MAY 2020 PROFESSIONAL EXAMINATIONS
MANAGEMENT ACCOUNTING (PAPER 2.2)
CHIEF EXAMINER'S REPORT, QUESTIONS AND MARKING SCHEME

STANDARD OF THE PAPER

The subject areas in which the candidates were examined were within the approved syllabus of the Institute. The areas include performance analysis using ratios, Cash Budgeting, Management Accounting Concepts, Variance analysis, Capital Budgeting, Investment appraisal, Shadow Prices and C/S ratio with Optimum Production Plans. There were no ambiguities and errors in the questions but some of the subject contents are considered to be elaborated (loaded) under examination conditions.

PERFORMANCE OF CANDIDATES

The general performance of the candidates is considered not satisfactory. Pass rate increased from 12% in November 2019 to 18% in May 2020.

NOTABLE WEAKNESSES OF CANDIDATES

The following are the major weaknesses noted in the performance of the candidates:

- Poor expression of the English language.
- Lack of knowledge and understanding of management accounting concepts, principles and techniques.
- Inability to analyze results from the calculations provided.

QUESTION ONE

Volta Advisory Ltd (VAR) began trading on 1 January 2014. It specialises in the provision of expert advice to clients in accountancy, taxation and regulatory compliance. It has a team of professional advisors, each specialising in one of these three areas of advice.

VAR has a target for delivering its services to clients promptly. From the time the client asks for advice, VAR undertakes to provide a formal report to the client within 10 working days.

The following information relates to the financial year ended 31 December 2016.

i) The professional advisors are budgeted to work 220 days each year. They charge GH¢1,400 per day to new clients and GH¢1,200 to established clients.
ii) As a marketing measure intended to win new business, the advisors also give consultations to potential clients on a 'no fee' basis. These consultations, which are budgeted to take one day each, are accounted for as business development costs in the marketing budget.
iii) The professional advisors are also required to attend some 'workshops' with new clients who are having difficulties with implementing the advice that they have been given by VAR. These workshops, which are also given on a 'no fee' basis, are budgeted to last two days.
iv) VAR also has a help desk to provide client support. It responds to telephone and e-mail enquiries from all new and established clients.
v) The team of professional advisors is exactly 50. It is a policy of VAR to limit the team to 50, regardless of the volume of demand for its services.
vi) All professional advisors are paid a salary of GH¢100,000 per year. In addition, they are entitled to share equally in an annual bonus. The bonus is 50% of the amount by which fee income generated exceeds budget minus the revenue foregone as a result of having to give workshops for clients. This revenue foregone is assessed at a notional daily rate of GH¢1,200 per advisor/day.
vii) Operating expenses of the business, excluding salaries of the advisors, were GH¢3,100,000 in 2016. The budget for these expenses was GH¢2,800,000.

Other information

	Budget 2016	**Actual 2016**
Professional advisors, by category:		
Accounting	15	10
Tax	20	20
Compliance	15	20
Enquiries about seeking new advice:		
New clients	2,600	2,200
Established clients	4,000	3,700
Number of chargeable client days:		
New clients	2,600	2,750

	Budget 2016	Actual 2016
Established clients	5,100	5,500
Average client days per job	4	4
Mix of chargeable client days:		
Accounting	1,155	1,650
Tax	1,540	3,300
Compliance	1,155	3,300

The following are actual results for each of the three years 2014-2016

	2014	2015	2016
Number of clients	160	248	347
Number of complaints from clients	50	75	95
Number of accounts in dispute	10	7	5
Support desk: percentage of calls resolved	86%	94%	97%
Percentage of jobs completed within 10 days	90%	95%	98%
Average time to complete a job (days)	12.6	10.7	9.5
Chargeable client days	7,200	7,750	8,250
Number of consultations (business development)	50	100	150
Number of workshops given	110	135	165
Revenue (GH¢000)	8,920	9,740	?
Net profit (GH¢000)	1,740	1,940	?

