



kasneb

CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

THURSDAY: 26 November 2020

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

- (a) Explain three factors to consider before investigating variances in a profit driven organisation. (6 marks)
- (b) Examine two shortcomings of financial performance measurements. (4 marks)
- (c) Blue Beach Hotel is a 5-star hotel based in Naivasha Town, Kenya. In the onset to the Kenya Athletic Federation's cross - country championship for the year 2020 due to be held in Naivasha later in the year, the hotel management has reviewed the hotel's operations with a view to streamlining activities so as to take full advantage of the event. The management has decided to package the booking options into three as follows:
- Bed only
 - Bed and breakfast
 - Full board

The management is aware that the outcome could take any of the following possibilities for each of the booking options above:

- Full booking
- Moderate booking
- Low booking

They have worked the likely payoff amounts for the booking options under each possible outcome as per the table given below:

Events	Probability	Decision alternatives		
		Bed only Sh."000"	Bed and Breakfast Sh."000"	Full board Sh."000"
Full booking	0.30	24,000	90,000	16,000
Moderate booking	0.50	48,000	44,000	28,000
Low booking	0.20	6,000	8,000	18,000

Required:

Advise the management of the hotel on the best booking option using the following decision theory techniques:

- (i) Expected monetary value (EMV). (3 marks)
- (ii) Expected opportunity loss (EOL). (3 marks)
- (iii) A research company has offered to give more insight to the hotel management on the likely booking situations that might arise.

Determine the maximum amount the hotel should pay to the research company.

(4 marks)

(Total: 20 marks)

QUESTION TWO

- (a) (i) Describe four benefits of product life cycle costing. (4 marks)
- (ii) JAES Ltd. is considering the purchase of a new machine for Sh.3,500,000. The company feels quite confident that it could sell the goods produced by the machine so as to yield annual cash surplus of Sh.1,000,000. There is however some uncertainty as to the machines working life.

A recently published trade association survey shows that in total the members of the association own 250 of such machines and have found the lives of the machines to vary as provided below:

Machine useful life (years)	3	4	5	6	7
Number of machines	20	50	100	70	10

Assuming a discount rate of 10%, the net present value (NPV) for each different machine life is as follows:

Machine useful life (years)	3	4	5	6	7
Net Present Value (Sh.)	(1,010,000)	(330,000)	290,000	860,000	1,370,000

Required:

Advise the management of JAES Ltd. whether they should buy the machine. (8 marks)

- (b) Lenga Ltd. has a production capacity of 80,000 units and currently sells 20,000 units at Sh.1,000 each. The demand for the company's product is sensitive to the selling price and it has been observed that with every reduction of Sh.100 in the selling price, the demand is doubled.

Required:

- (i) Evaluate the target cost at full capacity assuming profit margin on sales is taken as 25%. (4 marks)
- (ii) Ascertain the cost reduction scheme if at present 40% of total cost is variable with the same margin of profit assumed in (b) (i) above. (4 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Discuss the following concepts as applied in management accounting:
- (i) Throughput accounting. (3 marks)
- (ii) Environmental management accounting. (3 marks)
- (b) ABC Ltd. intends to review the selling price of one of its products branded "Reno". In the recent past, the monthly average sales of "Reno" has been 50,000 units at a standard selling price of Sh.60 per unit.

An analysis of the expected monthly demand with a price increase of either Sh.5 or Sh.10 per unit of this product is given below:

Market condition	Probability	Estimated demand with price increase of:	
		Sh.5	Sh.10
Optimistic	0.30	55,000	40,000
Most likely	0.50	40,000	25,000
Pessimistic	0.20	30,000	16,000

Additional information:

1. The current unit variable cost is Sh.50. However, it is expected to vary in the next production period as follows:

Economic condition	Probability	Sh.
High	0.20	55
Medium	0.60	52
Low	0.20	47

2. The fixed cost of production is currently at Sh.335,000 per month. It is expected to vary as follows in the next production period:
- Increase by Sh.80,000 with a probability of 0.20
 - Increase by Sh.60,000 with a probability of 0.60
 - Increase by Sh.40,000 with a probability of 0.20

Required:

Using a probability tree simulation:

- (i) Determine the selling price that the company should adopt to maximise profitability. (10 marks)
- (ii) The probability that the company will at least break even for each of the price increase of Sh.5 and Sh.10 per unit of product "Reno". (4 marks)

(Total: 20 marks)

QUESTION FOUR

- (a) Sawasawa Ltd. manufactures 3 units of product "Zed" per day. The sale of this product depends upon demand which has the following distribution:

Sales (units)	Probability
270	0.10
280	0.15
290	0.20
300	0.35
310	0.15
320	0.05

Additional information:

1. The production cost and the sales price of each unit are Sh.4,000 and Sh.5,000 respectively.
2. Any unsold unit is to be disposed of at a loss of Sh.1,500 per unit.
3. There is a penalty of Sh.500 per unit if the demand is not met.
4. The following random numbers are given:

10, 99, 65, 99, 95 01, 79, 11, 16 and 20.

Required:

Estimate the total profit or loss for Sawasawa Ltd. for the next 10 days. (10 marks)

- (b) Beta Division, which is part of Mega Group, is considering an investment opportunity with the following information:

1. An initial investment of Sh.45 million in equipment at the beginning of year 1 which will be depreciated on a straight line basis over a three year period with a nil residual value at the end of year 3.
2. Net operating cash inflows in each of years 1-3 will be Sh.12.5 million, Sh.18.5 million and Sh.27 million respectively.
3. The management accountant of Beta Division has estimated that the net present value (NPV) of the investment would be Sh.1,937,000 using a cost of capital of 10%.
4. A bonus scheme which is based on short-term performance evaluation is in operation in all divisions within the Mega Group.

Required:

- (i) Compute the residual income of the proposed investment. (3 marks)
- (ii) Comment on the values obtained in reconciling the short term and long term decision views likely to be adopted by divisional management regarding the viability of the proposed investment. (3 marks)

- (c) Blade Ltd. uses decision tree analysis to evaluate potential projects. The Company has been exploring the launch of a new product which it believes has a 70% probability of success. The company is however considering undertaking an advertising campaign costing Sh.500,000 which would increase the probability of success to 95%. If successful, the product would generate income of Sh.2,000,000 otherwise Sh.700,000 would be received.

Required:

Using decision tree, advise the management of Blade Ltd. on the maximum amount of cash that the company should be prepared to pay for advertising. (4 marks)

(Total: 20 marks)

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QUESTION FIVE

Hi-Tech Ltd. intends to launch a locally manufactured printer in the coming month of December 2020. The research and development department of the company has provided the following information relating to the production of the printer:

	Sh.	Sh.
Selling price per printer		17,500
Variable production cost:		
Direct materials (800 grams at Sh.7,500 per kg)	6,000	
Direct labour (75 minutes at Sh.3,000 per hour)	3,750	
Variable overheads (60% of direct labour)	<u>2,250</u>	<u>(12,000)</u>
Contribution per printer		<u>5,500</u>

Additional information:

1. Production of the printer is scheduled to commence on 1 December 2020.
2. The company plans to produce and sell 3,000 printers per month.
3. A direct material loss of 10% is expected with no resale value.
4. The annual fixed cost attributable to the production of the printers is Sh.60 million. This cost accrues evenly throughout the year.
5. A learning curve effect of 95% is expected.

