixed or variable) and, changes due to seasonal fluctuations in sales volume. This, he hopes, will enable the management to determine a more positive sales policy.

The following information is available from the accounting records:

Standardised cost per unit:	RWF
Direct materials	8.00
Direct labour	7.20
Variable production overheads	<u>3.36</u>
Total variable cost of production	18.56
Fixed production overheads	<u>7.52</u>
Total cost of production	<u>26.08</u>

Fixed production overheads are based on annual budgeted overheads of RWF7,584,000 (RWF632,000 per month) and production volume of 1,008,000 handbags, which represents 70% of maximum capacity.

There is some small element of flexibility in the fixed overheads, which could be established at:

Activity level (% of maximum capacity)	Amount of fixed overheads RWF000
50 - 70%	632
76 - 90%	648
91 - 100%	656

Fixed overheads actually incurred were the same as budgeted.

Additional information:

	March	April
Units sold	87,000	101,000
Units produced	115,000	78,000
Sales price per unit	RWF32	RWF32
Fixed selling costs	RWF120,000	RWF120,000
Fixed administration costs	RWF80,000	RWF80,000

There were no finished goods in stock at 1 March.

REQUIREMENT:

You are required to prepare monthly profit statements for March and April using:

Absorption costing

Marginal costing.

(10 Marks)

MARGINAL V ABSORPTION COSTING

ANSWERS TO REVISION QUESTIONS

1. (a) Absorption Costing

	Quarter 3			Quarter 4		
	Units	RWF /unit	RWF	Units	RWF /unit	RWF
Sales	28,000	1.00	28,000	32,000	1.00	32,000
Less Cost of sales:						
Opening stock	-	-	-	6,000	0.85	5,100
Full production cost	34,000	0.85	28,900	28,000	0.85	23,800
	34,000		28,900	34,000		28,900
Less closing stock	6,000	0.85	5,100	2,000	0.85	1,700
	28,000	0.85	23,800	32,000	0.85	27,200
Gross profit			4,200			4,800
Adjustment of over/(under) - absorbed overheads			800			(400)
			5,000			4,400
Less Fixed costs:						
Selling and administration			2,100			2,100
Net profit			2,900			2,300

Calculation of (under)/over-absorption of production overheads

	Quarter 3	Quarter 4
	RWF	RWF
Overheads absorbed		
Quarter 3 (34,000 × £0.20)	6,800	
Quarter 4 (28,000 × £0.20)		5,600
Budget overheads	6,000	6,000
∴ (Under)/over-absorption	800	(400)

(b) Marginal Costing

	Quarter 3			Quarter 4		
	Units	RWF/unit	RWF	Units	RWF/unit	RWF
Sales	28,000	1.00	28,000	32,000	1.00	32,000
Less Cost of sales:						
Opening stock	-	-	-	6,000	0.65	3,900
Variable production cost	34,000	0.65	22,100	28,000	0.65	18,200
	34,000		22,100	34,000		22,100
Less Closing stock	6,000	0.65	3,900	2,000	0.65	1,300
	28,000		18,200	32,000		20,800
Contribution			9,800			11,200
Less Fixed costs:						
Production overhead		6,000			6,000	
Selling and administration		2,100			2,100	
			8,100			8,100
Net profit			1,700			3,100

Note: You will notice that in this example the net profit in total for the two quarters is **not** the same using both methods. This is because there was a net stock increase over the period, an absorption costing would therefore show a higher profit because of the fixed production overheads carried forward in stock.

	Absorption Costing	Marginal Costing	Difference - Overheads Carried Forward in Stock
	RWF	RWF	RWF
Quarter 3 profit	2,900	1,700	1,200
Quarter 4 profit	<u>2,300</u>	<u>3,100</u>	<u>(800)</u>
Total net profit	<u>5,200</u>	<u>4,800</u>	<u>400</u>

Using absorption costing, fixed production overheads carried forward in Quarter 4:

$$\begin{aligned} \text{Stock} &= 2,000 \text{ units} \times \text{RWF}0.20 \\ &= \text{RWF}400 \end{aligned}$$

2. (a) Absorption Costing

	March		April	
	RWF000	RWF000	RWF000	RWF000
Sales		2,784.00		3,232.00
Opening stock	Nil		730.24	
Direct materials	920.00		624.00	
Direct labour	828.00		561.60	
Variable production overhead	386.40		262.08	
Fixed production overhead	<u>864.80</u>		<u>586.56</u>	
	2,999.20		2,764.48	
Closing stock	<u>(730.24)</u>	<u>(2,268.96)</u>	<u>(130.40)</u>	<u>(2,634.08)</u>
Gross profit		515.04		597.92
Over/(under) absorption		<u>208.80</u>		<u>(45.44)</u>
		723.84		552.48
Fixed selling cost	120.00		120.00	
Fixed admin. cost	<u>80.00</u>	<u>(200.00)</u>	<u>80.00</u>	<u>(200.00)</u>
Net profit		<u>523.84</u>		<u>352.48</u>

Closing stock calculations:

March: (Units produced 115,000 – Units sold 87,000) × Total unit production cost RWF26.08

$$= \text{RWF}730,240$$

April: Opening stock 28,000 + Production 78,000 – Sales 101,000 = 5,000

$5,000 \times \text{RWF}26.08 = \text{RWF}130,400$

Over/under-absorption of fixed production overhead:

Budgeted monthly production = $1,008,000/12 = 84,000 = 70\%$ capacity

March production = $115,000 = \frac{115}{84} \times 70\% = 95.8\%$ capacity

So budgeted fixed overheads = RWF656,000

April production = 78,000 so budgeted fixed overheads = RWF632,000

(b) Marginal Costing

	March		April	
	RWF000	RWF000	RWF000	RWF000
Sales		2,784.00		3,232.00
Opening stock	Nil		519.68	
Direct materials	920.00		624.00	
Direct labour	828.00		561.60	
Variable production overhead	<u>386.40</u>		<u>262.08</u>	
	2,134.40		1,967.36	
Closing stock (based on variable cost)	<u>(519.68)</u>	<u>(1,614.72)</u>	<u>(92.80)</u>	<u>(1,874.56)</u>
Contribution		1,169.28		1,357.44
Fixed costs:				
Production overheads	656		632	
Selling overheads	120		120	
Admin. overheads	<u>80</u>	<u>(856.00)</u>	<u>80</u>	<u>(832.00)</u>
Net profit		<u>313.28</u>		<u>525.44</u>

BREAK EVEN ANALYSIS

REVISION QUESTIONS

1. The following figures relate to one year's working in a manufacturing business:

	RWF
Fixed overhead	120,000
Variable overhead	200,000
Direct wages	150,000
Direct materials	410,000
Sales	1,000,000

Represent each of these figures on a break-even chart, and determine from the chart the break-even point.

(3 marks)

2. Production of a chemical product which sells at RWF2.70 per kg usually fluctuates between 80,000 and 90,000 per month. Costs have been calculated as follows.

Monthly output (kg)	80,000	90,000
	RWF	RWF
Direct materials	60,000	67,500
Direct wages	72,000	81,000
Production overhead	<u>57,000</u>	<u>58,500</u>
Total production cost	<u>189,000</u>	<u>207,000</u>

The production overhead included in the above costs contains both fixed and variable elements. The fixed production overhead is expected to remain unchanged up to a monthly output level of 120,000 kg.