Required:

Using the information provided, analyse and discuss the performance of VAR for the year to 31 December 2016, under the following headings:

a) financial performance and competitiveness;
b) internal efficiency; and
c) external effectiveness.

(20 marks)

QUESTION TWO

a) Given the dynamic environment within which organisations operate, the Management Accountant's role has evolved to include providing information that would assist the firm to design strategies geared towards achieving competitive advantage through sustained customer satisfaction. These strategies target key success factors which include cost efficiency, quality, time and innovation because of the value placed on them by customers.

Required:

i) Discuss **FOUR (4)** management concepts that the Management Accountant can use to achieve customer satisfaction. **(8 marks)**

ii) State **FOUR (4)** questions that a good decision maker might pose in order to make an assessment of the value of information. **(2 marks)**

b) Emefa Ltd (Emefa) is in the process of preparing its budget for the month of October, 2019 for its product, YEK. The Company expects to sell the product for GH¢75 but this price is expected to increase in the last quarter of 2019 by 5%. The following are the expected sales in units for the last six months in 2019.

August	**September**	**October**
7,000	8,000	9,000

In October 2019, a total of 9,150 units of product YEK are expected to be produced to meet demand.

Typically, cash sales represent 20% of sales. Credit sales terms are 2/10, n/30. Emefa bills customers on the first day of the month following the month of sale. Experience has shown that 60% of the billings will be collected within the discount period, 25% by the end of the month after sales, 10% by the end of the second month after the sale, and 5% will ultimately be uncollectible. The firm writes off uncollectible accounts after 12 months.

The firm uses two materials for production, Mat and Pat. The purchase terms for materials are 2/15, n/60. Experience has shown that 80 % of the purchases are paid in the month of the purchase and the remainder are paid in the month immediately following. In September 2019, the firm budgeted purchases was GH¢32,000 for Mat and GH¢20,000 for Pat.

The firm's budgeted direct material and labour budgets are as follows:

Direct Materials Purchases Budget (in Cedis) For October 2019

Budgeted Purchases	**Pounds**	**Expected Purchase Price per Unit (GH¢)**	**Total (GH¢)**
Mat	45,000	2.00	90,000
Pat	25,000	3.00	75,000
Budgeted purchases			**165,000**

The production process requires direct labour at two skill levels (SL). The rate for labour at the SL1 level is GH¢45 per hour and for the SL2 level is GH¢25 per hour. The SL1 level can process one batch of YEK per hour while SL2 uses two (2) hours for the same output. Each batch consists of ten (10) units. The manufacturing of YEK also requires one-fifth of an hour of SL2 workers' time for each unit manufactured.

Variable manufacturing overhead is GH¢100 per batch plus GH¢75 per direct labour-hour. In addition to variable overhead, the firm has a monthly fixed factory overhead of GH¢60,000, of which GH¢18,000 is depreciation expense. The firm pays all manufacturing labour and factory overhead when incurred.

Total budgeted marketing, distribution, customer service, and administrative costs for 2019 annual budget are GH¢3,000,000. Of this amount, GH¢2,000,000 is considered fixed and includes depreciation expense of GH¢400,000.
All marketing and administrative costs are paid in the month incurred.

Management desires to maintain an end-of-month minimum cash balance of GH¢100,000. The firm has an agreement with a local bank to borrow its short-term needs in multiples of GH¢10,000 up to GH¢1,000,000 at an annual interest rate of 26 %. Borrowings are assumed to occur at the end of the month. Bank borrowing at October 1 was GH¢0.

Required:
Prepare the cash budget for October 2019 for Emefa Ltd. **(10 marks)**

(Total: 20 marks)

QUESTION THREE

Slab Processes (Ghana) Limited manufactures a single product. The product is manufactured in a single process, by combining three raw materials, A, B and C.