Required:

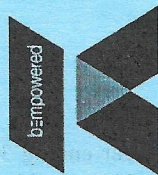
- (a) Determine the standard labour cost for the month of December 2020. (6 marks)
- (b) Prepare a budget for the month of December 2020 showing the budgeted profit. (4 marks)
- (c) Assume the actual results for the month of December 2020 for the production level of 3,000 printers are as follows:

	Sh“000”
Sales (3,000 at Sh.18,000 each)	54,000
Direct materials (2,700 kgs at Sh.7,000 per kg)	18,900
Direct labour (1,700 hours at Sh.3,250 per hour)	5,525
Variable overheads	3,400
Fixed costs	<u>5,075</u>
	<u>21,100</u>

Required:

Reconcile the budget profit in (b) above with the actual profit showing clearly all the operating variances. (10 marks)
(Total: 20 marks)

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CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

TUESDAY: 26 November 2019.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

- (a) Examine three benefits that might accrue to a business organisation as a result of good ethical behaviour by management accountants. (6 marks)
- (b) Justify why in the short term some costs and revenues are not relevant for decision making. (3 marks)
- (c) Fairdeal Ltd. uses a third party delivery service to deliver goods to customers. The current average cost per delivery is Sh.125. Fairdeal Ltd. is considering establishing an in-house delivery service. A number of factors could affect the average total cost per delivery for the in-house delivery mode.

The table below shows the possible average total cost and the probability of each one occurring for the in-house delivery mode:

Average total cost (Sh.)	Probability
105	0.05
107	0.10
110	0.08
121	0.12
125	0.14
126	0.16
142	0.12
156	0.18
158	0.05

Required:

- (i) Expected value of the average total cost based on the above probability distribution. (2 marks)
- (ii) Evaluate the decision that the company's manager is likely to make based on the average total cost in (c) (i) above and the current average delivery cost of Sh.125 per delivery, assuming the manager is:
- Risk neutral.
 - Risk averse.
 - Risk seeker.

(9 marks)
(Total: 20 marks)

QUESTION TWO

- (a) QHY Ltd. manufactures a product branded "Tamu". To manufacture a unit of Tamu, three ingredients are required namely; A, B and C. Currently, QHY Ltd. is operating at its full capacity of 28,000 machine hours. The product is manufactured in batches of 20 litres. The current production data is provided as follows:

Ingredient	Machine hours per batch	Cost per batch		
		Variable Sh.	Fixed Sh.	Total Sh.
A	6	200	60	260
B	10	220	70	290
C	12	240	180	420
Cost of assembly		320	130	450

Total cost per batch	Sh.	Sh.	Sh.
Profit mark-up			1,420
Selling price			<u>280</u>
			<u>1,700</u>

Additional information:

- During discussion on the budget for the year ending 31 December 2020, the sales manager estimated that sales volume might grow either by 50% or 75% provided the required machine capacity is available.
- While assembly capacity could be increased and meet the projected growth in demand, the machine capacity of 28,000 hours cannot be increased. Therefore, in order to take advantage of the buoyant market, the management is considering the purchase of one of the three ingredients.
- The following quotation has been received from an external supplier:

Ingredient Price per batch (20 litres)

	Sh.
A	290
B	320
C	390

- The management of QHY Ltd. has decided to buy only one ingredient in any one financial period.

Required:

Evaluate which ingredient and the quantity of the ingredient to be outsourced if production is increased by:

- 50%. (5 marks)
- 75%. (5 marks)

- (b) Kiawara Ltd. maintains a perpetual inventory system. The Economic Order Quantity (EOQ) model has established an economic order quantity of 3,000 units with an average daily usage of 100 units and a lead-time of 20 days for its single input product branded "Zed".

The following information relates to the usage of product Zed during the re-order period:

Usage during the re-order period (units)	Number of times the quantity is used
1,800	34
1,900	40
2,000	90
2,100	20
2,200	10
2,300	6

Additional information:

- Stock-out cost amount to Sh.400 per unit.
- The optimum number of orders based on the EOQ model is 5 times per annum.
- The annual carrying cost is Sh.80 per unit.

Required:

- Advise the management of Kiawara Ltd. on the amount of safety stock to be maintained. (8 marks)
 - Determine the probability of a stock-out. (2 marks)
- (Total: 20 marks)**

QUESTION THREE

- (a) The assembly department of Lenku Race Course Club has designed a new concept in racing bicycles with the intention of selling them to professional racing teams.

The estimated cost and selling price of the first racing bicycle to be manufactured and assembled is as follows:

	Sh.
Materials	6,000
Assembly labour (12 hours at Sh.300 per hour)	3,600

	Sh.
Manufacturing overheads (150% of labour cost)	5,400
Profit mark-up	<u>6,000</u>
Selling price	<u>21,000</u>

Additional information:

- It is expected that material cost per bicycle is to remain constant irrespective of the number of bicycles manufactured.
- The management expects the assembly time to gradually improve with experience and has therefore estimated an 80% learning curve.
- A racing team has approached the club's assembly department and made enquiries on the following quotations:
 - The price of the second bicycle if the team purchases the first bicycle assembled and immediately places an order for the second bicycle.
 - The average price of the third and fourth bicycles if the team waits until the first two bicycles are sold to another team.
 - The price per bicycle if the team places an order for the first eight bicycles to be assembled.

Required:

Evaluate the price quotations for each of the three enquiries outlined above. (9 marks)

- (b) Dawa Chemical Ltd. manufactures a single product branded "XP". The following information for the financial year 2018 relates to the product:

1. Standard cost per unit of product XP:

Material	Kgs	Price per Kg Sh.	Total Sh.
F	15	4	60
G	12	3	36
H	8	6	<u>48</u>
			144

Labour	Hours	Rate per hour Sh.	Total Sh.
Department P	4	10	40
Department Q	2	6	<u>12</u>
			196

- Budgeted sales for the period amount to 4,500 units at Sh.260 per unit.
- There were no budgeted opening and closing inventories of product XP.
- The actual materials and labour used were as follows:

Materials	Kgs	Price per Kg Sh.	Total Sh.
F	59,800	4.25	254,150
G	53,500	2.80	149,800
H	33,300	6.40	213,120

Labour Department	Hours	Rate per hour Sh.	Total Sh.
P	20,500	10.60	217,300
Q	9,225	5.60	51,660

- During the period, 4,100 units of product XP were produced and sold for Sh.1,158,000.

Required:

Compute the following variances:

- Material price variance. (3 marks)
- Material mix variance. (3 marks)

- (iii) Material yield variance. (3 marks)
- (iv) Labour rate variance. (2 marks)
- (Total: 20 marks)**

QUESTION FOUR

- (a) Describe three categories of environmental costs. (6 marks)
- (b) Bedaline Ltd. is a manufacturing division of a large industrial company. Aslop Wafula, the divisional manager is about to purchase a new plant to manufacture a new product. Aslop could either purchase an automatic plant or a manual plant each of which has the same capacity and expected useful life of four years. The two machines however differ in their expected capital cost and cash flows as shown below:

	Automatic plant Sh.	Manual plant Sh.
Initial capital investment	9,600,000	7,800,000
Net cash flows before tax:		
Year: 1	3,600,000	3,900,000
2	3,600,000	3,300,000
3	3,600,000	2,250,000
4	3,600,000	1,500,000
Net present value at 16%	473,451	284,422

Additional information:

- In the above calculation, it is assumed that the plant will be installed and paid for at the beginning of year 1 and that the net cash flows occur at the end of each year.
- Neither of the plant is expected to have a residual value.
- Like all other divisional managers in the company, Aslop Wafula is expected to generate before tax return on his divisional investment in excess of 16% per annum which he is currently just managing to achieve. Anything less than 16% returns would make him ineligible for a performance bonus and might reduce his pension benefit when he retires early in Year 3.
- In calculating divisional returns, divisional assets are valued at net book value at the beginning of the year. Depreciation is charged on a straight line basis.