REQUIREMENT:

Calculate:

- The fixed overhead cost per month.
- The marginal cost per kg.
- The total cost if output is increased to 100,000 kg.
- The break-even point in kg per month.

(10 marks)

3. A sealing compound is manufactured and marketed by Cohesive LTD. The factory has a production capacity of 10,000,000 litres per annum but is at present working at 40% capacity.

The compound is sold in 20-litre drums at RWF8.00 each.

The sales manager has suggested reducing the price per drum in order to capture a larger share of the market. His forecast of sales levels at different prices is:

Price per drum	Sales forecast
RWF	(drums per annum)
8.00	200,000
7.20	300,000
6.40	400,000
5.60	500,000

Variable costs amount to RWF4.48 per drum whilst fixed costs would be expected to remain constant at RWF640,000 over the range of output levels under consideration.

REQUIREMENT:

Present in column form a statement showing the forecast profit at each production level and state which volume should be adopted as the target sales and production level per annum.

(10 marks)

BREAK EVEN ANALYSIS

ANSWERS TO REVISION QUESTIONS

Question 1 Break-even point occurs at RWF500,000 sales value. (See Figure 5.)

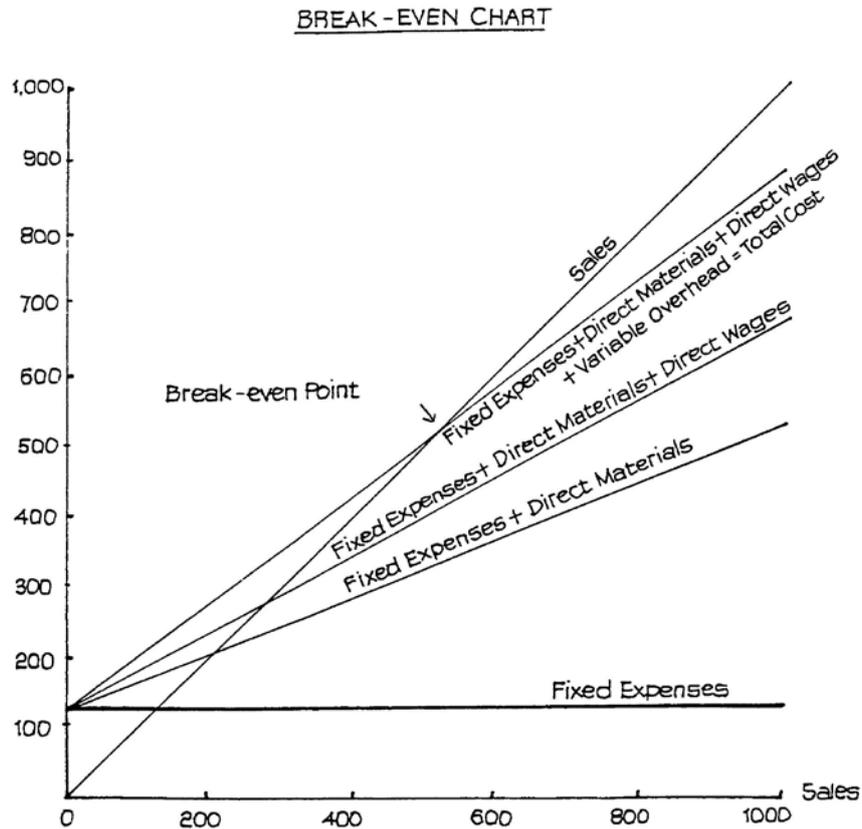


Figure 5

Question 2

Units	90,000	80,000	10,000
	High	Low	Difference
	RWF	RWF	RWF
Direct materials	67,500	60,000	7,500
Direct wages	81,000	72,000	9,000
Production overhead	<u>58,500</u>	<u>57,000</u>	<u>1,500</u>
Total	<u>207,000</u>	<u>189,000</u>	<u>18,000</u>

Variable cost per unit $\frac{RWF18,000}{10,000} = RWF1.80$

At 80,000 units	RWF
Total cost	189,000
Less Variable cost 80,000 × RWF1.80	<u>=144,000</u>
Total fixed cost	<u>45,000</u>

Direct materials cost	60,000
Less Variable cost 80,000 × $\frac{RWF7,500}{10,000}$	<u>(60,000)</u>

Fixed costs NIL

Direct wages cost	72,000
Less Variable cost 80,000 × $\frac{RWF9,000}{10,000}$	<u>(72,000)</u>

Fixed wages cost NIL

Production overhead cost	57,000
Less Variable cost 80,000 × $\frac{RWF1,500}{10,000}$	<u>(12,000)</u>

Fixed production overhead cost RWF45,000

(a) Fixed overhead cost per month = RWF45,000

(b) Marginal cost per kg RWF1.80

(c) Total cost of producing 100,000 kg RWF

Variable cost 100,000 × RWF1.80	180,000
Fixed cost	<u>45,000</u>

RWF225,000

(d) Break-even point in kg

$$\frac{\text{Fixed cost}}{\text{Contribution per unit}} = \frac{RWF45,000}{(RWF2.70 - RWF1.80)}$$

$$= 50,000 \text{ kg}$$

Question 3

Sales units	200,000	300,000	400,000	500,000
Sales unit price	RWF8.00	RWF7.20	RWF6.40	RWF5.60
	RWF	RWF	RWF	RWF
Total sales	1,600,000	2,160,000	2,560,000	2,800,000
Total variable cost*	<u>(896,000)</u>	<u>(1,344,000)</u>	<u>(1,792,000)</u>	<u>(2,240,000)</u>
Contribution	704,000	816,000	768,000	560,000
Fixed costs	<u>(640,000)</u>	<u>(640,000)</u>	<u>(640,000)</u>	<u>(640,000)</u>
Profit/(Loss)	<u>64,000</u>	<u>176,000</u>	<u>128,000</u>	<u>(80,000)</u>

* Variable cost per unit = RWF4.48

Sales and production should be set at a target of 300,000 drums.

DECISION MAKING

REVISION QUESTIONS

1. (a) Explain what is meant by a break-even chart, and describe its uses.
- (b) Illustrate by a graph using the following information:

	Sales	Variable Cost
	RWF	RWF
Product A	10,000	4,000
B	5,000	4,000
C	<u>15,000</u>	<u>12,000</u>
	<u>RWF30,000</u>	<u>RWF20,000</u>
 Fixed expenses	 <u>RWF6,000</u>	

On the same graph, show the effect of eliminating Product B and increasing the sales of Product A by 100%, with an increase of RWF1,000 in fixed expenses.

(10 marks)

2. CTT Limited is involved in the manufacture of precision engineering machinery. It manufactures a substantial proportion of sub-components in-house and is currently investigating the possibility of sub-contracting the manufacture of a key sub-component to an outside supplier.

The budgeted annual costs of manufacturing 9,000 units (the annual requirement) of this component in-house are as follows:

		RWF
Direct labour	1,500 hours @ RWF36 per hour	54,000
Direct material	900 kgs @ RWF15 per kg	13,500
Variable overheads	200% direct labour	108,000
Fixed overheads	1,500 hours @ RWF12 per hour	18,000
		193,500
		193,500

Budgeted Fixed Overheads absorbed into this component consist of the following:

	RWF
Factory rent (10 year lease)	12,000
Management charges	6,000
	18,000
	18,000

If the manufacture of the sub-component is sub-contracted, CTT Ltd will be able to sub-let the factory space currently used for its manufacture at an annual rent of RWF10,000. The company will also sell some machinery which would become surplus to requirements. This machinery has a book value of RWF18,700 and its sale would be estimated to realise a book loss of RWF2,000.