For 2019, the standard cost of a litre of the product was established in the budget as follows:

Material	**Quantity litres**	**Price per litre GH¢**	**Standard cost GH¢**
A	0.7	2	1.4
B	0.4	4	1.6
C	0.1	8	0.8
	1.2		3.8
Loss in process	(0.2)		-
Standard cost per litre of output	1.0		3.8

During one month in the year, 2,000 litres of finished products was the output from the process, and the actual direct material costs were as follows:

Material	**Quantity litres**	**Cost GH¢**
A	1,340	2,970
B	910	3,450
C	240	1,900
		8,320

Required:

a) Calculate the material price variance and the material usage variances for the period. **(5 marks)**

b) Analyse the operational usage variance into a materials mix and a materials yield variance. **(6 marks)**

c) Comment on the ***significance and usefulness*** of a materials mix and a materials yield variance, for management control purposes. **(3 marks)**

d) Describe briefly **THREE (3)** fundamental weaknesses in the traditional annual budgeting approach that exist regardless of the budgeting method that is used. **(6 marks)**

(Total: 20 marks)

QUESTION FOUR

a) Senchi Ltd is evaluating an investment proposal to manufacture River boat, which has performed well in test marketing trials conducted recently by the company's research and development division.

Required:

Identify and explain the stages in the capital investment decision-making process. **(10 marks)**

b) The main reason why discounted cash flow methods of investment appraisal are considered theoretically superior is that they take into account of the time value of money.

Required:

Explain **THREE (3)** elements that determine the ***time value of money*** and why it is important to take them into consideration when appraising investment projects. **(6 marks)**

c) Explain how a management accountant can use ***make or buy*** analysis and the ***limiting factor principles*** to achieve optimal solutions to an internal management problem.

(4 marks)

(Total: 20 marks)

QUESTION FIVE

Blasius Ltd is a leading manufacturer of furniture in Ghana. The company manufactures these three garden furniture products – chair, bench and table. The budgeted unit cost and resource requirements of each of these items are detailed below:

	Chair	**Bench**	**Table**
	GH¢	**GH¢**	**GH¢**
Timber cost	5.00	15.00	10.00
Direct labour cost	4.00	10.00	8.00
Variable overhead cost	3.00	7.50	6.00
Fixed overhead cost	4.50	11.25	9.00
	16.50	**43.75**	**33.00**
Budgeted volumes per annum	**3,500**	**1,900**	**1,350**

These volumes are believed to equal the market demand for these products.
Fixed overhead costs are attributed to the three products on the basis of direct labour hours.
The cost of the timber is GH¢2.00 per square metre.

The products are made from a specialized timber. A memo from the purchasing manager advises you that because of a problem with the supplier, this specialized timber is limited in supply to 20,000 square metres per annum.
The sales director has already accepted an order for 500 chairs, 100 benches and 150 tables which if not supplied would incur a financial penalty of GH¢2,000. These quantities are NOT included in the market demand estimates above.

The selling prices of the three products are:
Chair GH¢20.00
Bench GH¢50.00
Table GH¢40.00

Required:

a) Determine the optimum production plan and state the total contribution that this would yield. **(10 marks)**

b) A timber merchant from Takoradi made a proposal to Blasius Ltd to supply this specialize timber which is in short supply but at the cost of GH¢4.5 per square metre.

Required:

i) Explain the term ***shadow price***. **(2 marks)**
ii) Identify the shadow price which should be paid per square metre and comment on the acceptability of the offer. **(4 marks)**

c) Blasius Ltd has just decided to produce a new line of item namely bed that can be sold in its retail shops throughout the country.
It has provided you with the following information concerning the total cost of annual production and the prices at which that production could be sold:

Annual production units	**Total cost GH¢000**	**Selling price (per unit) GH¢**
2,500	100.3	70.8
5,000	186.3	66.7
7,500	287.8	62.5
10,000	405.0	58.3
12,500	537.8	54.2

Required:
Determine the optimal selling price for the bed. **(4 marks)**

(Total: 20 marks)

SOLUTION TO QUESTIONS

QUESTION ONE

a) **Financial performance and competitiveness**

VAR achieved a net profit that was over 12% in excess of budget in 2016. Total sales grew by 7% in 2016 compared with 2015, in spite of the fact that the budget provided for very little revenue growth.