Required:

- Using appropriate computations, justify why neither return on investments (ROI) nor residual income (RI) would motivate Aslop Wafula to invest in the machine with the higher net present value. (12 marks)
 - Advise on what should be done to assist in reconciling the difference between using accounting based performance measures and using discounted cash flow methods. (2 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) Valleyside Fitness Ltd. specialises in the manufacture of a small range of hi-tech products for the fitness market.

They are currently considering the development of a new type of fitness monitor, which would be the first of its kind in the market. It would take one year to develop, with sales then commencing at the beginning of the second year. The product is expected to have a life cycle of two years, before it is replaced with a technologically superior product.

The following cost estimates have been made:

	Year 1	Year 2	Year 3
Units manufactured and sold	-	100,000	200,000
	Sh.	Sh.	Sh.
Research and development costs	160,000,000	-	-
Products design costs	800,000,000	-	-
Marketing costs	1,200,000,000	1,000,000,000	1,750,000,000
Manufacturing costs:			
• Variable cost per unit	-	40,000	42,000
• Total fixed production costs	-	650,000,000	1,290,000,000
Distribution costs:			
• Variable cost per unit	-	4,000	4,500
• Total fixed distribution costs	-	120,000,000	120,000,000

	Sh.	Sh.	Sh.
Selling costs:			
• Variable cost per unit	-	3,000	3,200
• Total fixed selling costs	-	180,000,000	180,000,000
• Administrative costs	200,000,000	900,000,000	1,500,000,000

Note: Ignore the time value of money.

Required:
The lifecycle cost per unit. (8 marks)

(b) Nilo Ltd. is one of the largest and most diversified textile firms in the country. The company manufactures and sells its products through 25 individual divisions that operate more or less like autonomous companies.

Each division of the company has its own manufacturing plants for making the division's products, a sales team and administrative staff to provide financial assistance and control. Broad policy and financial guidance as well as technical assistance is provided from the head office of the company. Nilo Ltd. uses several measures to determine divisional performance.

However, the most widely used measure is the return on investment (ROI) of each division.

The following information relates to determination of the ROI of all the divisions:

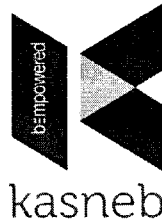
- The returns of each investment of a division is determined using the following formula:

$$\text{Return} = \text{Divisional revenues (sales to outsiders and insiders)} - \text{direct divisional costs} - \text{allocated central corporate costs}$$
- The investment of a division is determined as follows:

$$\text{Investment} = \text{Book value of assets}$$
- Book value of assets is the aggregate of the accounts receivable net of accounts payable, inventories including raw materials, work in-progress and finished goods and long term assets net of accumulated depreciation.
- The actual ROI is calculated monthly for each division and the formula is uniform across all divisions as it is centrally determined.
- In undertaking performance evaluation, emphasis is laid on trends rather than absolute goals and standards.
- The management also lays emphasis on divisions whose performance is improving or deteriorating and has set a minimum expected ROI below which the manager is required to face disciplinary action. This minimum ROI is however loosely set hence easily achievable.
- The minimum ROI is determined by applying different weights to the three investment components as follows; 20% of depreciable assets, 12% for inventories and 6% for account receivables.
- Transfer prices between divisions are negotiated between themselves.

Required:
Discuss three strengths and three weaknesses of the return on investment measure as used by Nilo Ltd. (12 marks)
(Total: 20 marks)

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CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

WEDNESDAY: 22 May 2019.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

- (a) Highlight four fields in which the use of environmental management accounting (EMA) is applied. (4 marks)
- (b) The following details show the direct labour requirements for the first six batches of a new product that were manufactured during the month of March 2019 by Tengeneza Ltd.:

	Budget	Actual
Output (batches)	6	6
Labour hours	2,400	1,950
Total labour cost (Sh.)	1,680,000	1,365,000

The Management Accountant reported the following variances:

Total labour cost variance	Sh.315,000 (favourable)
Labour rate variance	Nil
Labour efficiency variance	Sh.315,000 (favourable)

The production manager has now revealed that he forgot to inform the Management Accountant that he expected a 90% learning curve to apply for at least 10 batches.

Required:

Compute the planning and operational variances that analyse the actual performance taking into account the anticipated learning effect. (8 marks)

Note: The learning index for a 90% learning curve is -0.1520.

- (c) Marima Ltd. is considering introducing two new products in the market.

The company has the following options:

- Option 1: Introduce both products.
 Option 2: Introduce either of the products.
 Option 3: Introduce none of the products, depending on their performance in the market.

An analysis of the product's likely performance indicates the probability of a good performance as 30%, fair performance as 50% and poor performance as 20%. The sales revenue depending on the state of nature is as shown below:

Decision	State of nature		
	Good performance (S1) Sh."million"	Fair performance (S2) Sh."million"	Poor performance (S3) Sh."million"
Neither	0	0	0
Product 1 only	30	15.6	7.2
Product 2 only	25.2	14.4	7.2
Both	52.8	8.8	3.2

Required:

- (i) For each decision, determine the expected monetary value. (4 marks)
- (ii) Advise the management of Marima Ltd. on the action to take assuming that Rima Ltd. could supply perfect information at a cost of Sh.5 million. (4 marks)
- (Total: 20 marks)**

QUESTION TWO

- (a) Discuss five challenges associated with the return on investment (ROI) approach in financial performance measurement. (10 marks)
- (b) Faidika Ltd. buys and sells a single product branded "NN". The demand and lead time of product NN is not constant.

The following probability distribution has been provided:

Demand (units)	Probability
2	0.02
3	0.08
4	0.22
5	0.34
6	0.18
7	0.09
8	0.07

Lead time (weeks)	Probability
1	0.23
2	0.45
3	0.17
4	0.09
5	0.06

Additional information:

- The re-order point and the re-order quantity has been set at 40 units and 30 units respectively.
- The holding cost per unit per week is Sh.35.
- The cost of placing an order is Sh.350.
- If the company runs out of stock, a contribution of Sh.120 per unit is lost.
- The opening inventory at the beginning of the first week was 60 units.

Required:

Using simulation of the above problem for 10 weeks, determine the average weekly cost using the following random numbers:

50 68 52 08 59 90 81 85 95 15 89 28 60 03
(10 marks)

(Total: 20 marks)

QUESTION THREE

Kitchen Masters Ltd. specialises in the manufacture and sale of firewood ovens.

Each oven consists of a main unit plus a set of oven fittings. The company has two divisions; A and B. Division A manufactures the oven while Division B manufactures the sets of oven fittings.

Currently, all of Division A's sales are made externally. However, Division B sells to Division A as well as to external customers. Both divisions are profit centres.

The following data is available for both divisions:

Division A	Sh.
Current selling price for each oven	450
Costs per oven:	
• Fittings from division B	75
• Other materials from external suppliers	200
• Labour costs	45

	Sh.
Annual fixed overheads	7,440,000
Annual production and sales of ovens (units)	80,000
Maximum annual market demand for ovens (units)	80,000

Division B	Sh.
Current external selling price per set of fittings	80
Current price for sales to Division A	75

Costs per set of fittings:	
• Materials	5
• Labour costs	15
Annual fixed overheads	4,400,000

	Units
Maximum annual production and sale of sets of fittings (including internal and external sales)	200,000
Maximum annual external demand for sets of fittings	180,000
Maximum annual internal demand for sets of fittings	80,000

Additional information:

- The transfer price charged by Division B to Division A was negotiated some years ago between the previous divisional managers, who have now both been replaced by new managers.
- Head office only allows Division A to purchase its fittings from Division B, although the new manager of Division A believes that he could obtain fittings of the same quality and appearance for Sh.65 per set, if he was given the autonomy to purchase from outside the company.
- Division B makes no cost savings from supplying internally to Division A rather than selling externally.