CTT Ltd will also be able to sell 80kgs of the raw material currently in stock which is used in the manufacturing process. The company will have the choice of either selling it to the successful tenderer at a price to be negotiated or else, if no acceptable price is offered by the successful tenderer, return it to the original supplier at cost less a 15% restocking charge.

Additionally, two of the four workers currently employed in the manufacture of the subcomponent would be redeployed within the company but the other two workers will be made redundant. This will necessitate a redundancy payment of RWF17,000 to each of these two workers.

The wage of each of the four workers, all of whom are highly skilled and have considerable accumulated experience, is RWF27,000 per annum. Currently, each of these workers spends half of his time making the sub-component and the remainder of his time in the Quality Control department, where the two redeployed workers will now spend all of their time.

CTT Ltd has prepared a shortlist of the following tenders and has decided that both of them should be critically evaluated against the costs of in-house production with a view to making a decision.

- MK Limited has quoted a price of RWF248,000 for the supply of 9,000 units per annum. It has offered the sum of RWF1,100 for the 80kgs of raw materials. In addition, it has offered to take on both of the workers due to be made redundant and will pay each an annual wage of RWF24,000 if its tender is accepted. Both workers have indicated their agreement to this proposal and, if the tender is successful, will each receive a concessionary lump-sum payment from CTT Limited of RWF7,000 instead of a redundancy payment.
- FB Limited has quoted a price of RWF245,000 for the production of 10,000 units per annum. It has offered the sum of RWF1,000 for the raw materials. FB Ltd will use its own staff to produce the component but would like to utilise the machinery and floor space currently used by CTT Ltd for the manufacture of the

subcomponent as it believes that such an arrangement would enable it to be better placed to respond to fluctuations in demand for the sub-component.

The use of these facilities is a key provision of FB Limited tender and is not open to negotiation. FB Limited has valued the annual use of these facilities at RWF13,000 and has deducted this sum from the gross value of the tender to arrive at the quotation of RWF245,000 above.

FB Limited has also agreed to a profit sharing scheme in respect of the 1,000 surplus subcomponents which would be made should the tender be accepted – 2.5% of the sales value of these surplus units will be paid to CTT Limited annually in arrears. It is expected that these surplus units will be sold for RWF40 each on the open market.

REQUIREMENT:

- (a) Determine which of the two external offers gives the lowest price per unit to CTT Limited.

(18 marks)

- (b) On the basis of your calculations in (a), state whether or not the company should continue to make the sub-component in-house and briefly outline any qualitative matters relevant to the decision.

(8 marks)

[Total: 26 marks]

DECISION MAKING

ANSWERS TO REVISION QUESTIONS

1. Contributions are:

Present	Product	Sales	Variable Cost	Contribution
		RWF	RWF	RWF
	A	10,000	4,000	6,000
	B	5,000	4,000	1,000
	C	15,000	12,000	3,000
Revised	Product	Sales	Variable Cost	Contribution
		RWF	RWF	RWF
	A	20,000	8,000	12,000
	B	-	-	-
	C	15,000	12,000	3,000

Present fixed expenses are RWF6,000.

Revised fixed expenses are RWF7,000.

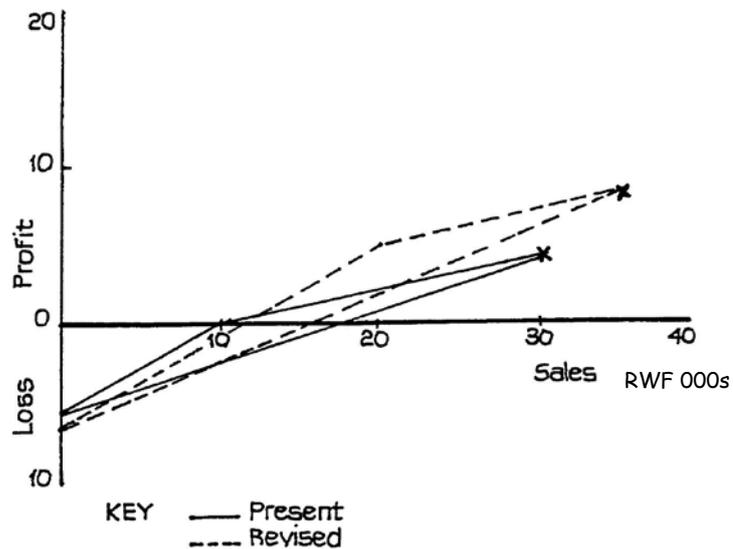


Figure 8

From the graph it can be read that:

- Present profit is RWF4,000 for sales of RWF30,000.
- Revised profit is RWF8,000 for sales of RWF35,000.
- Present BEP is RWF18,000.
- Revised BEP is RWF16,500 approx.

2. This question must be solved by initially evaluating each tender on the basis that it will be accepted and comparing the resultant inflows/outflows with the current costs of making the sub-component in-house.

This question tests the candidate's ability to identify "relevant" costs and revenues in the light of the particular terms of each tender, as well as examining candidates knowledge of typical qualitative factors which impact upon many business decisions.

(a)

	Accept MK Ltd Tender	Accept FB Ltd Tender
Quotation price	RWF248,000	RWF245,000
Sale of raw materials (note 1)	(1,100)	(1,020)
Rental income: (note 2)	(10,000)	None
Sale of machinery: (note 3)	(16,700)	None
Wages saved	(54,000)	(554,000)
Redundancy/lump sum (note 4)	14,000	34,000
Profit sharing: (note 5)	None	(1,000)
Total costs of accepting	180,200	222,980
Number of units	9,000	10,000
Cost per unit	RWF20.02	RWF22.30

Therefore, the offer from MK Ltd is the cheaper of the two tenders.

Notes:

1. **Sale of raw materials**

If CTT Ltd returns the raw materials to the supplier, it will receive RWF1,020 calculated as follows:

80 kgs @ RWF15 per kg	1,200
Less:	
15% restocking charge	(180)
Amount received	1,020

When this is compared to the offers from MK Ltd (RWF1,100) and FB Ltd (RWF1,000), it can be seen that CTT Ltd will sell the material to MK Ltd if its tender is accepted or else return the materials to the supplier if FB Ltd tender is successful.

2. **Rental income**

CTT Ltd will be able to sub-let the floor space if MK Ltd is successful; therefore, the sum of RWF10,000 is shown as income in the above evaluation of that company's proposal. However, if FB Ltd succeeds, CTT Ltd will not be able to sub-let the floor space, as it will be used by FB Ltd as part of the overall deal. It should be noted that, in either case, CTT Ltd will still have to pay the rent. This sum does not differ under either decision, it has not been shown in the above evaluation.

1. **Sale of machinery**

The cash proceeds realised on the sale of the machinery are calculated as follows:

	RWF
Book value	18,700
Less	
Book loss on disposal	(2,000)
	16,700

As per note 2, if FB Ltd is successful the machinery will not be sold; therefore, no proceeds are shown under the evaluation of FB Ltd tender.