The net profit margin was 21.1%, compared with 19.9% in 2015 and 19.5% in 2014. VAR appears to have established a very profitable and successful business in the three years since it was established.

The competitiveness of VAR can be judged to some extent by the increase in the number of clients, which has gone up from 160 in 2014 to 350 in 2015. The average revenue per client, however, has gone down. On average clients were paying for 23.6 days of advice in 2016.

However, there is no information about the share of the market that VAR now has for professional advice.

(Any 2 valid points explained =4 marks)

b) **Internal efficiency**

Internal efficiency can be measured by productivity. The budgeted number of chargeable client days was 7,700 days. The total number of adviser days in the year should have been 11,000 (50 × 220 days). This means that the budget was for 70% of days to be chargeable days, and 30% non-chargeable. Actual chargeable days were 8,250, which was 75% of total days, leaving 25% of days as non-chargeable days.
This indicates that actual productivity in earning revenue was better than the budget target.

Internal efficiency and external efficiency can both be measured by flexibility. VAR has a policy of restricting the team of advisers to 50. However, within this limit of 50 advisers, VAR has been flexible enough to respond to a pattern of customer demand in which the demand for accounting advice was less than budget but the demand for advice on compliance is much higher. This suggests that VAR has the flexibility to switch advisers from one specialty to another.

At an operational level, internal efficiency can be measured by process time. The information provided shows that the average time to complete each 'job' has continued to fall, indicating greater efficiency, and a growing number of 'jobs' are being completed within the target time of 10 days.

Internal efficiency can also be measured at an operational level by waste. Here, the performance is not as good as it might have been. Waste could be measured by the number of 'no fee' workshops given to clients. These have gone up by 50% since

2014, to 15 workshops in 2016. At two days per workshop, this represents 330 days that have been lost that might otherwise have been used to earn income. The potential loss of revenue at GH¢1,400 a day was therefore GH¢462,000.

Management should look into the reasons for the growth in the number of workshops, to establish what measures might be taken to reverse the trend.

(Any 4 valid points explained @1.5 marks =6 marks)

c) External effectiveness

External satisfaction can be measured by customer satisfaction and flexibility (as indicated earlier).

There are some indications that customer satisfaction is quite high. The growth in client numbers is one indicator.

A better indicator might be the rate of converting enquiries into 'sales'. The budget for 2016 provided for 7,700 chargeable days and an average of 4 days per 'job'. This means that the budget provided for 1,925 'jobs'. It also provided for 6,600 enquiries from customers, which means that about 30% of enquiries would be converted into fee-earning work.

Actual results in 2016 were 8,250 chargeable days, giving about 2,062.5 'jobs'. There were 5,900 enquiries, making a conversion rate of about 35% of enquiries into fee-earning work. This indicates that actual performance was better than budget in this all-important area of making sales.

Increasing customer satisfaction might also be evident in the decline in the number of customer complaints, which was down to 5 in 2016.

However, it is not clear that the increasing number of consultations (business development) is having a significant effect in increasing sales. This should be investigated.

At an operational level, external effectiveness can be measured by delivery. There is only a limited amount of data, but the performance of the help desk indicates improvements in the service delivery, with the increasing percentage of calls being resolved. The 97% level of successfully-resolved enquiries in 2016 is high, although management might set targets for more improvements in the future.

External effectiveness can also be measured by quality. The quality of professional advice might be measured by the number of unresolved disputes with customers, which has declined. However, quality can also be measured by the number of customer complaints, which has been increasing. The growth in complaints (up from 75 to 95 in 2016) is inconsistent with improving customer satisfaction, and this is another aspect of performance that management should investigate.

