MAY 2021 PROFESSIONAL EXAMINATION
MANAGEMENT ACCOUNTING (PAPER 2.2)
CHIEF EXAMINER'S REPORT, QUESTIONS AND MARKING SCHEME

STANDARD OF PAPER
Candidates were examined in performance measurement, preparation of functional budgets, product costing using overhead absorption rates, ethical behaviour in organisations, investment appraisal using NPV and payback periods, and decision-making involving make or buy decisions. All these subject areas were within the approved syllabus of the Institute.

The requirements of Question 2 and 3 were considered involving or loaded. It will be difficult for candidates under examination conditions to provide solutions for these questions within the estimated 36 minutes.

The weighting of the written and calculation questions is considered appropriate. The theory questions accounted for 38% of the total marks, whiles calculations accounted for 62%. The ideal is recommended to be 40/60.

Marks allocation for Question Three was considered not commensurate with the work involved and the marks allotted. Ten marks allotted for identifying and explaining 4 Threats to ethical behaviour were too generous against the 10 marks allotted to 3a, which involved identifying and calculating overhead absorption rates and calculating the TC/Unit for each of the three products.

PERFORMANCE
The performance of the candidates was generally unsatisfactory even though a pass rate of 22.57% was better than that of the last two sittings. There was no sign of copying at any of the examination centres.

NOTABLE WEAKNESSES OF CANDIDATES
The following are some of the weaknesses noted in the performance of the candidates:
- Poor presentation of the suggested solutions and inability to analyse and interpret results that will aid management decision – making.
- Inability to adequately express themselves on paper in the English Language.

QUESTION ONE

a) Generally, evaluating not-for-profit organisations' performance is difficult but can be managed when 'value for money' criteria is used.

   Required:

i) Explain **FOUR (4)** problems associated with performance measurement of not-for-profit organisations. **(6 marks)**

ii) Explain the **THREE (3)** main components of 'value for money criteria' and their usefulness to not-for-profit organisations. **(6 marks)**

b) Peah is a divisional manager of Monrovia Ltd. He is paid a bonus of 5% on the division's residual income after charging the bonus. The division is currently considering an additional investment of GH¢200,000 with 10 years useful life but nil residual value. The investment is expected to yield a profit after depreciation of GH¢51,600. This will augment the existing capital employed of GH¢1,050,000 that currently offers GH¢264,400 profit after depreciation annually. The company's policy is to accept investment projects that provide a return of at least 22%.

   Required:

i) Calculate the Return on Investment and Residual Incomes of the division before considering the new investment. **(2 ½ marks)**

ii) Advise the division on whether the new investment should be taken or not. **(2 ½ marks)**

iii) What will be the percentage change in the bonus of Peah if the new investment is added to the division's existing operations? **(3 marks)**

(Total: 20 marks)

QUESTION TWO

a) The Climate Adaptation Summit (CAS 2021) sought to tackle head on, the imminent catastrophe, which, the unattended climate change can unleash on the world. This is perceived to be more disastrous than the COVID-19 pandemic. So far accountants have not agreed on how to quantify damages caused to the environment by a company's operations in the accounts unless they come in the form of a fine.

   Required:
   Identify and explain **FOUR (4)** consequences of environmentally unfriendly practices of corporate entities that may negatively influence their profits. **(5 marks)**

b) Jatokrom Manufacturing Company Ltd (Jatokrom) produces shea butter body lotion, christened Zimbi, for both local and the West African market under the One-District-One-Factory government initiative. A unit of Zimbi is sold for GH¢10. Conventionally, the selling price for the product changes every other month by 10% due to the erratic nature of the environment in which Jatokrom operates. The last time the selling price was increased was the immediate month preceding the first month of this planning period.
   The demand for the product for the planning period averages every 30 days (equivalent to a month) as follows:

Month	1	2	3	4
Demand (Units)	17,700	18,120	19,500	18,600

- It is the policy of Jatokrom to keep closing inventory of finished goods to be equivalent to the sales level of 10 working days of next month's sales. However, experience shows that 3% of each production goes defective and has to be scrapped with no scrap value.
- Product Zimbi requires 2kg of material X. However, it is expected that a normal loss of 20% of material X will occur in the production process.
- It is the policy of Jatokrom to keep material inventory to cover 10 days of the following period's production. Material usage in month 5 is estimated to be 65,207.5kg. The price of material X is budgeted to be GH¢3.50/kg.
- A unit of Zimbi requires 1.5 hours to produce with a 75% productivity level because of regular maintenance. The Labour rate per hour is GH¢6, but only 39,500 hours can be worked within regular working hours. Overtime hours are paid at time and a half.