Required:

(a) Under the current transfer pricing system, prepare a profit statement showing the profit for each of the divisions and for Kitchen Masters Ltd. as a whole. Your sales and cost figures should be split into external sales and inter-divisional transfers, where appropriate. (6 marks)

(b) Head office is considering changing the transfer pricing policy to ensure maximisation of company's profits without demotivating either of the divisional managers. Division A will be given autonomy to buy from external suppliers and Division B to supply external customers in priority to supplying Division A.

Evaluate the maximum profit that could be earned by Kitchen Masters Ltd. if transfer pricing is optimised. (8 marks)

(c) Discuss the issues of encouraging divisional managers to take decisions in the interest of the company as a whole, where transfer pricing is used. Provide a reasoned recommendation of a policy that Kitchen Masters Ltd. should adopt. (6 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Highlight four ethical standards of management accountants. (4 marks)

(b) Bidii Ltd. operates a single retail outlet which sells directly to the public. The profit statement for the months of March 2019 and April 2019 are provided as follows:

	March Sh."000"	April Sh."000"
Sales	8,000	9,000
Cost of sales	<u>(5,000)</u>	<u>(5,500)</u>
Gross profit	3,000	3,500
Expenses:		
Selling and distribution costs	(800)	(900)
Administrative costs	<u>(1,500)</u>	<u>(1,500)</u>
Net profit	<u>700</u>	<u>1,100</u>

Required:

(i) Using the high-low points technique, identify the behaviour of cost of sales, selling and distribution costs and administrative costs. (6 marks)

(ii) Draw a contribution break-even chart and identify the monthly break-even sales value and area of contribution. (4 marks)

- (iii) Assuming a margin of safety equal to 30% of the break-even value, calculate Bidii Ltd.'s annual profits. (2 marks)
- (iv) Bidii Ltd. is now considering opening another retail outlet selling the same product. The company plans to use the same profit margins in both outlets and has estimated that the specific costs of the second outlet will be Sh.10,000,000 per annum. Bidii Ltd. also expects that 10% of its annual sales from its existing outlet would transfer to this second outlet if it were to be opened.

Required:

Annual value of sales required from the new outlet in order to achieve the same profit as previously obtained from the single outlet. (4 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Global Chain Ltd. has supermarkets located in most towns and cities across the East African region. Over the last few years, profits have fallen prompting the top management to seek technical advice from CP Ltd., a consulting firm that specialises in business turn-around.

CP Ltd. has managed to obtain relevant information from the management of the company and has organised it as follows:

		2016	2017	2018
Percentage of staff promoted	Actual	6%	5%	8%
	Budget	30%	30%	30%
Average lead time for re-stocking	Actual	3 days	3.25 days	4.1 days
	Target	3 days	3 days	3 days
Sales/Turnover (Sh. billion)	Actual	200	192	169
	Target	208	210	215
Loyalty points awarded to customers (percentage of sales value)	Actual	1.4%	1.3%	1.2%
	Target	1.5%	1.5%	1.5%
Total number of staff grievances lodged in a year	Actual	47	101	123
	Target	Nil	Nil	Nil
Operating expenses (Sh. billion)	Actual	190	196	199
	Target	180	182	185
Customer satisfaction index	Actual	78%	63%	59%
	Target	95%	95%	95%
Processing time for goods returned on warranties (Replacements)	Actual	2 weeks	3 weeks	3 weeks
	Target	1 week	1 week	1 week

Required:

Explaining the current status of Global Chain Ltd., prepare a balanced scorecard report covering the four perspectives, using the above information. (12 marks)

- (b) Hazina Ltd. is a cosmetics company that produces perfumes. The perfume market is very competitive and subject to frequent changes. The finance team at Hazina Ltd. prepare monthly rolling budgets as part of their planning and management control process.

The data for the forthcoming new budget period are as follows:

- The variable cost of producing a bottle of perfume is Sh.210.
- The planned selling price of a bottle of perfume is Sh.450 and at this selling price, demand for the perfume is expected to be 125,000 bottles.
- Information from the marketing division at Hazina Ltd. suggests that for every Sh.30 increase in the selling price, the customer demand would reduce by 10,000 bottles and that for every Sh.30 decrease in the selling price, the customer demand would increase by 10,000 bottles.

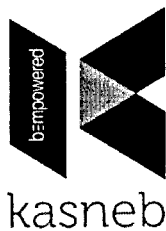
Required:

- (i) Advise on the revenue that Hazina Ltd. would earn if the selling price of a bottle of perfume was set in such a way that profits would be maximised for the forthcoming budget period. (6 marks)

- (ii) Explain the use of rolling budgets in planning and management control process at Hazina Ltd. (2 marks)

(Total: 20 marks)

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CPA PART III SECTION 5

ADVANCED FINANCIAL MANAGEMENT

THURSDAY: 29 November 2018.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

- (a) In the context of corporate restructuring and reorganisation, differentiate between the following terms:
- (i) “Leveraged buy-out” and “management buy-out” (2 marks)
 - (ii) “Divestiture” and “spin-off” (2 marks)
 - (iii) “Unbundling” and “sell-off”. (2 marks)
- (b) Mavueni Limited is considering undertaking a financial reconstruction during which it would repurchase its outstanding ordinary shares using debt. This will raise its debt to equity ratio to 1.20. The following information was available for the company:
1. Existing debt to equity ratio is 0.80.
 2. The asset beta (ungeared beta of equity) is 0.30.
 3. The risk-free rate of return is 8%.
 4. The return of market portfolio is 14%.
 5. The company adopts 50% payout ratio as its dividend policy.
 6. The company expects to generate earnings per share (EPS) of Sh.6.
 7. Debt finance is considered to be risk-free.
 8. The corporate tax rate is 30%.

Required:

Evaluate the impact of financial reconstruction on Mavueni Ltd.’s weighted average cost of capital (WACC). (8 marks)

- (c) The following data relate to the probability distributions and returns of securities A and B:

Probability (P_i)	Security returns (%)	
	Security A	Security B
0.10	-5	10
0.25	10	15
0.40	15	10
0.25	20	0

Required:

The proportion of each security to be invested in the portfolio in order to attain a zero portfolio risk. (6 marks)
(Total: 20 marks)

QUESTION TWO

- (a) Discuss three practical challenges that could be encountered when making capital investment decisions. (6 marks)
- (b) Galanema Ltd. is considering to introduce new cheap plastic rulers into the market. This will involve investing in a new plant at a cost of Sh.280 million.

The plant is expected to have a useful life of 5 years at the end of which salvage value will be nil. The firm’s policy is to depreciate all of its fixed assets on a straight line basis.

Due to market uncertainties, the unit selling price, unit variable cost and annual sales volume of the new plastic rulers have been estimated stochastically as follows:

Unit selling price		Unit variable cost		Annual sales volume	
Value	Probability	Value	Probability	Value	Probability
(Sh.)		(Sh.)		(Sh. "million")	
35	0.30	15	0.20	4	0.10
30	0.40	10	0.50	7	0.60
50	0.30	25	0.30	9	0.30

Additional information:

- The firm expects to incur fixed operating costs excluding depreciation of Sh.30 million in each year.
- The company's cost of capital is 17%.
- The corporate tax rate is 30%.