(Any 4 valid points explained @1.5 marks =6 marks)

Workings

	Budget 2016	Actual 2016
	GH¢	GH¢
Revenue		
2,600 × GH¢1,400	3,640,000	
2,750 × GH¢1,400		3,850,000
New clients		
5,100 × GH¢1,200	6,120,000	
5,500 × GH¢1,200		6,600,000
Established clients	9,760,000	10,450,000

Actual revenue	10,450,000
Budgeted revenue	9,760,000
Excess revenue	690,000
Notional revenue foregone from workshop days (165 workshops × 2 days × GH¢1,200)	396,000
Net excess revenue	**294,000**
Bonus paid to advisers (50%)	GH¢147,000

	Budget 2016	Actual 2016
	GH¢	GH¢
Revenue	9,760,000	10,450,000
Costs		
Basic salaries	5,000,000	5,000,000
Bonus	0	147,000
Operating expenses	2,800,000	3,100,000
Total costs	7,800,000	8,247,000
Net profit	**1,960,000**	**2,203,000**

(4 marks evenly spread using ticks)
(Total: 20 marks)

EXAMINER'S COMMENT

Candidates were examined in the areas of performance analysis using ratios relating it to financial performance, internal matters as well as external relations. Two areas of difficulty were faced by the candidates;

i) Determination of net excess revenue as well as the preparation of operating results.

ii) Factors used for internal efficiency as against that of external effectiveness.

QUESTION TWO

a) i)

Total Quality Management (TQM): Is a term used to describe a situation where all business functions are involved in a process of continuous quality improvement that focuses on delivering products or services of consistently high quality in a timely fashion. Through TQM, organizations seek to increase customer satisfaction not only by emphasizing quality products and services but also providing speedier response to customer request.

Benchmarking: Is a technique that is increasingly being adopted as a mechanism for achieving continuous improvement. It is a continuous process of measuring a firm's products, services or activities against the other best-performing organizations, either internal or external to the firm. It enables organizations to achieve high competitive standards desired by customers.

Employee Empowerment: It relates to providing employees with relevant information to enable them to make continuous improvements to the output of processes. This would enable employees to respond faster to customers, increase price flexibility, reduce cycle time and improve morale.

Value chain Analysis: It is the linked set of value-creating activities all the way from basic raw material sources for component suppliers though to the ultimate end-use product or service delivered to the customer. The value is created through research and development, design, production, marketing, distribution and customer service Co-ordinating the individual parts of the value chain together to work as a team creates the conditions to improve customer satisfaction.

Corporate Social Responsibility
Ethics and Environmental Issues

(Any 4 well explained points @ 2 marks each = 8 marks)

ii) Questions for assessing the value of information

These include:

- What information is provided?
- What is used for?
- Who uses it?

- How often is it used?
- Does the frequency with which it is used coincide with the frequency with which it is provided?
- What is achieved by using it?
- What other relevant information is available which could be used instead?

(Any 4 points for ½ a mark = 2 marks)

b) Cash Budget For October 2019

	GH¢	GH¢
Cash balance, beginning (given)		100,000
Cash flow from operations:		
October cash sales (9,000 x GH¢75 x 1.05) x 20%	141,750	
Collections of receivables from credit sales in September:		
Within the discount period (8,000 x GH¢75) x 80% x 60% x 98%	282,240	
After the discount period (8,000 x GH¢75) x 80% x 25%	120,000	
Collections of receivables from credit sales in August (7,000 x GH¢75) x 80% x 10%	42,000	585,990
		685,990
Cash Disbursement		
Materials purchases:		
September purchases (32,000 + 20,000) x 20%	10,400	
October purchases (GH¢165,000 x 80% x 98%)	129,360	139,760
Direct manufacturing labour ((915x45) + (915x2x25))		86,925
Variable factory overhead (GH¢100 x 915) + (GH¢75 x 2,745)		297,375
Fixed factory overhead (GH¢60,000 – GH¢18,000)		42,000
Variable marketing, customer services and Admin expenses: (GH¢1,000,000/12)		83,333
Fixed marketing, customer services and administrative Exp. (GH¢2,000,000 – GH¢400,000) / 12		133,333
		(782,726)
Cash balance, October 2019		**(96,736)**
New borrowing *End of the month		**200,000**