2. **Redundancy/lump sum costs**

Payment to staff if MK Ltd succeeds: 2 staff @ RWF7,000 each = RWF14,000

Payment to staff if FB Ltd succeeds: 2 staff @ RWF17,000 each = RWF34,000

3. **Profit sharing**

The cash which CTT Ltd will receive under the profit sharing arrangement is calculated as follows:

1,000 units at RWF40 per unit x 2.5% = RWF1,000

- (a) On a purely economic basis, CTT Ltd should not sub-contract the manufacture of the sub-component to MK Ltd as the relevant (variable) cost of so doing is approximately RWF0.50 higher (RWF175,500/9,000 = RWF19.50 present cost per unit). This assumes a one year horizon.

Additionally, there may be other factors which the company might wish to take into account. These include the following:

1. Track record of MK Ltd – is the company a reliable, experienced supplier?
2. Quality of the component manufactured by MK Ltd – as this is a key component, it would be of paramount importance that clearly defined Quality Assurance procedures are installed to ensure top quality.
3. Effect on the morale of staff if two fellow workers are made redundant. There may be a decline in productivity if staff feel insecure in their positions.
4. Are there opportunities for CTT Ltd to extract greater economies from the current production process? Perhaps increased Capital investment may lower the average unit cost.
5. CTT Ltd should consider the implications of a decision to sub-contract the manufacture of the component, with special consideration of the consequences of dependency upon one supplier.

STANDARD COSTING AND VARIANCE ANALYSIS

REVISION QUESTION

1. ACM Co Limited manufacture a single product, product W, and have provided you with the following information which relates to the period which has just ended:

Standard Cost per Batch of Product W

Materials:	Kilos	Price per kilo RWF	Total RWF
F	15	4	60
G	12	3	36
H	8	6	48
	35		144
Less: Standard loss	3		
Standard yield	32		
Labour:	Hours	Rate per hour RWF	
Department P	4	10	40
Department Q	2	6	12
			196

Budgeted sales for the period are 4,096 kilos at RWF16 per kilo. There were no budgeted opening or closing stocks of product W.

The actual materials and labour used for 120 batches were:

Materials:	Kilos	Price per kilo RWF	Total RWF
F	1,680	4.25	7,140
G	1,650	2.80	4,620
H	870	6.40	5,568
	4,200		17,328
Less: Actual loss	552		
Actual yield	3,648		
Labour:	Hours	Rate per hour RWF	
Department P	600	10.60	6,360
Department Q	270	5.60	1,512
			25,200

All of the production of W was sold during the period for RWF16.75 per kilo.

REQUIREMENT:

- (a) Calculate the following material variances:

- **Price**
- **Usage**
- **Mix**
- **Yield**

(5 marks)

- (b) Prepare an analysis of the material mix and price variances for each of the materials used. (3 marks)
- (c) Calculate the following labour variances:
- Cost
 - Efficiency
 - Rate
- for each of the production departments. (4 marks)
- (d) Calculate the sales variances. (3 marks)
- (e) Comment on your findings to help explain what has happened to the yield variance. (5 marks)
- [Total: 20 marks]**

2. You have been assigned the task of assessing the performance of a division within the company in which you work.

The division, which is a major production centre, uses standard absorption costing for product costing and stock valuation purposes.

The cost card for the product line where you intend to start your assessment shows the following data:

	Quantity	RWF
Direct materials	10 kgs	105
Direct labour -Category A	30 minutes	15
- Category B	45 minutes	9
Variable overheads	20% of material	21
Fixed overheads (note)	30 minutes @ RWF12 per hour	6
 Standard absorption cost		 156

Note: Fixed production overheads are absorbed on the basis of standard time allowed for Category A labour. The monthly budget for Category A labour was 2,500 hours.

In the most recent month, 4,977 units were made at the following costs:

			RWF
Direct materials	- Purchased	55,000 kgs	555,600
	- Used	52,350 kgs	
Direct labour	- Category A	2,610 hours	77,648
	- Category B	3,730 hours	45,000
Variable overheads		114,925	
Fixed overheads			29,055

REQUIREMENT:

- (a) Calculate the following variances:
- (i) Direct materials price and usage. **(3 marks)**
 - (ii) Direct labour rate and efficiency variance for both categories of labour. **(3 marks)**
 - (iii) Variable overheads expenditure and efficiency variance. **(4 marks)**
 - (iv) Fixed overheads expenditure and production volume variance. **(4 marks)**

Show all workings.

- (b) Briefly comment on the information provided about the department's performance by the variance analysis. **(6 marks)**

[TOTAL: 20 MARKS]

STANDARD COSTING AND VARIANCE ANALYSIS

ANSWERS TO REVISION QUESTIONS

1. (a) Material Variances

(i) Actual quantity at actual price (given)		RWF17,328
(ii) Actual quantity at standard price:	RWF	
F 1,680 × RWF4	6,720	
G 1,650 × RWF3	4,950	
H 870 × RWF6	5,220	
		RWF16,890
(iii) Standard yield × Standard cost (32 × 120) × RWF4.50 (see working)		RWF17,280
(iv) Actual yield × Standard cost 3,648 × RWF4.50		RWF16,416
Variances (A = Adverse, F = Favourable):		RWF
Price (i) – (ii)		438 A
Usage (ii) – (iv)		474 A
Cost (i) – (iv)		912 A
Mix (ii) – (iii)		390 F
Yield (iii) – (iv)		864 A
Usage (as above)		474 A

Workings:

$$\text{Standard cost per kilo} = \frac{\text{RWF144}}{32\text{kilos}} = \text{RWF4.50}$$

(b) Further Analysis of Material Variances

Mix	F	G	H
Standard (kilos)	1,800	1,440	960
Actual (kilos)	1,680	1,650	870
	120 F	210 A	90 F
× Standard price (RWF)	4	3	6
	RWF390 F	RWF480 F	RWF630 A
			RWF540 F

Price	F	G	H
	RWF	RWF	RWF
Standard	4.00	3.00	6.00
Actual	4.25	2.80	6.40
	0.25 A	0.20 F	0.40 A
× Actual kilos used	1,680	1,650	870
	RWF438 A	RWF420 A	RWF330 F
			RWF348 A

(c) Labour Variances

		Total	Dept P	Dept Q
Cost variances		RWF	RWF	RWF
Standard cost		6,240	4,800	1,440
Actual cost		7,872	6,360	1,512
	(1)	RWF1,632 A	RWF1,560 A	RWF72 A
Efficiency variances				
Standard hours			480	240
Actual hours			600	270
			120 A	30 A
× Standard rate per hour			10	6
(RWF)	(2)	RWF1,380 A	RWF1,200 A	RWF180 A
Rate variances			RWF	RWF
Standard rate			10.00	6.00
Actual rate			10.60	5.60
			0.60 A	0.40 F
× Actual hours worked			600	270
	(3)	RWF252 A	RWF360 A	RWF108 F

Proof: (1) + (2) = (3)

(d) Sales Variances

Budgeted sales for actual level of activity	$120 \times 32 \times \text{RWF}16$	RWF 61,440
Actual sales	$3,648 \times \text{RWF}16.75$	61,104
		RWF336 A
Made up of: Volume variance		
(3,840 – 3,648 kilos) × RWF16		3,072 A
Price variance (RWF0.75 × 3,648)		2,736 F
		RWF336 A

- (e) The actual mix used had the same weight as the standard mix (4,200 kilos) but used a different combination from the standard mix (as indicated in (b)). It used less than planned of materials F and H, and more of material G, a lower-cost material. In addition to substituting the lower-cost material for F and H, which could affect the yield, the adverse yield variance could have also been caused by using materials of a lower quality than planned, e.g. the lower price per kilo of G gives a favourable price variance, but this could be due to buying a lower-quality material.