Required:

- The expected net present value (NPV) of the new product. (6 marks)
- Simulate the net present values (NPV) using the following random numbers:

(802560 638351 057530 150353 603785 553525 245239 369948 160252
857015) and compute the expected net present value of the project. (8 marks)

(Total: 20 marks)

QUESTION THREE

- The following are summarised financial statements of Dzikunze Limited as at 31 December 2015 to 31 December 2017:

Income statement for the year ended 31 December:

	2015	2016	2017
	Sh. "000"	Sh. "000"	Sh. "000"
Turnover	<u>90,000</u>	<u>100,000</u>	<u>120,000</u>
Operating profit	15,000	20,000	25,000
Interest	<u>(2,000)</u>	<u>(4,000)</u>	<u>(5,000)</u>
Profit before tax	13,000	16,000	20,000
Taxation (30%)	<u>(3,900)</u>	<u>(4,800)</u>	<u>(6,000)</u>
Profit after tax	9,100	11,200	14,000
Proposed dividends	<u>(2,100)</u>	<u>(2,500)</u>	<u>(3,000)</u>
Retained profit	<u>7,000</u>	<u>8,700</u>	<u>11,000</u>

Statement of financial position as at 31 December 2017:

	Sh. "000"
Non-current assets	60,000
Current assets	<u>40,000</u>
	<u>100,000</u>
Financed by:	
Ordinary share capital (Sh.20 par value)	30,000
Reserves	20,000
10% long term debentures (Sh.100 par value)	30,000
Short-term debts	<u>20,000</u>
	<u>100,000</u>

Additional information:

- Stock market analysts expect post-tax earnings and dividends to grow at the rate of 25% per annum for the next three years. Thereafter, the annual growth rate will revert to the company's growth rate and remain constant in each year to perpetuity.
- Dzikunze Ltd.'s overall beta is 0.80 and the beta of equity is 0.75.
- The risk-free rate of return is 12%.
- The market rate of return is 28%.
- The current market price of ordinary share is Sh.67.70 cum-dividend.
- The debenture price is Sh.89.50 ex-interest.
- The corporation tax rate is 30%.

Required:

- Evaluate whether Dzikunze Ltd.'s share is currently overvalued or undervalued by the market forces. (8 marks)
- Advise a prospective investor whether to buy the ordinary shares of Dzikunze Limited. (2 marks)

- (b) Chigiri Investment Limited is a company based in Kenya. The company exported goods on credit to a firm in the United States of America (USA). The company expects to receive US\$ 800,000 in one year's time.

The current spot exchange rate is 1US\$ = KES.60.

However, Chigiri Investment Limited created a probability distribution for the forward spot rate in one year as follows:

Probability	Forward spot rate KES/1 US \$
0.20	61
0.50	63
0.30	67

Additional information:

- One year put options on the US\$ are available with an exercise price of KES.63 and a premium of KES. 4 per US\$.
- One year call options are available on the US\$ with an exercise price of KES.60 and a premium of KES 3 per US\$.
- The future spot rate is estimated in a year's time to be KES. 62 per 1US\$.
- The following are the money market annual rates:

	Kenya Annual rates (%)	USA Annual rates (%)
Borrowing	18	12
Deposit	9	6

Required:

- Determine whether a forward market hedge, money market hedge or currency option hedge would be the most appropriate hedging strategy for the company. (9 marks)
- Advise a prospective investor, the most appropriate hedging strategy if no hedging takes place. (1 mark)
(Total: 20 marks)

QUESTION FOUR

- (a) A financial analyst is interested in using the Black-Scholes Model (BSM) to value call options on the stock.

The following information is available:

- The price of the stock is Sh.35.
- The strike price is Sh.30.
- The option matures in 9 months.
- The volatility of returns of the stock is 0.30.
- The risk-free rate is 10%.

Required:

The value of a call option using the Black-Scholes Model. (4 marks)

- (b) The following information relate to two securities, namely A and B and the market portfolio for the year 2018:

Probability	Forecasted rate of returns (%)		
	Security A	Security B	Market portfolio
0.20	15	12	16
0.50	10	15	12
0.30	8	10	7

The treasury bills yield rate is expected to be 8%.

Required:

- The Beta coefficient of securities A and B. (4 marks)
- Using capital asset pricing model (CAPM), determine the minimum required rate of returns for securities A and B. (2 marks)

- (c) Chilulu Industries Limited is considering acquisition of Roka Corporation Ltd. in a share for share exchange. The financial data for the two companies are given below:

	Chilulu Ltd. (Sh.)	Roka Ltd. (Sh.)
Sales (millions)	500	100
Net earnings (millions)	30	12
Ordinary shares outstanding (millions)	6	2
Ordinary share market price, per share (MPS)	50	40
Dividend per share (DPS)	2	1.50

Additional information:

- Chilulu Limited is not willing to incur an initial dilution in its earnings per share (EPS).
- Chilulu Limited will have to offer a minimum of 25% of Roka Ltd.'s current share market price.

Required:

- The relevant offer price range. (4 marks)
- If Roka Ltd.'s shareholders accept an offer by Chilulu Ltd. of Sh.40 per share in a share for share exchange. Determine the post-merger earnings per share (EPS). (4 marks)
- Using the results obtained in (c) (ii) above and assuming that Chilulu Ltd.'s price-earning (P/E) ratio will remain unchanged after the merger, determine the post acquisition market price of a share of Chilulu Limited. (2 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Analyse three assumptions of the income approach of valuing real estates business in your country. (6 marks)
- (b) A large manufacturing firm based in Kenya is tendering for an order in South Africa. The tender conditions state that payment will be made in South African Rands (ZAR) in 24 months' time from now. The company is unsure of what price to tender. The company's marginal cost of production at the time of tendering is estimated to be Kenya shillings (KES) 2,000,000 and a 20% mark-up is applicable for the company.

Exchange rates:
KES/1 ZAR

Spot rate: 8.025 – 8.125

Additional information:

- No forward rate exists for 24 months' time.
- Market information between Kenya and South Africa:

	South Africa	Kenya
Annual inflation rates	6%	8%
Annual interest rates available to the manufacturing firm:		
Borrowing rate	12%	18%
Investment rate	8%	6%

Required:

Using the purchasing power parity model, recommend the tender price to be used. (7 marks)

- (c) Embakasi Investment Ltd. contemplates to determine its optimal capital structure which currently consists of only debt and common equity.

The company does not use preference shares in its capital structure and does not plan to do so in the near future.

In order to estimate how much its debt would cost at different debt levels, the company's financial controller has consulted with investment banks and the following information was obtained:

Debt to equity ratio	Bond rating	Before tax cost of debt (%)
0.00	A	0
0.25	BBB	8.5
0.60	BB	10
1.70	C	14
2.50	D	16

Additional information:

1. The company uses the capital asset pricing model (CAPM) to estimate the cost of capital.
2. The risk-free rate of return is 5%.
3. The market risk premium is 8%.
4. The corporate tax rate is 30%.
5. The company uses the Hamada model to determine its levered equity Beta.
6. The asset Beta (unlevered equity Beta) is 1.20.

Required:

- (i) The optimal capital structure of Embakasi Investment Ltd. (6 marks)
 - (ii) The optimal weighted average cost of capital (WACC) of Embakasi Investment Ltd. (1 mark)
- (Total: 20 marks)**
-