Required:
Prepare the following budgets for the first three months for Jatokrom Company Ltd.
i) Sales **(3 marks)**
ii) Production **(3 marks)**
iii) Material Usage **(3 marks)**
iv) Material Purchase **(3 marks)**
v) Labour usage and cost **(3 marks)**

(Total: 20 marks)

QUESTION THREE

a) Santo has three product lines: P1, P2 and P3. Since its inception, the company has been using a single direct labour cost percentage to assign overhead costs to products.

Despite P3 being a relatively new product line, it is attracting additional business. However, increasing overhead costs has resulted in loss-making in recent times. P2 particularly has been a significant product line since its inception. However, it has lost a considerable market share due to an increase in overhead cost in recent times and consequent increase in price per unit. Management is, therefore, convinced that the costing system needs some review.

A team led by the management accountant was put together to develop an improved system of costing based on activities. The team spent several weeks collecting data for the different activities and products.

Below is data on Santo's three product lines and overhead costs for the current accounting period:

	P1	P2	P3
Production volume (units)	7,500	12,500	4,000
Selling price per unit (GH¢)	47	80	68
Material cost per unit (GH¢)	18	25	16
Direct labour cost per unit (GH¢)	4	8	6.4
Materials movements (in total)	4	25	50
Machine hours per unit	0.5	0.5	0.2
Set-ups (in total)	1	5	10
The proportion of engineering work	30%	20%	50%
Orders packed (in total)	1	7	22

Activities overhead cost:	**GH¢**
Machine maintenance and depreciation	390,000
Material receiving and handling	150,000
Engineering	100,000
Packing	60,000
Set-up labour	18,688
Total	**718,688**

Required:
Identify for each overhead activity, an appropriate cost driver from the information supplied, and then calculate the product unit costs using a system that assigns overheads based on the use of activities. **(10 marks)**

b) The Estate Manager of Swift International Company was charged to coordinate the procurement process for the award of a contract to construct a warehouse for the company. In the process, the Chief Executive Officer (CEO) called on the manager to ensure the contract is awarded to Gyidi Construction Works, whose owner is the CEO's friend. When the bids were evaluated, Gyidi placed fourth in terms of responsiveness but being guided by the CEO's directive, the project was awarded to Gyidi Construction Works.
Being guilty of not acting professionally, the estate manager admitted that he had acted unethically.

Required:

Identify and explain **FOUR (4)** threats to ethical behaviour as a Management Accountant.

(10 marks)

(Total: 20 marks)

QUESTION FOUR

a) Oseikrom Ventures is considering minimising its production cost through automation of its production system. Two machines are being considered to save cost. The estimated data for the two machines available on the market are as follows:

	Machine A GH¢'000	Machine B GH¢'000
Initial cost (Year 0)	120,000	120,000
Residual value of machines (Year 5)	20,000	30,000
Working capital requirement at Year 0	15,000	10,000

Annual cost savings:

Year		
1	40,000	20,000
2	40,000	30,000
3	40,000	50,000
4	20,000	70,000
5	20,000	20,000

The company's cost of capital is 10%.

Required:

Using the following methods, which machine should be selected?

i) Net Present Value **(8 marks)**

ii) Discounted Payback Period **(4 marks)**

b) Identify and explain **TWO (2)** advantages of the Net Present Value technique. **(3 marks)**

c) State and explain **TWO (2)** approaches that can be used in setting a standard within an organisation. **(5 marks)**

(Total: 20 marks)

QUESTION FIVE

Agrow Ltd is a community company that manufactures and sells car components; Wiper, Driving mirror and Brake pad. The budgeted information for the next year is expected to be as follow:

	WIPERS	DRIVING MIRROR	BRAKE PAD
Production(units)	50,000	25,000	35,000
	GH¢	GH¢	GH¢
Selling price per unit	34	30	28
Direct material per unit	9	10	5
Direct labour cost per unit	18	3	12
Variable production Overhead	1	2	1

Direct labour is paid at GH¢12 per hour. While other production factors are unlimited. Labour is limited to 102,500 hours. Hence an extra component must be purchased from an external supplier.