Note: The total labour cost could be (86,925+91,500)
91,500 is one fifth of level 2 labour hours for each unit produced (0.4×9150×25)

(10 marks evenly spread = 10 marks)

(Total: 20 marks)

EXAMINER'S COMMENT

This question examined candidates' knowledge in Management Accounting Concepts and preparation of Cash Budgets. Apart from the Cash Budget which contents are considered too much in relation to the marks allocated, the candidates again faced two major difficulties;

i) They could not identify the Management Accounting Concepts that can be used to achieve customer satisfaction in an organization.

ii) They also had problems determining some of the outflows in the Cash Budget such as:

- Labour cost and the additional cost involved.
- Fixed and Variable Marketing/ Administrative expenses.
- Determination of net borrowings which is to be in the multiples of GH₵10,000.00. Refer to the suggested solutions provided.

QUESTION THREE

a)

Materials: usage variance

2,000 units of output:	**Should use litres**	**Did use litres**	**Usage variance litres**	**Standard cost per litre GH¢**	**Usage variance GH¢**	
Material A	1,400	1,340	60 (F)	2	120	(F)
Material B	800	910	110 (A)	4	440	(A)
Material C	200	240	40 (A)	8	320	(A)
Total usage variance					640	(A)

(2.5 marks)

Materials: price variance

	Should cost GH¢	**Did cost GH¢**	**Price variance GH¢**	
1,340 litres of A	2,680	2,970	290	(A)
910 litres of B	3,640	3,450	190	(F)
240 litres of C	1,920	1,900	20	(F)
Total price variance			80	(A)

(2.5 marks)

Alternatively

Material price variance = (SP-AP)AQ

A (2-2.216) 1340 = 289.44 A

B	(4-3.791)910	= 190.19 F
C	(8-7.92)240	= 19.20 F
Total price variance		GH¢80.05 A

b) **Mix variance**

Material	Actual usage litres		Std mix of actual total usage litres	Mix variance litres	Std cost per litre GH¢	Mix variance GH¢	
A	1,340	(7)	1,452.5	112.5 (F)	2	225	(F)
B	910	(4)	830.0	80.0 (A)	4	320	(A)
C	240	(1)	207.5	32.5 (A)	8	260	(A)
	2,490		2,490.0			355	(A)

(3 marks)

Yield variance

		litres	
2,000 litres of output	should use (× 1.2)	2,400	
	did use	2,490	
Yield variance	in litres	90	(A)
Standard cost per litre of input (GH¢3.8/1.2)		3.1667	
Yield variance in GH¢		GH¢285	(A)

(3 marks)

Alternatively

Material yield variance.

1.2 litres of A B &C is used to produce 1 litres.
Therefore 2490 litres should produce 2075 litres.
But 2490 litres produced 2000 litres.
Giving a variance of 75 litres @ GH¢3.8 = GH¢285A

c) A materials mix and yield variance can be useful for control purposes when several materials are mixed together in a process, and the mix of the materials is controllable by the manager responsible for the process. An adverse mix variance indicates that the mix of materials has been more expensive than the standard mix.

If the mix of materials is controllable, there is little information value in calculating the usage variance of each individual material. Instead, it is appropriate to calculate a yield variance for all the materials in total. A yield variance should be of control value, on the assumption that the quantities of materials used are controllable – for example, management should be able to control waste or scrap levels.