The labour efficiency variance may have been caused by poor-quality materials taking longer to process. It could also be due to lack of motivation of employees, e.g. those in department Q getting a lower pay rise than expected, could have caused them to work more slowly and to waste more material by not taking as much care as they should. This could also help explain the actual yield, 30.4 kilos per batch, being lower than the standard yield of 32 kilos per batch.

2. (a) Variance analysis calculations

	Actual costs incurred		Standard cost of inputs		Standard cost of production
Materials	RWF555,600		RWF577,500 ⁱ		RWF549,675 ⁱⁱ
	↑ Price: RWF21,900 (F) ↑			↑ Quantity: RWF27,090 (A) ↑	
Labour:					
Category A	RWF77,648		RWF78,300 ^{iv}		RWF74,655 ^v
	↑ Rate: RWF652 (A) ↑			↑ Efficiency: RWF3,645 (A) ↑	
Category B	RWF45,000		RWF44,760 ^{vi}		RWF44,793 ^{vii}
	↑ Rate: RWF240 (A) ↑			↑ Efficiency: RWF33 (F) ↑	
Variable Overheads					
	RWF114,925		RWF109,935 ^{viii}		RWF104,517 ^{ix}
	↑ Expenditure: RWF4,990 (A) ↑			↑ Efficiency: RWF5,418 (A) ↑	
Fixed Overheads					
	RWF29,055		RWF30,000 ^x		RWF29,862 ^{xi}
	↑ Budget: RWF945 (F) ↑			↑ Volume: RWF138 (A) ↑	

- (i) Standard cost of materials purchased: 55,000 kgs @ RWF10.50 per kilo
 - (ii) Standard cost of materials used: 52,350 kgs @ RWF10.50 per kilo
 - (iii) Standard materials cost of actual output: 4,977 units @ RWF105 per unit
 - (iv) Standard cost of category A hours used: 2,610 hours @ RWF30 per hour
 - (v) Standard category A labour cost of actual output: 4,977 units @ RWF15 per unit
 - (vi) Standard cost of category B hours used: 3,730 hours @ RWF12 per hour
 - (vii) Standard category B labour cost of actual output: 4,977 units @ RWF9 per unit
 - (viii) Standard cost of variable overheads (based on materials used): 20% of RWF549,675 as calculated in note (ii)
 - (ix) Standard variable overhead cost of actual output: 4,977 units @ RWF21 per unit
 - (x) Budgeted level of Fixed overheads per month: 2,500 category A hours @ RWF12 per hour
 - (xi) Standard Fixed cost of actual output: 4,977 units @ RWF6 per unit
- (b) Commentary on the performance of the production centre should include the following points:

Materials Variances

While the price being paid for the materials used is substantially lower than that budgeted for, it is clear that the quantity of materials being used to make the products is greater than allowed. Management should investigate the reasons for this – perhaps the Purchasing Department is buying materials of a lower grade which has occurred the levels of wastage experienced.

Labour Variances

Category A labour appears to be working at a level of efficiency which is less than expected. This may be related to the previous point if the quality of materials being used has resulted in the workers having to spend more time reworking the units produced. However, management should investigate any hypothesis in order to ascertain the precise reason for the adverse efficiency variance. No material problems are evident in respect of Category B labour.

Overhead Variances

Variable overheads appear to give cause for concern. The sizeable variances in both expenditure and efficiency variances may be due to the use of an inappropriate basis of applying such costs to output – it is possible that variable overheads are incurred in proportion to some cost other than materials. In any event, management should investigate the reasons for the substantial variances and may need to reconsider the use of materials as a means of allocating such costs to output.

PREPARATION TECHNIQUES AND CONSIDERATIONS OF BUDGETS

REVISION QUESTIONS

1. ALP Ltd is about to commence business to manufacture a standard product. The following standards have been prepared:

	RWF per unit
Sales price	<u>48</u>
Direct materials	10
Direct wages	20
Variable overhead	15

Fixed overheads, excluding depreciation, are budgeted at RWF80,000 for the year.

The company will have a share capital of RWF100,000 all of which will be invested in plant and equipment. Depreciation is to be calculated on a straight-line basis over a five-year period, with no residual value.

The following budgeted sales and production figures for the coming year have been prepared:

	Quarter			
	(1) units	(2) units	(3) units	(4) units
Sales	9,000	9,000	15,000	21,000
Production	10,000	12,000	15,000	20,000

Customers will be given a two-month credit period, and suppliers of direct material will allow three months' credit.

Stock of finished goods will be valued at standard variable cost.

Wages and overheads will be paid as incurred. Fixed overheads will accrue evenly throughout the year.

REQUIREMENT:

Prepare:

- Quarterly trading and profit and loss accounts
- A quarterly cash flow forecast

2. The budgeted balance sheet of KTU Ltd is as follows:

1 March Yr 5

	Cost	Depreciation to date	Net
	RWF	RWF	RWF
Fixed assets			
Land and buildings	500,000	-	500,000
Machinery and equipment	124,000	84,500	39,500
Motor vehicles	<u>42,000</u>	<u>16,400</u>	<u>25,600</u>
	<u>666,000</u>	<u>100,900</u>	565,100
Working capital:			
Current assets			
Stock of raw materials (100 units)		4,320	
Stock of finished goods (110 units)*		10,450	
Debtors (January RWF7,680, February RWF10,400)		18,080	
Cash and bank		<u>6,790</u>	
		39,640	
Less Current liabilities			
Creditors (raw materials)		<u>3,900</u>	<u>35,740</u>
			<u>600,840</u>
Represented by:			
Ordinary share capital (fully paid) RWF1 shares			500,000
Share premium			60,000
Profit and loss account			<u>40,840</u>
			<u>600,840</u>

*The stock of finished goods was valued at marginal cost.

The estimates for the next four-month period are as follows:

	March	April	May	June
Sales (units)	80	84	96	94
Production (units)	70	75	90	90
Purchases of raw materials (units)	80	80	85	85
Wages and variable overheads at RWF65 per unit	RWF4,550	RWF4,875	RWF5,850	RWF5,850
Fixed overheads	RWF1,200	RWF1,200	RWF1,200	RWF1,200

The company intends to sell each unit for RWF219 and has estimated that it will have to pay RWF45 per unit for raw materials. One unit of raw material is needed for each unit of finished product.

All sales and purchases of raw materials are on credit. Debtors are allowed two months' credit and suppliers of raw materials are paid after one month's credit. The wages, variable overheads and fixed overheads are paid in the month in which they are incurred.

Cash from a loan secured on the land and buildings of RWF120,000 at an interest rate of 7.5% is due to be received on 1 May. Machinery costing RWF112,000 will be received in May and paid for in June.

The loan interest is payable half-yearly from September onwards. An interim dividend to 31 March Yr 5 of RWF12,500 will be paid in June.

Depreciation for the four months, including that on the new machinery, is:

Machinery and equipment RWF15,733

Motor vehicles RWF3,500

The company uses the FIFO method of stock valuation. Ignore taxation.