Total fixed cost per annum is expected to be as follow:

	GH¢
Incurred as a direct consequence of making any quantity of Wiper	140,000
Incurred as a direct consequence of making any quantity of Driving mirror	255,000
Incurred as a direct consequence of making any quantity of Brake pad	150,000
Other Fixed Cost	60,000
	605,000

An external supplier has offered to supply a unit of the following at their respective prices:

	GH¢
Wiper:	32
Driving mirror:	24
Brake pad:	23

Required:
a) Advise which of the products Agrow Ltd should make in-house or outsource. **(7 marks)**

b) Recommend the quantities that Agrow Ltd should make and the quantities it should buy externally to obtain the required quantities of all the parts and calculate the total annual cost.
(10 marks)

c) State **THREE (3)** factors to consider before setting a selling price of a product. **(3 marks)**

(Total: 20 marks)

SOLUTION TO QUESTIONS

QUESTION ONE
a)
i) **Problems with performance measurement of not-for-profit organisations**
- **Multiple objectives:** they tend to have multiple objectives so that if they can all be clearly identified, it is impossible to say which the overriding objective is.
- **Measuring outputs:** outputs can seldom be measured in a way that is generally agreed to be meaningful. As a result, data collection can be problematic.
- **Lack of profit measure:** if an organistion is not expected to make profit or has no sales, indicators such as ROI and RI are meaningless.
- **Nature of service provided:** many not-for-profit organisations provide services for which it is difficult to define a cost unit. For example, what is the cost unit for a local fire service?
- **Financial constraints:** although every organisation operates under financial constraints, these are more pronounced in not-for-profit organisations. For instance, a commercial organisation's borrowing power is effectively limited by managerial prudence and the willingness of lenders to lend. Still, a local authority's ability to raise finance, whether by borrowing or via local taxes, is subject to strict control by the government.
- Political, legal and social considerations
(Any four point @ 1.5 mark each = 6 marks)

ii) **Components of 'value for money criteria'**
Effectiveness: is the relationship between an organisation's outputs and its objectives. For example, it is checking whether outputs of a service or programme have the desired impact.
Efficiency: is the relationship between inputs and outputs. Maximising output for a given input or using the minimum input for a given output.
Economy: is attaining the appropriate quantity and quality of inputs at the lowest cost. Economy does not mean straightforward cost cutting because resources must be acquired which are of a suitable quality to provide the service to the desired standard.
Equity: seeks to ensure that public sector goods or services will be fair to meet societal needs.
(Three points @ 2 mark each = 6 marks)

b)
i) **Determination of divisional ROI and RI**
Calculation of divisional ROI

	Before the new investment GH¢	After the new investment GH¢
Divisional Profit	264,400	316,000
Divisional Investment	1,050,000	1,250,000
Divisional ROI	25.18%	25.28%

(2 marks)

It will be marginally beneficial in the short term, based on the ROI, to accept the new investment. **(1/2 mark)**

ii) Calculation of divisional RI

	Before the new investment GH¢	After the new investment GH¢
Divisional Profit	264,400	316,000
Less imputed interest	231,000	
(22% x GH¢1,050,000)		
(22% x GH¢1,250,000)		275,000
Residual Income	33,400	41,000

(2 marks)

Based on the RI, it will be beneficial to accept the new investment since it results in an increase in residual income to 41,000. **(1/2 mark)**

iii) Determination of bonus to the divisional manager
5% bonus on residual income after charging the bonus
Before the new investment
5/105 x GH¢33,400 = GH¢1,590.48 **(1 mark)**

After the new investment
5/105 x GH¢41,400 = GH¢1,952.38 **(1 mark)**

Alternatively:
Let x represent the bonus;
Before the new investment
$33,400 = 33400 - x + .05(33,400 - x)$
Hence x = GH¢1,590.48

After the new investment
$41,000 = 41,000 - x + .05(41,000 - x)$
Hence = GH¢1,952.38

Percentage change in bonus when the new investment is undertaken
(1,952.38 – 1,590.48)/ 1,590.48 x 100 = 22.75% **(1 mark)**

(Total: 20 marks)

CHIEF EXAMINER'S COMMENT
The performance by the candidates was satisfactory. Few of them had difficulties identifying problems with performance measurement of non-profit organisations, including the nature of service provided, multiple objectives, financial constraints, and political/legal considerations.
However, about 90% of the candidates could not compute the percentage change in the company's bonus if the new investment is added. The question indicated that a 5%

bonus is paid on the RI after charging the bonus. This is determined as 5/105 times the RI.