Present Value of 1 Received at the End of n Periods:

$$PVIF_{r,n} = 1/(1+r)^n = (1+r)^{-n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%	36%
1	.9901	.9804	.9709	.9615	.9524	.9434	.9346	.9259	.9174	.9091	.8929	.8772	.8696	.8621	.8475	.8333	.8065	.7813	.7576	.7353
2	.9803	.9612	.9426	.9246	.9070	.8900	.8734	.8573	.8417	.8264	.7972	.7695	.7561	.7432	.7182	.6944	.6504	.6104	.5739	.5407
3	.9706	.9423	.9151	.8890	.8638	.8396	.8163	.7938	.7722	.7513	.7118	.6750	.6575	.6407	.6086	.5787	.5245	.4768	.4348	.3975
4	.9610	.9238	.8885	.8548	.8227	.7921	.7629	.7350	.7084	.6830	.6355	.5921	.5718	.5523	.5158	.4823	.4230	.3725	.3294	.2923
5	.9515	.9057	.8626	.8219	.7835	.7473	.7130	.6806	.6499	.6209	.5674	.5194	.4972	.4761	.4371	.4019	.3411	.2910	.2495	.2149
6	.9420	.8880	.8375	.7903	.7462	.7050	.6663	.6302	.5963	.5645	.5066	.4556	.4323	.4104	.3704	.3349	.2751	.2274	.1890	.1580
7	.9327	.8706	.8131	.7599	.7107	.6651	.6227	.5835	.5470	.5132	.4523	.3996	.3759	.3538	.3139	.2791	.2218	.1776	.1432	.1162
8	.9235	.8535	.7894	.7307	.6768	.6274	.5820	.5403	.5019	.4665	.4039	.3506	.3269	.3050	.2660	.2326	.1789	.1388	.1085	.0854
9	.9143	.8368	.7664	.7026	.6446	.5919	.5439	.5002	.4604	.4241	.3606	.3075	.2843	.2630	.2255	.1938	.1443	.1084	.0822	.0628
10	.9053	.8203	.7441	.6756	.6139	.5584	.5083	.4632	.4224	.3855	.3220	.2697	.2472	.2267	.1911	.1615	.1164	.0847	.0623	.0462
11	.8963	.8043	.7224	.6496	.5847	.5268	.4751	.4289	.3875	.3505	.2875	.2366	.2149	.1954	.1619	.1346	.0938	.0662	.0472	.0340
12	.8874	.7885	.7014	.6246	.5568	.4970	.4440	.3971	.3555	.3186	.2567	.2076	.1869	.1685	.1372	.1122	.0757	.0517	.0357	.0250
13	.8787	.7730	.6810	.6006	.5303	.4688	.4150	.3677	.3262	.2897	.2292	.1821	.1625	.1452	.1163	.0935	.0610	.0404	.0271	.0184
14	.8700	.7579	.6611	.5775	.5051	.4423	.3878	.3405	.2992	.2633	.2046	.1597	.1413	.1252	.0985	.0779	.0492	.0316	.0205	.0135
15	.8613	.7430	.6419	.5553	.4810	.4173	.3624	.3152	.2745	.2394	.1827	.1401	.1229	.1079	.0835	.0649	.0397	.0247	.0155	.0099
16	.8528	.7284	.6232	.5339	.4581	.3936	.3387	.2919	.2519	.2176	.1631	.1229	.1069	.0930	.0708	.0541	.0320	.0193	.0118	.0073
17	.8444	.7142	.6050	.5134	.4363	.3714	.3166	.2703	.2311	.1978	.1456	.1078	.0929	.0802	.0600	.0451	.0258	.0150	.0089	.0054
18	.8360	.7002	.5874	.4936	.4155	.3503	.2959	.2502	.2120	.1799	.1300	.0946	.0808	.0691	.0508	.0376	.0208	.0118	.0068	.0039
19	.8277	.6864	.5703	.4746	.3957	.3305	.2765	.2317	.1945	.1635	.1161	.0829	.0703	.0596	.0431	.0313	.0168	.0092	.0051	.0029
20	.8195	.6730	.5537	.4564	.3769	.3118	.2584	.2145	.1784	.1486	.1037	.0728	.0611	.0514	.0365	.0261	.0135	.0072	.0039	.0021
25	.7798	.6095	.4776	.3751	.2953	.2330	.1842	.1460	.1160	.0923	.0588	.0378	.0304	.0245	.0160	.0105	.0046	.0021	.0010	.0005
30	.7419	.5521	.4120	.3083	.2314	.1741	.1314	.0994	.0754	.0573	.0334	.0196	.0151	.0116	.0070	.0042	.0016	.0006	.0002	.0001
40	.6717	.4529	.3066	.2083	.1420	.0972	.0668	.0460	.0318	.0221	.0107	.0053	.0037	.0026	.0013	.0007	.0002	.0001		
50	.6080	.3715	.2281	.1407	.0872	.0543	.0339	.0213	.0134	.0085	.0035	.0014	.0009	.0006	.0003	.0001				
60	.5504	.3048	.1697	.0951	.0535	.0303	.0173	.0099	.0057	.0033	.0011	.0004	.0002	.0001						

* The factor is zero to four decimal places

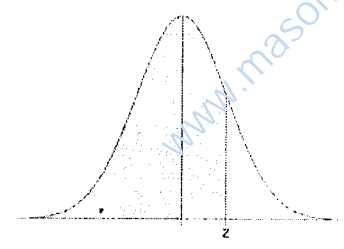
Present Value of an Annuity of 1 Per Period for n Periods:

$$PVIFA_{r,n} = \sum_{t=1}^n \frac{1}{(1+r)^t} = \frac{1 - \frac{1}{(1+r)^n}}{r}$$

Number of Payments	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	15%	16%	18%	20%	24%	28%	32%
1	0.9901	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8696	0.8621	0.8475	0.8333	0.8065	0.7813	0.7576
2	1.9704	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6257	1.6052	1.5656	1.5278	1.4568	1.3916	1.3315
3	2.9410	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2832	2.2459	2.1743	2.1065	1.9813	1.8684	1.7663
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.8550	2.7982	2.6901	2.5887	2.4043	2.2410	2.0957
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.3522	3.2743	3.1272	2.9906	2.7454	2.5320	2.3452
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.7845	3.6847	3.4976	3.3255	3.0205	2.7594	2.5342
7	6.7282	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.1604	4.0386	3.8115	3.6046	3.2423	2.9370	2.6775
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.4873	4.3436	4.0776	3.8372	3.4212	3.0758	2.7860
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.7716	4.6065	4.3030	4.0310	3.5655	3.1842	2.8681
10	9.4713	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	5.0188	4.8332	4.4941	4.1925	3.6819	3.2689	2.9304
11	10.3676	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.2337	5.0286	4.6560	4.3271	3.7757	3.3351	2.9776
12	11.2551	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.4206	5.1971	4.7932	4.4392	3.8514	3.3868	3.0133
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.5831	5.3423	4.9095	4.5327	3.9124	3.4272	3.0404
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.7245	5.4675	5.0081	4.6106	3.9616	3.4587	3.0609
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.8474	5.5755	5.0916	4.6755	4.0013	3.4834	3.0764
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.9542	5.6685	5.1624	4.7296	4.0333	3.5026	3.0882
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	6.0472	5.7487	5.2223	4.7746	4.0591	3.5177	3.0971
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	6.1280	5.8178	5.2732	4.8122	4.0799	3.5294	3.1039
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	6.1982	5.8775	5.3162	4.8435	4.0967	3.5386	3.1090
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	6.2593	5.9288	5.3527	4.8696	4.1103	3.5458	3.1129
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.4641	6.0971	5.4669	4.9476	4.1474	3.5640	3.1220
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.0552	7.0027	6.5660	6.1772	5.5168	4.9789	4.1601	3.5693	3.1242
40	32.8347	27.3555	23.1148	19.7928	17.1591	15.0463	13.3317	11.9246	10.7574	9.7791	8.2438	7.1050	6.6418	6.2335	5.5482	4.9966	4.1659	3.5712	3.1250
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9148	8.3045	7.1327	6.6605	6.2463	5.5541	4.9995	4.1666	3.5714	3.1250
60	44.9550	34.7609	27.6756	22.6235	18.9293	16.1614	14.0392	12.3766	11.0480	9.9672	8.3240	7.1401	6.6651	6.2402	5.5553	4.9999	4.1667	3.5714	3.1250

we have answers to these past papers

Standard Normal Cumulative Probability Table



Cumulative probabilities for POSITIVE z-values are shown in the following table:

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998



CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

WEDNESDAY: 23 May 2018.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

A company manufacturing roof tiles has been considering the likely demand for the tiles over the next six years. The demand pattern is estimated as follows:

High demand for six years	0.5
Low demand for six years	0.3
High demand for three years followed by low demand for three years	0.2

Additional information:

- There is no probability of a low demand followed by a high demand.
- Enlargement of capacity will be required and the following options are available:
 - Option A: Install a fully automatic facility immediately at a cost of Sh.10.8 million.
 - Option B: Install a semi-automatic facility immediately at a cost of Sh.8 million.
 - Option C: Install a semi-automatic facility immediately as in Option B above and upgrade to a fully automatic facility at an additional cost of Sh.4 million in three years time provided demand has been high for the three years.
- The returns expected under the three capacity options and demand levels are estimated as follows:

Option	If demand is high	If demand is low
A	Sh.3.2 million per annum	Sh.1.2 million per annum
B	Sh.1.8 million per annum	Sh.1.6 million per annum
C Upgrade	Sh.2.2 million per annum for three years	Sh.0.6 million per annum for three years
No upgrade	Sh.1.0 million per annum for three years	Sh.1.6 million per annum for three years

Required:

- A decision tree representing the above information. (8 marks)
 - Advise the company on which capacity option to take given that the objective is to maximise expected monetary value (EMV). (12 marks)
- (Total: 20 marks)**

QUESTION TWO

- Explain the following costs as used in decision making:
 - Avoidable costs. (2 marks)
 - Sunk costs. (2 marks)
 - Differential costs. (2 marks)

- (b) The following data relates to the weekly amount spent on entertainment by households, the annual income of the head of the household and the household size in terms of number of persons:

Amount spent per week Sh.	Annual income of head of household per year Sh.	Household size No.
2,000	600,000	1
1,700	500,000	2
500	1,000,000	1
0	1,400,000	4
300	2,500,000	2
800	1,000,000	5
1,400	2,100,000	1
1,900	1,700,000	1
3,200	2,900,000	2
1,700	1,400,000	3
900	700,000	1
800	900,000	3
400	1,400,000	2
2,000	1,900,000	1
1,000	1,300,000	1
900	1,000,000	2
700	900,000	3
1,400	1,100,000	3
5,900	3,400,000	6
700	1,000,000	2

A computer output of the above data using a spreadsheet package was provided as follows:

Regression statistics

Multiple R	0.669191
R square	0.447817
Adjusted R square	0.382855
Standard error	10.196161
Observations	20

Anova	df	ss	ms	F	significance F
Regression	2	1432.03	716.0149	6.893453	0.006423
Residual	17	1765.77	103.8688		
Total	19	3197.80			

	Coefficients	Standard error	t stat	P-value	Lower 95%	Upper 95%
Intercept	-4.099268	5.583689	-0.734151	0.472862	-15.87984	7.681302
Income	0.985764	0.313508	3.144306	0.005915	0.32432	1.647208
Size	1.762415	1.716065	1.027009	0.318808	-1.858171	5.383002

Required:

- (i) The equation of regression line of the data. (2 marks)
- (ii) A statistical analysis of the computer results. (6 marks)
- (iii) Outline three factors that might hinder the interpretation of your results above. (6 marks)

Note: Round off your figures to two decimal places.

(Total: 20 marks)

QUESTION THREE

- (a) Outline four costs that should be reported in an environmental cost report. (4 marks)
- (b) Describe two models that could be used by a management accountant to scan risks in their operating environment. (4 marks)
- (c) Mambo Leo Limited buys and sells a single product branded "Zee".

The demand and lead time of the product are uncertain.

The following probability distribution has been provided:

Demand (units)	Probability
3	0.02
4	0.08
5	0.11
6	0.16
7	0.19
8	0.13
9	0.10
10	0.08
11	0.07
12	0.06
Lead time (days)	Probability
2	0.20
3	0.30
4	0.35
5	0.15

Additional information:

- The ordering cost per order is Sh.80.
- The holding cost per unit per day is estimated at Sh.2 while the unit shortage cost is Sh.20 per unit per day.
- The re-order quantity is 40 units and the re-order level is 20 units with a beginning inventory balance of 30 units.

Required:

Using simulation of the above problem for 10 days, determine the average daily cost using the following random numbers:

Demand	68	13	09	20	73	07	92	99	93	18
Lead time	30	22	17	13	08	39	35	24	12	34

(12 marks)
(Total: 20 marks)

QUESTION FOUR

(a) Explain the following budget setting styles.

- Imposed style. (2 marks)
- Participatory style. (2 marks)
- Negotiated style. (2 marks)

(b) Smart Furniture Ltd. makes and sells three types of sofa sets namely; American, Butterfly and Comfy.

The management accountant of Smart Furniture Ltd. has provided the following budgeted information for the coming period:

	Type of sofa set		
	American	Butterfly	Comfy
Production and sales (units)	900	800	1,000
Selling price per unit (Sh.)	40,000	20,000	30,000
Price cost per unit (Sh.)	35,000	16,000	24,000

Additional information:

1. The company's budgeted overhead costs for the coming period are:

	Sh.
Processing services	3,480,000
Assembly services	2,562,000
Quality control	1,930,500
Selling and administration	<u>3,007,500</u>
	<u>10,980,000</u>

- The overheads are currently absorbed to products based on assembly labour hours.
- Production of each type of sofa set takes place in batches of 50 units.

4. The company has also provided the following estimates for the coming period:

	Type of sofa set		
	American	Butterfly	Comfy
Machine hours per unit	4	3	6
Direct labour hours per unit	7	5	8
Number of customer orders	30	40	50

5. The management accountant has just learnt of activity based costing (ABC) and would be willing to apply it.

Required:

A budgeted profit statement using:

- (i) Conventional absorption costing using assembly labour hourly rate. (6 marks)
- (ii) Activity based costing (ABC). (8 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) Ace Ltd. has two divisions namely; Bee and Cee each under a divisional manager. The two divisions plan to acquire some investments in the month of August 2018.

Additional information:

- The cost of capital for both divisions is 13%.
- The current return on investment of each division is 15%.
- The divisions' planned investments have the following features:

	Bee	Cee
Capital required for investment (Sh.)	800,000	400,000
Revenue generated by investment (Sh.)	450,000	210,000
Net profit margin (%)	30	35

Required:

For each of the two divisions, compute:

- (i) Return on investment (ROI). (3 marks)
- (ii) Residual income. (3 marks)
- (b) Techsavy Ltd. has several independent divisions. The company's Tube division manufactures a picture tube used in television sets. The Tube division's income statement for the year ended 31 March 2018 in which 8,000 tubes were sold is given below:

	Total Sh."000"	Per unit Sh.
Sales	13,600	1,700
Cost of goods sold	(8,400)	(1,050)
Gross margin	5,200	650
Selling and administrative expenses	(3,900)	(487.5)
Divisional net income	1,300	162.5

The above cost of Sh.1,050 to produce a single tube consists of the following costs:

	Sh.
Direct materials	380
Direct labour	270
Manufacturing overheads (75% fixed)	400
Total cost per tube	1,050

The Tube division has fixed selling and administrative expenses of Sh.3,500,000 per year.

Techsavy Ltd. has just established a new division called TV Division that will produce a television set that requires high resolution picture tubes. The Tube division has been tasked to manufacture 2,500 of these tubes each year and sell them to the TV division. As part of determining the price that should be charged to the TV division, the Tube division has estimated the following costs for each of the new high resolution tubes.

	Sh.
Direct materials	600
Direct labour	490
Manufacturing overheads ($\frac{2}{3}$ fixed)	540
Total cost per tube	1,630

To manufacture the new tubes, the Tube division would have to reduce production of its regular tubes by 3,000 units per year. There would be no variable selling and administrative expenses on the intercompany business and total fixed overhead costs would not change. Assume direct labour is a variable cost.