REQUIREMENT:

- (a) Calculate and present the raw materials budget and finished goods budget in terms of units, for each month from March to June inclusive; and **(5 marks)**
- (b) The corresponding sales budgets, the production cost budgets and the budgeted closing debtors, creditors and stocks in terms of value. **(5 marks)**
- (c) Prepare and present a cash budget for each of the four months. **(6 marks)**
- (d) Prepare a master budget, i.e. a budgeted trading and profit and loss account for the four months to 30 June Yr 5, and budgeted balance sheet as at 30 June Yr 5. **(10 marks)**

PREPARATION TECHNIQUES AND CONSIDERATIONS OF BUDGETS

ANSWERS TO REVISION QUESTIONS

1. ALPLTD: TRADING AND PROFIT AND LOSS ACCOUNTS FOR THE YEAR ENDED

	Quarter				Total RWF
	(1) RWF	(2) RWF	(3) RWF	(4) RWF	
Sales	<u>432,000</u>	<u>432,000</u>	<u>720,000</u>	<u>1,008,000</u>	<u>2,592,000</u>
Direct materials	100,000	120,000	150,000	200,000	570,000
Direct wages	200,000	240,000	300,000	400,000	1,140,000
Variable overheads	<u>150,000</u>	<u>180,000</u>	<u>225,000</u>	<u>300,000</u>	<u>855,000</u>
	450,000	540,000	675,000	900,000	2,565,000
Opening stock of finished goods	<u>-</u>	<u>45,000</u>	<u>180,000</u>	<u>180,000</u>	<u>-</u>
	450,000	585,000	855,000	1,080,000	2,565,000
Less: closing stock of finished goods	<u>45,000</u>	<u>180,000</u>	<u>180,000</u>	<u>135,000</u>	<u>135,000</u>
	<u>405,000</u>	<u>405,000</u>	<u>675,000</u>	<u>945,000</u>	<u>2,430,000</u>
Gross profit	<u>27,000</u>	<u>27,000</u>	<u>45,000</u>	<u>63,000</u>	<u>162,000</u>
Fixed overheads	20,000	20,000	20,000	20,000	80,000
Depreciation	<u>5,000</u>	<u>5,000</u>	<u>5,000</u>	<u>5,000</u>	<u>20,000</u>
Net profit	<u>2,000</u>	<u>2,000</u>	<u>20,000</u>	<u>38,000</u>	<u>62,000</u>

BALANCE SHEET AS AT

	RWF	RWF
Fixed Assets at cost		100,000
Less depreciation		<u>20,000</u>
		80,000
Current Assets		
Stock	135,000	
Debtors	<u>672,000</u>	
	<u>807,000</u>	
Current Liabilities		
Creditors	200,000	

Bank overdraft	<u>525,000</u>	
	<u>725,000</u>	
Net current assets		<u>82,000</u>
		<u>162,000</u>
Represented by:		
Share capital		100,000
Profit		<u>62,000</u>
		<u>162,000</u>

Cash Budget

	Quarter				Total RWF
	(1) RWF	(2) RWF	(3) RWF	(4) RWF	
Share capital	100,000	-	-	-	100,000
Debtors	<u>144,000</u>	<u>432,000</u>	<u>528,000</u>	<u>816,000</u>	<u>1,920,000</u>
	<u>244,000</u>	<u>432,000</u>	<u>528,000</u>	<u>816,000</u>	<u>2,020,000</u>
Payments:					
Plant	100,000	-	-	-	100,000
Creditors	-	100,000	120,000	150,000	370,000
Wages	200,000	240,000	300,000	400,000	1,140,000
Expenses	<u>170,000</u>	<u>200,000</u>	<u>245,000</u>	<u>320,000</u>	<u>935,000</u>
	<u>470,000</u>	<u>540,000</u>	<u>665,000</u>	<u>870,000</u>	<u>2,545,000</u>
Balance on quarter	(226,000)	(108,000)	(137,000)	(54,000)	-
Brought forward	-	(226,000)	(334,000)	(471,000)	-
Carried forward	(226,000)	(334,000)	(471,000)	(525,000)	(525,000)

2. (a) **Raw Materials Budget**

(Units)	March	April	May	June
Opening stock	100	110	115	110
Add: Purchases	<u>80</u>	<u>80</u>	<u>85</u>	<u>85</u>
	180	190	200	195
Less: Used in production	<u>70</u>	<u>75</u>	<u>90</u>	<u>90</u>
Closing stock	<u>110</u>	<u>115</u>	<u>110</u>	<u>105</u>

Finished Goods Budget (units)

Opening stock	110	100	91	85
Add: Production	<u>70</u>	<u>75</u>	<u>90</u>	<u>90</u>
	180	175	181	175
Less: Sales	<u>80</u>	<u>84</u>	<u>96</u>	<u>94</u>
Closing stock	<u>100</u>	<u>91</u>	<u>85</u>	<u>81</u>

(b) **Sales Budget**

Total

(at RWF219 per unit) RWF17,520 RWF18,396 RWF21,024 RWF20,586 RWF77,526

Production Cost Budget

Raw materials (using FIFO)	3,024*	3,321**	4,050	4,050	14,445
Wages and variable costs	<u>4,550</u>	<u>4,875</u>	<u>5,850</u>	<u>5,850</u>	<u>21,125</u>
	RWF <u>7,574</u>	RWF <u>8,196</u>	RWF <u>9,900</u>	RWF <u>9,900</u>	RWF <u>35,570</u>

Budgeted Closing Debtors

May + June sales = RWF41,610

Budgeted Closing Creditors

June, raw materials = 85 units × RWF45 = RWF3,825

$$* \left(RWF4,320 \times \frac{70}{100} \right) = RWF3,024$$

$$** \left(RWF4,320 \times \frac{30}{100} \right) = RWF1,296 + 45 \text{ units at RWF45} = RWF3,321$$

Budgeted Closing Stocks

Raw materials: 105 units × RWF45 = RWF4,725

Finished goods: 81 units × RWF110 = RWF8,910

$$\left(\begin{array}{l} \text{material} \\ \text{RWF45 per unit} \end{array} + \begin{array}{l} \text{Lab + OH} \\ \text{RWF65 per unit} \end{array} \right)$$

(c)

		Cash Budget			
		March	April	May	June
		RWF	RWF	RWF	RWF
Balance	b/f	6,790	4,820	5,545	132,415
Add Receipts:					
Debtors (two months' credit)		7,680	10,400	17,520	18,396
Loan		<u>-</u>	<u>-</u>	<u>120,000</u>	<u>-</u>
	(A)	<u>14,470</u>	<u>15,220</u>	<u>143,065</u>	<u>150,811</u>
Payments:					
Creditors (one month's credit)		3,900	3,600	3,600	3,825
Wages and variable overheads		4,550	4,875	5,850	5,850
Fixed overheads		1,200	1,200	1,200	1,200
Machinery		-	-	-	112,000
Interim dividend		<u>-</u>	<u>-</u>	<u>-</u>	<u>12,500</u>
	(B)	<u>9,650</u>	<u>9,675</u>	<u>10,650</u>	<u>135,375</u>
Balance c/f	(A) – (B)	<u>4,820</u>	<u>5,545</u>	<u>132,415</u>	<u>15,436</u>