QUESTION TWO

a) Consequences of environmentally unfriendly practices:
- Fines imposed when pollution levels are exceeded.
- Lawsuits for breaching emission levels
- Environmental taxes
- Loss of customers
- Damaged corporate reputation
- Reduced land value
- Inability to attract expertise; professionals who are against environmental pollution may decline the appointment.
- Inability to attract funding from potential investors.

(Any four points @ 1.5 marks each = 5 marks)

b)

i) **Sales Budget**

Month	1	2	3
Demand (Units)	17,700	18,120	19,500
Selling price (GH¢)	10	11	11
Total Sales	**177,000**	**199,320**	**214,500**

(3 marks)

ii) **Production Budget**

Determination of closing stock

Month	Basis	Closing stock
0	10days/30days x 17,700	5,900
1	10days/30days x 18,120	6,040
2	10days/30days x 19,500	6,500
3	10days/30days x 18,600	6,200
4	10days/30days x 25,200	8,400
5	10days/30days x 25,500	8,500

Month	1	2	3	4
Sales (Units)	17,700	18,120	19,500	18,600
Add closing inventory	6,040	6,500	6,200	8,400
Less opening inventory	(5,900)	(6,040)	(6,500)	(6,200)
Good production quantity (97%)	17,840	18,580	19,200	20,800
Add Defective prod. (3/97 x Quantity)	552	575	594	643
Total production quantity (100%)	**18,392**	**19,155**	**19,794**	**21,443**

Alternatively; Total production quantity = (Good production quantity/0.97)

(3 marks)

iii) Material Usage Budget

Material required = 2kg with abnormal loss of 20%

Actual material required = 100/80 x 2kg = 2.5kg

Month	1	2	3
Total prod. Qty (100%)	18,392	19,155	19,794
Material required per unit	2.5kg	2.5kg	2.5kg
Total material usage	45,980kg	47,887.5kg	49,485kg

ALTERNATIVELY

Month	1	2	3
Total prod. Qty (100%)	18,392	19,155	19,794
Material required per unit	2 kg	2 kg	2 kg
Total	36,784kg	38,310kg	39,588kg
Gross up (Total/0.80)	45,980kg	47,887.5kg	49,485kg

(3 marks)

iv) Material purchase budget

Determination of closing material inventory

Month	Basis	Closing stock
0	10days/30days x 45,980kg	15,327kg
1	10days/30days x 47,887.5kg	15,963kg
2	10days/30days x 49,485kg	16,495kg
3	10days/30days x 53,607.5kg	17,869kg

Material purchase budget – kg and GH¢

Month	1	2	3
Total material usage	45,980kg	47,887.5kg	49,485kg
Add closing inventory	15,963kg	16,495kg	17,869kg
Less opening inventory	(15,327kg)	(15,963kg)	(16,495kg)
Materials to be purchased	**46,616kg**	**48,419.5kg**	**50,859kg**
Price (GH¢)	3.50	3.50	3.50
Purchase budget in GH¢	**163,156**	**169,468.25**	**178,006.5**

(3 marks)

v) Labour usage budget

Labour hours required per unit = 1.5hours with 75% productivity
Actual hours required = 100/75 x 1.5hours = 2.0hours

Month	1	2	3
Total prod. Qty (100%)	18,392	19,155	19,794
Hours required per unit	2.0hrs	2.0hrs	2.0hrs
Total labour usage (hours)	**36,784**	**38,310**	**39,588**

ALTERNATIVELY

Month	1	2	3
Total prod. Qty (100%)	18,392	19,155	19,794
Hours required per unit	1.5hrs	1.5hrs	1.5hrs
Total labour usage (hours)	27,588	28,732.5	29,691
Gross up (Total labour usage/0.75) in hours	**36,784**	**38,310**	**39,588**

Labour cost budget

Month	Basis	Labour Cost (GH¢)
1	36,784hours x GH¢6	220,704
2	38,310hours x GH¢6	229,860
3	(39,500hours x GH¢6) + (88hours x GH¢9)	237,792

(3 marks)

(Total: 20 marks)

CHIEF EXAMINER'S COMMENT

The performance in this question is average. Some challenges noted were:

- The interpretation of SP changes every other month. Most of the candidates interpreted that SP changes every month instead of every two months. This affected the Sales Budget. ie total sales of most of the candidates.