(3 marks)

(d) The annual budget model has several inherent weaknesses. These exist no matter what approach to budgeting is used.

- The budget is for a one-year period. Targets are set for the 12 months and actual performance is measured on the basis of achievements in one year. However, to achieve strategic change, planning needs to be for the longer term and performance should be measured by progress towards longer-term objectives as well as shorter-term achievements. The annual budget is not compatible with longer-term planning.
- The annual budget is also seen as a system for imposing financial discipline and control. This focus on financial targets and cost control is not compatible with setting corporate objectives, where external factors and competitiveness are just as important as internal efficiency and financial returns.
- The annual budget focuses on internal efficiency and improvements, and lacks an external focus. However, strategic objectives and strategic planning have to take account of external factors as well as internal efficiency.
- It can be argued that the annual budget process adds little value and is unnecessary. It wastes management time, since management should be doing other things to add value and contribute to the entity's objectives.
- There is also an argument that the annual budget is to rigid and discourages change once the budget targets have been agreed. Management will focus their attention and efforts on achieving the agreed targets, even though circumstances might change and the budget targets might no longer be the most appropriate.
- In theory, the budgeting process should help management to identify 12-month objectives that are in the best interests of the entity and that will help it to achieve its longer-term objectives. In reality, however, the budgeting is often a 'battle' between managers for resources and status. Budget targets are often the result of negotiated compromises rather than rational decisions.

(Any 3 well explained points @ 2 marks each = 6 marks)

(Total: 20 marks)

EXAMINER'S COMMENT

Candidates were examined in the computation of variances including Mix and Yield variances, as well as budgeting techniques. Apart from the determination of Yield and Variances, all other variances were well computed.

Most of the candidates could also not identify the fundamental weaknesses in the traditional annual budgeting approach.

QUESTION FOUR

a)

The key stages in the capital investment decision-making process are identifying investment opportunities, screening investment proposals, analyzing and evaluating investment proposals, approving investment proposals, and implementing, monitoring and reviewing investments.

Identifying investment opportunities

Investment opportunities or proposals could arise from analysis of strategic choices, analysis of the business environment, research and development, or legal requirements. The key requirement is that investment proposals should support the achievement of organizational objectives.

Screening investment proposals

In the real world, capital markets are imperfect, so it is usual for companies to be restricted in the amount of finance available for capital investment. Companies therefore need to choose between competing investment proposals and select those with the best strategic fit and the most appropriate use of economic resources.

Analysing and evaluating investment proposals

Candidate investment proposals need to be analyzed in depth and evaluated to determine which offer the most attractive opportunities to achieve organizational objectives, for example to increase shareholder wealth. This is the stage where investment appraisal plays a key role, indicating for example which investment proposals have the highest net present value.

Approving investment proposals

The most suitable investment proposals are passed to the relevant level of authority for consideration and approval. Very large proposals may require approval by the board of directors, while smaller proposals may be approved at divisional level, and so on. Once approval has been given, implementation can begin.

Implementing, monitoring and reviewing investments

The time required to implement the investment proposal or project will depend on its size and complexity, and is likely to be several months. Following implementation, the investment project must be monitored to ensure that the expected results are being achieved and the performance is as expected. The whole of the investment decision-making process should also be reviewed in order to facilitate organizational learning and to improve future investment decisions.

(5 points well explained @ 2.5 marks=10 marks)

b) The time value of money relates to the return required by investors and has three main elements:

Delayed Consumption

There is an opportunity cost involved with the investment of funds. Generally, the value of GH¢1.00 now is greater than the value of GH¢1.00 in one year's time since

investors have to give up present consumption. An investor will give up present consumption for the potential of higher future consumption i.e. they need to be rewarded for giving up certain current consumption for certain future consumption.

Inflation
If there is inflation, then investors also need to be compensated for the loss in purchasing power as well as for time.

Risk
The promise of money in the future carries with it an element of risk. The payout may not take place or the amount may be less than expected. An investor therefore needs to be compensated for time, inflation and also risk.