(d) **Master Budget**

**BUDGETED TRADING AND PROFIT AND LOSS ACCOUNT
FOR FOUR MONTHS TO 30 JUNE YR 5**

	RWF	RWF
Sales		77,526
Less: Cost of sales: Opening stock finished goods	10,450	
Add Production cost	<u>35,570</u>	
	46,020	
Less Closing stock finished goods		<u>8,910</u>
	<u>37,110</u>	
		40,416
Less: Expenses		
Fixed overheads (4 × RWF1,200)	4,800	
Depreciation:		
Machinery and equipment	15,733	
Motor vehicles	3,500	
Loan interest (two months)	<u>1,500</u>	<u>25,533</u>
		14,883
Less: Interim dividends		<u>12,500</u>
		2,383
Add: Profit and loss account balance b/f		<u>40,840</u>
		<u>43,223</u>

BUDGETED BALANCE SHEET AS AT 30 JUNE YR 5

	Cost	Depreciation	Net
	RWF	to date	RWF
		RWF	
Fixed Assets			
Land and buildings	500,000	-	500,000
Machinery and equipment	236,000	100,233	135,767
Motor vehicles	<u>42,000</u>	<u>19,900</u>	<u>22,100</u>
	<u>778,000</u>	<u>120,133</u>	657,867
Current Assets			
Stock of raw materials		4,725	
Stock of finished goods		8,910	
Debtors		41,610	
Cash and bank balances		<u>15,436</u>	
		70,681	
Less: Current Liabilities			
Creditors	3,825		
Loan interest owing	<u>1,500</u>	<u>5,325</u>	<u>65,356</u>
			<u>723,223</u>
Capital employed			
Ordinary share capital RWF1 shares (fully paid)			500,000
Share premium			60,000
Profit and loss account			<u>43,223</u>
			603,223
Secured loan (7.5%)			<u>120,000</u>
			<u>723,223</u>

COST BOOK-KEEPING

REVISION QUESTION

1. The cost accounts of LMN Ltd are kept separately from its financial accounts. The following balances have been brought forward at the beginning of Period 3.

	RWF000	RWF000
Stores Control	200	
Work-in-Progress Control	50	
Finished Goods Control	100	
Cost Ledger Control		350

The following transactions were recorded in the cost ledger for Period 3.

	RWF000
Purchases for stores	93
Returns to suppliers	3
Stores issued - indirect materials	10
Stores issued - direct materials	110
Direct wages	35
Indirect wages	15
Indirect expenses	21
Production overhead absorbed	45
Work completed, at cost	185
Cost of goods sold	195
Sales	230

Required

Make the necessary entries in the Cost Ledger Control record, Stores Control account, Work-in-Progress account, Finished Goods Control account and the Production Overhead Control account, and in the Costing Profit and Loss account.

(10 marks)

COST BOOK-KEEPING

ANSWER TO REVISION QUESTION

COST LEDGER CONTROL ACCOUNT

	RWF		RWF
Stores Control A/c	3,000	Balance b/f	350,000
Sales Control A/c	230,000	Stores Control A/c	93,000
Balance b/f	315,000	W-I-P Control A/c	35,000
		Production Overhead A/c	15,000
		Production Overhead A/c	21,000
		Costing P & L A/c	<u>34,000</u>
	<u>548,000</u>		<u>548,000</u>
		Balance b/f	315,000

WORK-IN-PROGRESS CONTROL ACCOUNT

	RWF		RWF
Balance b/f	50,000	Finished Goods Control A/c	185,000
Stores Control A/c	110,000	Balance c/f	55,000
Direct Wages:			
Cost Ledger Control A/c	35,000		
Production Overhead A/c	<u>45,000</u>		
	<u>240,000</u>		<u>240,000</u>
Balance b/f	55,000		

FINISHED GOODS CONTROL ACCOUNT

	RWF		RWF
Balance b/f	100,000	Costing P & L A/c	195,000
W-I-P Control A/c	<u>185,000</u>	Balance c/f	<u>90,000</u>
	<u>285,000</u>		<u>285,000</u>
Balance c/f	90,000		

STORES CONTROL ACCOUNT

	RWF		RWF
Balance b/f	200,000	Returns Outwards - Cost	
Purchases - Cost Ledger		Ledger Control A/c	3,000
Control A/c	93,000	Production Overhead A/c	10,000
		W-I-P Control A/c	110,000
		Balance c/f	<u>170,000</u>
	<u>293,000</u>		<u>293,000</u>
Balance b/f	170,000		

PRODUCTION OVERHEAD CONTROL ACCOUNT

	RWF		RWF
Stores Control A/c	10,000	W-I-P Control A/c (Overhead Absorbed)	45,000
Direct Wages - Cost Ledger Control A/c	15,000	Costing P & L A/c (Under- Absorbed)	1,000
Indirect Expenses - Cost Ledger Control A/c	<u>21,000</u>		<u> </u>
	<u>46,000</u>		<u>46,000</u>

SALES CONTROL ACCOUNT

	RWF		RWF
Costing P & L A/c	230,000	Cost Ledger Control A/c	230,000

COSTING PROFIT & LOSS ACCOUNT

Sales	RWF 230,000
Less Costs of Sales	(195,000)
Gross Profit	35,000
Less Production Overhead Under-Absorbed	<u>(1,000)</u>
Net Profit - Cost Ledger Control A/c	<u>34,000</u>

Note: this account can be shown in “T” account format.

MCQ

REVISION QUESTIONS

1. Answer all parts of this question.

The following information refers to questions (a) to (d):

		RWF
Direct material	0.5 kg @ RWF10 per kg	5.00
Direct labour: Skilled	0.25 hour @ RWF8 per hour	2.00
Unskilled	0.25 hour @ RWF6 per hour	1.50
Variable overheads	100% of skilled cost per unit	2.00
Fixed overheads	0.25 hours skilled labour @ RWF4 per hour	1.00
Standard absorbed cost of production		<u>11.50</u>

Budgeted usage of skilled labour per month is set at 1,000 hours. The standard selling price of a “Leviathan” is RWF20.

In a recent 4 week period, 3,800 “Leviathans” were produced at the following costs:

Direct material used:	2,000 kgs costing	RWF19,930
Direct labour: Skilled	1,000 hours costing	RWF7,820
Unskilled	1,100 hours costing	RWF6,370
Variable overheads incurred		RWF4,020
Fixed overheads incurred		RWF4,100

Answer the following multiple-choice questions:

- (a) In the 4 week period, the efficiency ratio (or productivity ratio) of the skilled staff was to one decimal place:

1. 97.8%
2. 95%
3. Not quantifiable with the information given.
4. 96.1%
5. None of the above

(2 marks)

- (b) The variable overhead efficiency variance was:

1. RWF3,580 adverse
2. RWF7,600 favourable
3. RWF3,600 favourable
4. RWF400 adverse

(3 marks)

(c) The budgeted level of Fixed Overheads for the month was:

1. Over absorbed by RWF100
2. Under absorbed by RWF200
3. Over absorbed by RWF80
4. Under absorbed by RWF300

(3 marks)

(d) The budgeted level of production of “leviathans” each month in units was:

1. 3,580 units
2. 3,900 units
3. 4,000 units
4. 3,800 units

(3 marks)

(e) When considering the operating statements prepared under marginal costing with those prepared under absorption costing, which of the following statements holds true:

1. In the long run, total profits reported under both type of statement will be the same.
2. SSAP 9 permits the use of marginal costing for external reporting requirements.
3. If stocks are built up between one period and the next, the profits reported under an absorption based system will be higher than those under a marginal costing system.
4. Reported profits cannot be affected by stock changes under an absorption costing system.