- Determination of the closing stock, as well as the defective products, was a challenge. The closing stock is calculated as 10 days/30days times the monthly demand whilst the defective product is 3/97 times the products. This affected the Total Production Quantity, hence the Material Usage Budget.

QUESTION THREE

a)

Unit costs	P1	P2	P3
	GH¢	GH¢	GH¢
Direct materials	18.00	25.00	16.00
Direct labour	4.00	8.00	6.40
Prime cost	22.00	33.00	22.40
Overhead costs:			
Receiving/ materials handling	1.01	3.80	23.73
Maintenance and depreciation	18.06	18.06	7.22
Set- up labour	0.16	0.47	2.92
Engineering	4.00	1.60	12.50
Packing	0.27	1.12	11.00
Sub-total overhead costs	23.50	25.05	57.37
Total unit cost	**45.50**	**58.05**	**79.77**

(10 marks)

ABC workings:

1. **Receiving and handling materials cost**
   Total cost = GH¢150,000
   Cost driver = Number of materials movements
   Number of materials movements = 4 + 25 + 50 = 79 movements Cost per material movement = GH¢150,000/79 = GH¢1,898.73.
   Cost per unit of P1 = (GH¢1,898.73 × 4)/7,500 = GH¢1.01 per product unit
   Cost per unit of P2 = (GH¢1,898.73 × 25)/12,500 = GH¢3.80 per product unit
   Cost per unit of P3 = (GH¢1,898.73 × 50)/4,000 = GH¢23.73 per product unit.

2. **Maintenance and depreciation cost**
   Total cost = GH¢390,000
   Cost driver = Number of machine hours
   Number of machine hours = (0.5 × 7,500) + (0.5 × 12,500) + (0.2 × 4.000) = 10,800
   Cost per machine hour = GH¢390,000/10,800 = GH¢36.11 per machine hour.
   Cost per unit of P1 = GH¢36.11 × 0.5 = GH¢18.06 per product unit.
   Cost per unit of P2 = GH¢36.11 × 0.5 = GH¢18.06 per product unit.
   Cost per unit of P3 = GH¢36.11 × 0.2 = GH¢7.22 per product unit.

3. **Set-up labour cost**
   Total cost = GH¢18,688
   Cost driver = Number of set- ups
   Number of set-ups 1 + 5 + 10 = 16
   Cost per set-up = GH¢18,688/16= GH¢1,168 per set-up
   Cost per unit of P1 = (GH¢1,168 × 1)/7,500 = GH¢0.16 per product unit
   Cost per unit of P2 = (GH¢1,168 × 5)/12,500 = GH¢0.47 per product unit
   Cost per unit of P3 = (GH¢ 1,168 × 10)/4,000 = GH¢2.92 per product unit.

4. **Engineering cost**

Total cost =GH¢100,000

Cost driver: Based on the proportion of engineering work.

Cost per unit of P1 = (GH¢100,000 × 30%)/7,500 =GH¢4.00 per product unit Cost per unit of P2 = (GH¢100,000 × 20%)/12,500 =GH¢1.60 per product unit Cost per unit of P3 = (GH¢100,000 × 50%)/4,000 =GH¢12.50 per product unit.

5. **Packing cost**

Total cost =GH¢60,000

Cost driver = Number of orders packed

Number of orders packed = 1 + 7 + 22 = 30

Cost per order =GH¢60,000/30 =GH¢2,000

Cost per unit of P1 = (GH¢2,000 × 1)/7,500 =GH¢0.27 per product unit

Cost per unit of P2 = (GH¢2,000 × 7)/12,500 =GH¢1.12 per product unit

Cost per unit of P3 = (GH¢2,000 × 22)/4,000 =GH¢11.00 per product unit

b) **Self-interest threat**

The threat that a financial or other interest will inappropriately influence the management accountant's judgment or behaviour.