The objective of investment within a company is to create value for its owners. Investors have alternative uses for their funds and therefore have an opportunity cost if money is invested in a corporate project. Investments therefore must generate enough cash for all investors to receive their required returns.

(3 well explained points @ 2 marks each = 6 marks)

c) **Make or buy analysis** involves whether to manufacture a product in-house or to purchase it from a third party. The outcome of this **analysis** should be a **decision** that maximizes the long-term financial outcome for a company.

(2 marks)

Limiting factors refer to the constraints in availability of production resources (e.g. shortages in labor, machine hours or materials) that prevent a business from maximizing its sales. **(2 marks)**

(Total: 20 marks)

EXAMINER'S COMMENT
This question examined candidates in the area of capital investment decisions and the concept of the time value of money. Performance in this question is satisfactory.

QUESTION FIVE

a)

	CHAIR GH¢	**BENCH GH¢**	**TABLE GH¢**
Selling Price	20	50	40
Variable cost	12	32.5	24
Contribution/unit	8	17.5	16
Timber/units	2.5	7.5	5
Contribution/m^2	3.2	2.33	3.2
Ranking	**1st**	**2nd**	**1st**

PRODUCT	**QUANTITY**	**LIMITING FACTOR**	**CONTRIBUTION GH¢**
Chair	500	1,250	4,000
Bench	100	750	1,750
Table	150	750	2,400
		2,750	
Chairs	3,500	8,750	28,000
Table	1,350	6,750	21,600.00
Bench	233	1,747.50	4,077.50
		19,997.5	
Total Contribution		**20,000**	**61,827.50**

(8 marks evenly spread using ticks)

Since the optimum plan includes production of sufficient quantities of each items to meet the order comprising the minimum demand, and production of the most profitable items already meets the maximum demand, there is no need to consider the financial penalty. **(2 marks)**

b)

i) Shadow price is also known as maximum price or dual price. It's a maximum amount more than normal price to be paid to obtain one unit of scarce resources when it became available. The shadow price is the price at which the purchaser makes a nil contribution from it use.
Management can use the shadow price as a measure of how much they would be pay to gain more of a scare resources over and above the normal price subject to any non- financial issues. **(2 marks)**

ii) The present situation is that demand for chairs and tablets is fully satisfied from the existing resources, but there is some unsatisfied demand for benches. Thus any additional timber would be used to manufacture more benches.
Based on the current input cost of GH¢2.00 per m^2 each of timber earns a contribution of GH¢2.33. Thus the maximum price to be paid is the sum of these value; GH¢4.33 per m^2.
Offer price 4.50 2.50

Shadow price	(4.33)	or	(2.33)
Excess of	0.17		0.17

Therefore the offer should be rejected **(4 marks)**

c) Tabulated below are the total cost and revenue figures together with profit at each activity level to determine optimal selling price. The same result has been reached by comparing marginal cost and revenue figures.

Selling Price GH¢	**Production and Sales**	**Total Revenue GH¢000**	**Total Cost GH¢000**	**Profit GH¢000**
70.8	2,500	177.00	100.30	76.70
66.7	5,000	333.50	186.30	147.20
62.5	7,500	468.75	287.80	180.95
58.3	10,000	583.00	405.00	178.00
54.2	12.,500	677.50	537.80	139.70

It can be seen from the profit column that profit is maximized where the selling price is set at GH¢62.5, as this gives the highest profit of a GH¢180.95. **(4 marks)**

(Total: 20 marks)

EXAMINER'S COMMENT

This question examined candidates in the determination of optimum production plan using the Contribution Approach with a limiting factor relating to one of the resources. They were also required to provide and determine what a shadow price is. Most of the candidates were able to compute the contribution per unit and rank the products correctly. However, determining the optimum production plan, they could not come out with the total contribution.

Most of the candidates could not define what a shadow price is.