- Choices:
- (a) Statement 1 only is correct
 - (b) Statements 3 and 4 only are both correct
 - (c) Statement 2 only is correct
 - (d) Statements 1 and 3 only are correct.

(1 mark)

[Total: 12 marks]

2. Answer all parts of this question.

- (a) WTT Limited is considering whether or not to continue with production of the “Bauble” product line. Summarised budgeted results for the upcoming financial year are as follows:

	Baubles	Gadgets	Total
	RWF	RWF	RWF
Sales revenue	120,000	190,000	310,000
- Variable costs	85,000	102,000	187,000
Contribution margin	<u>35,000</u>	<u>88,000</u>	<u>123,000</u>
- Fixed overheads	42,000	45,000	87,000
Net Profit/(Loss)	<u><u>(7,000)</u></u>	<u><u>43,000</u></u>	<u><u>36,000</u></u>

It has been determined that of the RWF42,000 of Fixed Overheads deducted from the contribution generated by the “Baubles” product, RWF5,000 is directly attributable to the “Baubles” product line with the remaining RWF37,000 being an allocation of general overheads (Rent, Insurance, Light/Fans, etc) currently incurred by the company. By discontinuing production of the “Baubles” product line the company will be able to begin production of “Whatsits”. It is expected that sales of this new product will generate a contribution of RWF25,000 from which Fixed Overheads of RWF19,000 will be deducted. Of this total of RWF19,000, the sum of RWF12,000 represents a management allocation of part of the RWF37,000 overheads currently deducted from the contribution of the “Baubles” product (the remaining RWF25,000 of these overheads will be allocated to the “Gadgets” product line) and RWF7,000 represents the cost of hiring special purpose equipment to manufacture “Whatsits”.

REQUIREMENT:

If the decision is made to drop the “Baubles” product line in favour of “Whatsits”, the effect on the total net profits of the company would be:

- (a) An increase of RWF11,000.
- (b) An increase of RWF6,000.
- (c) A reduction of RWF12,000.
- (d) An increase of RWF13,000.
- (e) None of the above.

(5 marks)

(b) Which of the following items would appear in a cash flow statement only and not in a Profit and Loss account for the same period:

- (a) Rental income received.
- (b) Dividends paid.
- (c) Cost of Opening Stock held at the start of a financial year.
- (d) Purchase of second-hand motor vehicles.
- (e) None of the above.

(1 mark)

(c) Select the statement that most precisely defines each of the following terms:

(i) The contribution to sales ratio measures:

- (a) The total sales value required to be achieved in order to breakeven.
- (b) The total number of units which must be sold in order to breakeven.
- (c) The percentage contribution earned on the selling price of one extra unit.
- (d) The percentage gross profit mark-up on sales.

(1 mark)

(ii) An accounting system which contains separate cost accounting and financial accounting ledgers is called a/an:

- (a) Integrated system.
- (b) Marginal costing system.
- (c) Interlocking system.
- (d) Memorandum ledger control account.

(1 mark)

(iii) Equivalent units of production are defined as:

- (a) Notional whole units representing uncompleted work which are used to apportion costs between WIP and completed output.
- (b) Partially completed units which may be further processed if the additional costs of so doing are less than potential additional revenues.
- (c) Normal levels of losses expected in a typical process costing system which can be sold as scrap.
- (d) An average valuation calculated for stocks of materials using the cumulative weighted average pricing system.

(1 mark)

- (iv) In the context of process costing, the split-off point is defined as:
- (a) The point in a process beyond which it is uneconomic to incur additional processing costs on work-in progress.
 - (b) The point in a process from which production overheads are charged to work-in-progress.
 - (c) The point in a process at which joint products and by-products of the process are separately identifiable.
 - (d) The point at which it is more appropriate to apportion common process costs using a sales value basis rather than a physical units basis.

(1 mark)

- (v) In stock control the reorder level is calculated as:
- (a) Average stock usage * Average lead time
 - (b) Reorder quantity – (minimum usage * minimum lead time)
 - (c) Maximum stock usage * maximum lead time
 - (d) Average stock usage * maximum lead time

(1 mark)

- (vi) In the context of cost bookkeeping, a notional cost is defined as:
- (a) A cost which cannot be affected by management within a given time period.
 - (b) The value of a benefit where no actual cost is incurred.
 - (c) A standard cost of production calculated using ideal standards.
 - (d) The valuation of partly completed production.

(1 mark)

- (d) “Standard costing systems are widely used because they provide cost data for many different purposes.” Briefly outline the major purposes for which a standard costing system can be used.

(8 marks)

[Total: 20 marks]

MCQ

ANSWERS TO REVISION QUESTIONS

1. (a)

$$\begin{aligned}\text{Efficiency ratio} &= \frac{\text{Hours allowed for actual production}}{\text{Hours taken for actual production}} \\ &= (13,800 \times .25) / 1,000 = 95\% \text{ efficiency}\end{aligned}$$

(b)

Standard cost of variable overhead based on skilled hours used

$$1,000 \text{ hours @ RWF8 per hour} = \text{RWF8,000}$$

Variable allowed for actual production

$$\begin{aligned}3,800 \text{ units @ RWF2 per unit} &= \text{RWF7,600} \\ \text{Variable overhead efficiency variance} &= \underline{\text{RWF400}} \text{ adverse}\end{aligned}$$

(c)

Budgeted Fixed overheads per month

$$1,000 \text{ skilled hours @ RWF1 per quarter hour} = \text{RWF4,000} \text{ Per month}$$

Overheads absorbed by production

$$\begin{aligned}3,800 \text{ units @ RWF1 per unit} &= \text{RWF3,800} \\ \text{Under absorbed Fixed overheads} &= \underline{\text{RWF200}}\end{aligned}$$

(d)

Budgeted usage of skilled hours per month = 1000

Time taken per unit: 15 minutes

$$\text{Budgeted level of production} = 1000 / 0.25 = 4,000 \text{ units}$$

(e) Statements 1 and 3 are correct.

2. WTT LIMITED

- (a) This requires the relevant costs and revenues to be identified if the decision is made to drop the “Baubles” product line. The main point which candidates had to identify was that the Fixed Costs were split between relevant and non-relevant amounts.

Relevant costs/revenues	Drop line
Contribution of “Baubles” foregone	(RWF35,000)
Fixed costs attributable to “Baubles” saved	RWF5,000
New contribution generated from “Whatsits”	RWF25,000
Additional Fixed costs incurred on “Whatsits”	<u>(RWF7,000)</u>
Net change in Net Profits if product line dropped	<u>(RWF12,000)</u>

Therefore the correct answer is (c).

- (b) Option (d) is correct.

- (c) (i) c is correct
(ii) c is correct
(iii) a is correct
(iv) c is correct
(v) c is correct
(vi) b is correct

Contribution/Sales ratio (or Profit/Volume ratio)

Interlocking; Integrated

Equivalent units of production

(d) Points which should be made in the candidates solution include the following:

- Assists in setting budgets and evaluating management performance.
- Acts as a control device and an aid to “management by exception”.
- Can help provide a prediction of future costs for decision making purposes.
- Can assist inventory valuation.
- Provides a target for individuals. This can aid motivation.