Self-review threat

The threat that a professional accountant will not appropriately evaluate the results of a previous judgment made or service performed by the management accountant, or by another individual within the management accountant's firm or employing organisation, on which the accountant will rely when forming a judgment as part of providing a current service.

Advocacy threat

This is a threat where a professional accountant will promote a client's or employer's position to the point that the management accountant's objectivity is compromised.

Familiarity threat

The threat that due to a long or close relationship with a client or employer, a management accountant will be too sympathetic to their interests or too accepting of their work.

Intimidation threat

The threat that a professional accountant will be deterred from acting objectively because of actual or perceived pressures, including attempts to exercise undue influence over the management accountant.

(10 marks)

(Total: 20 marks)

CHIEF EXAMINER'S COMMENT

The majority of the candidates well answered question 3b. They identified the threats posed to the management accountant from unethical behaviour, including Self-Interest, Self-Review, Advocacy, Intimidation and Familiarity.

Question 3a was also satisfactorily attempted, but about 60% of them could not present the cost structure of the products in a good presentation format to bring out the Prime Cost and the Overhead Costs to arrive at the Total Unit Cost.

QUESTION FOUR

a)

Note: except where stated, all figures are in GH¢'000.

i) On the Bases of NPV

PROJECT A

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	GHC'000	GHC'000	GHC'000	GHC'000	GHC'000	GHC'000
Initial Cost	(120,000)					
Residual Value of machines						20,000
Working capital requirment	(15,000)					15,000
Annual labour cost savings		40,000	40,000	40,000	20,000	20,000
Net Cash flows	(135,000)	40,000	40,000	40,000	20,000	55,000
Discount factor (10%)	1.000	0.909	0.826	0.751	0.683	0.621
Present Values	(135,000)	36,360	33,040	30,040	13,660	34,155
Net Present Value =	**12,255**					

Award 28 ticks/11.2 = (**2.5 marks)**

PROJECT B

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
	GHC'000	GHC'000	GHC'000	GHC'000	GHC'000	GHC'000
Initial Cost	(120,000)					
Residual Value of machines						30,000
Working capital requirment	(10,000)					10,000
Annual labour cost savings		20,000	30,000	50,000	70,000	20,000
Net Cash flows	(130,000)	20,000	30,000	50,000	70,000	60,000
Discount factor (10%)	1.000	0.909	0.826	0.751	0.683	0.621
Present Values	(130,000)	18,180	24,780	37,550	47,810	37,260
Net Present Value =	**35,580**					

Award 28 ticks/11.2 = (**2.5 marks)**

Decision: Since both machines have positive NPVs, either would be worthwhile buying. But, Machine B shows itself to be more significantly desirable from an economic viewpoint than Machine A; hence once the two Projects or Machines are mutually exclusive, Project B should be selected. **(3 marks)**

ii) Discounted Payback Period

Year	Machine A		Machine B	
	Discounted cash flow	Cumulative discounted cash flow	Discounted cash flow	Cumulative discounted cash flow
0	(135,000)	(135,000)	(130,000)	(130,000)
1	36,360	(98,640)	18,180	(111,820)
2	33,040	(65,600)	24,780	(87,040)
3	30,040	(35,560)	37,550	(49,490)
4	13,660	(21,900)	47,810	(1,680)
5	34,155	12,255	37,260	35,580

	Machine A	Machine B
Discounted Payback Period	4 + (21,900/34,155)	4 + (1,680/37,260)
	= 4.64 years	= 4.05 years

Decision: Since Machine B has a shorter period to pay back the amount invested, Machine B should be selected ahead of Machine A. **(4 marks)**

c) **Advantages of the NPV method**
- It uses cash flow rather than profit. Hence it is an objective measure
- Takes account of the time value of money
- Easy to identify the size of the addition to shareholders' wealth
- Accounts for investment size

(3 marks)

d) **Approaches to establishing standard costs**
In general, two approaches may be used when establishing standard costs, i) historical records and ii) engineering studies.
Historical records
With this approach, records of the company's operations, purchase and use of materials and labour serve as a basis for establishing current standards. This approach is often used in practice. The advantages of this approach are that it is relatively inexpensive; it uses actual company data to compute standard costs and provides a reference for future improvement. The disadvantages of using past historical records are that there is the possibility that past inefficiencies will be incorporated in the standard costs; if the production process changes the historical data will be irrelevant and if the company introduces new products then using this approach to develop cost standards will not be possible.

Engineering studies

This approach requires a detailed study of each production operation to be conducted, so that standard costs are based on observed, recorded activity. Engineering studies may also require input from operating personnel to provide estimates about future activities and consumption levels. The advantages of this approach are that it is future-oriented; it aims to ensure that past inefficiencies are not incorporated in standard costs. In addition, this approach facilitates allowance for expected changes such as alterations to the production process or product redesign. The disadvantages of this approach are that it is time-consuming and expensive to employ. Engineering studies require a comprehensive team approach combining input from production, human resources, sales and finance staff. While such an approach may improve the reliability of cost estimates and increase commitment and motivation, there is the possibility of data bias to set easier to achieve standard costs.

(5 marks)

(Total: 20 marks)

CHIEF EXAMINER'S COMMENT

This question was satisfactorily answered with the following difficulties for about 30% of the candidates.

- The PV of the cash flows for year 5 were wrongly determined. These affected the determination of the NPV for the two projects. This was because of the effect of the Residual Value of the machine at year 5 and the Working Capital requirement of year 0.
- About 10% of the candidates did not use the discounted cash flows to determine the payback period but the raw cash flows.
- Question 4c was poorly answered. Above 75% of the candidates could not identify the two approaches used in setting standards in an organisation. These are historical records and engineering studies.

QUESTION FIVE

a) **MAKE OR BUY**

PRODUCT	Wiper	Driving mirror	Brake pad
Marginal cost per unit (GH¢)	28	15	18
Demand (unit)	50,000	25,000	35,000
Total variable cost	1,400,000	375,000	630,000
Cost incurred as a direct consequence of making the 3 products	140,000	255,000	150,000
Total cost of making the product	1,540,000	630,000	780,000
Cost of buying:			
50,000x GH¢32	1,600,000		
25,000x GH¢24		600,000	
35,000x GH¢23			805,000
Cost saving / (extra) for making the product	60,000	(30,000)	25,000
Decision	**Make**	**Buy**	**Make**

(7 marks)

b)

	Wiper GH¢	Brake pad GH¢
Selling price	34	28
Variable Cost	28	18
Contribution	6	10
Labour hour per unit	1.5	1
Contribution per labour hour	4	10
Ranking	2nd	1st

Making the product

Product	Quantity	Limiting factor
B	35,000	35,000
W	45,000	67,500/1.5
		102,500

Buying
Wiper	5,000 units
Driving Mirror	25,000 units

Product	Total Cost Decision	Quantity	Cost per unit GH¢	Cost GH¢
Brake Pad	Make	35,000	18	630,000
Wiper	Make	45,000	28	1,260,000
Wiper	Buy	5,000	32	160,000
Driving mirror	Buy	25,000	24	600,000
Direct consequence of making of Wiper				140,000
Direct consequence of making of Brake Pad				150,000
Other fixed cost				60,000
Total annual cost				**3,000,000**

(10 marks)

c) Factors to consider in setting standards
- Cost of production
- Price of competing firm
- Purchasing power of customers
- Company Objective
- Demand for the product
- Macro-economic factors

(Any 3 points @ 1 mark each = 3 marks)

(Total: 20 marks)

CHIEF EXAMINER'S COMMENT
The performance of the candidates in this question was not satisfactory. Most of the candidates could not compute and compare the total cost of making each product with the cost of buying to determine the cost savings. Thus, they could not indicate that Wiper and Brake Pads were to be made while Driving Mirrors were to be bought. They could therefore not allocate the limiting factor to the two products that were to be made. Hence, they were calculating the contribution per the limiting factor to the three products.
This therefore affected the production plan from the limiting factor, labour. However, this question can easily be solved taking the following steps:
- Compute the MC for each product
- Compare the MC with the buying price
- Determine which product to make or buy
- Limit production plan to the products to be made
- Compute their contribution per limiting factor
- Determine which quantity to make
- Construct the production plan table

CONCLUSION
The general performance of the candidates was unsatisfactory. However, the question requirements were within the approved syllabus of the Institute and were not overloaded.