Required:

- (i) Advise on the lowest acceptable transfer price from the perspective of the Tube division for each of the new high resolution tubes. (8 marks)
- (ii) Assume that the TV division has identified an external supplier that could provide the high resolution tubes for only Sh.2,000 each, and the Tube division is willing to pay this price.

Evaluate the effect of this decision on the profits of the company as a whole.

(6 marks)

(Total: 20 marks)

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CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

WEDNESDAY: 29 November 2017.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Tripa Ltd. is a company that specialises in the production of umbrellas. For the year ending 31 December 2018, the company is planning to produce special promotional umbrellas branded "Jumbo". Tripa Ltd. wishes to determine the optimal number of umbrellas that should be produced.

Additional information:

1. If all the umbrellas are sold within the year 2018, they would be sold at Sh.900 each.
2. If the company is unable to sell all the umbrellas within the year 2018, then they would be sold in the following year at Sh.300 per umbrella.
3. The production cost per umbrella amounts to Sh.400.
4. The demand for the umbrellas depends on the performance of the economy which is highly unpredictable.

The following are the possible states of economy:

Economy	Probability	Demand (Number of umbrellas)
Good	0.30	500,000
Average	0.46	350,000
Poor	0.24	300,000

5. Tripa Ltd. has to decide to produce the umbrellas at one of the states of the economy in order to match forecast demand.
6. The opportunity cost of not selling an umbrella that is demanded is Sh.100.

Required:

- (i) Construct a pay off table showing all the possible outcomes. (6 marks)
- (ii) Advise the management of Tripa Ltd. on the optimal level of production based on the expected value, maximax and maximin criteria. (9 marks)

(b) Sori Ltd. produces and sells three products; A, B and C. Sori Ltd. has contracts to supply products A and B which will utilise all the specific materials that are available to make these two products during the next period.

The revenue that these contracts will generate and the contribution to sales (C/S) ratios of products A and B are as follows:

	Product A	Product B
Revenue	Sh.10 million	Sh.20 million
C/S ratio	15%	10%

Additional information:

1. Product C will generate a contribution to sales (C/S) ratio of 25%.
2. The total fixed costs of Sori Ltd. are Sh.5.5 million during the next period.
3. The management have budgeted to earn a profit of Sh.1 million.

Required:

The revenue that needs to be generated from product C for Sori Ltd. to achieve the budgeted profit. (5 marks)

(Total: 20 marks)

QUESTION TWO

- (a) One of the major purposes of a budget is operational control. Through budgeting, management tries to match actual results to outcomes.

Required:

Other than control, discuss four other purposes of a budget.

(8 marks)

- (b) Actross Ltd., a subsidiary of Master Pack Ltd., a packaging company is preparing a budget for the year ending 30 June 2018. In respect of fuel consumption, the company desires to estimate an equation in the form of $y = a + bx$, where "y" is the total expense at an activity level "x", "a" is the fixed cost and "b" is the variable cost.

The following information relates to the year ended 30 June 2017:

Year and Month	Machine hours Sh."000"	Fuel expenses Sh."000"
2016		
July	34	640
August	30	620
September	34	620
October	39	590
November	42	500
December	32	530
2017		
January	26	500
February	26	500
March	31	530
April	35	550
May	43	580
June	48	680

The annual total and monthly average figures for the year ended 30 June 2017 were as follows:

	Machine hours Sh."000"	Fuel expenses Sh."000"
Annual total	420	6,840
Monthly average	35	570

Required:

Estimate the fixed and variable elements of fuel expense from the above data using the following methods:

- (i) High-low. (3 marks)
- (ii) Least squares regression. (7 marks)
- (c) From the information in (b) above, the coefficient of determination arising is approximately 0.25. Interpret the significance of this information. (2 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Measuring customer performance in the context of a firm encompasses using generic measures to assess the impact of various strategies on customers.

Required:

With regard to performance measurement in the service industry, identify three key indicators of customer performance measurement. (6 marks)

- (b) Wood Master Ltd. makes quality wooden benches both for indoor and outdoor use. Results have been disappointing in recent years and a new managing director has been appointed in order to boost the production volumes.

After an initial assessment, the director has noted that the budgets had been set at easily achievable levels for employees. He argues that employees would be better motivated by setting budgets that challenged them more in terms of higher expected output other than changing the overall budgeted output. The director has not yet altered the standard cost card. The budgeted output and sales for the month of October 2017 was 4,000 benches.

The standard cost card at this output level is provided below:

	Sh.
Wood (25 kgs at Sh.32 per kg)	800
Labour (4 hours at Sh.80 per hour)	320
Variable overheads (4 hours at Sh.40 per hour)	160
Fixed overheads (4 hours at Sh.160 per hour)	<u>640</u>
Total standard cost	<u>1,920</u>
Selling price	<u>2,200</u>
Standard profit	<u>280</u>

Additional information:

- Overheads are absorbed on the basis of labour hours and the company uses an absorption costing system.
- Stocks are valued at standard cost. There were no stocks at the beginning of the month of October 2017.
- Actual results for the month of October 2017 were as follows:

	Sh. "000"
Wood (80,000 kgs at Sh.35 per kg)	2,800
Labour (16,000 hours at Sh.70 per hour)	1,120
Variable overheads	600
Fixed overheads	<u>1,960</u>
Total production cost (3,600 benches)	6,480
Closing stock (400 benches at Sh.1,920 each)	<u>(768)</u>
Cost of sales	<u>5,712</u>
Sales (3,200 benches)	<u>7,200</u>
Actual profit	<u>1,488</u>

- The average monthly production and sales for some years prior to October 2017 had been 3,400 units and budgets had previously been set at this level. Very few operating variances had historically been generated by the standard cost used.
- The finance director suggested that an absorption costing system is misleading and that marginal costing system should be considered at some stage in the future to guide decision making.

Required:

- The operating variances. (10 marks)
- A statement reconciling the actual profit and the budgeted profit for Wood Master Ltd. (4 marks)

(Total: 20 marks)

QUESTION FOUR

- (a) Bipo Ltd. is planning to launch a new product into the market. In order to determine the introduction selling price of the product, a market research was undertaken. The following information has been obtained from the research under two possible selling prices; Sh.300 and Sh.350 per unit:

Selling price per unit Sh.300		Selling price per unit Sh.350	
Probability	Sales volumes (units)	Probability	Sales volume (units)
0.4	120,000	0.3	108,000
0.5	110,000	0.3	100,000
0.1	140,000	0.4	94,000

Additional information:

- The variable production cost would be Sh.120 per unit for production volumes up to and including 100,000 units each year. However, if production exceeds 100,000 units each year, the variable production cost per unit would fall to Sh.110 for all units produced.
- Advertising costs would be Sh.9,000,000 per annum at a selling price of Sh.300 and Sh.9,700,000 per annum at a selling price of Sh.350.
- Fixed production costs would be Sh.4,500,000 per annum.

Required:

Advise the management of Bipo Ltd. on the optimal selling price per unit for the new product. (11 marks)

- (b) The Lofters group comprises two companies namely; W Ltd. and Zed Ltd. W Ltd. is a trading company with two divisions; the Design division which designs wind turbines and supplies the designs to customers under license and the Gearbox division, which manufactures gearboxes for the car industry.

Zed Ltd. manufactures components for gearboxes. It sells the components globally and also supplies W Ltd. with components for its Gearbox division.

The financial results for the two companies for the year ended 31 December 2017 are as follows:

	W Ltd.		Zed Ltd.
	Design Division	Gearbox Division	
	Sh."000"	Sh."000"	Sh."000"
External sales	14,300	25,535	8,010
Sales to Gearbox division			<u>7,550</u>
			<u>15,560</u>
Cost of sales	(4,900)	(16,200)	(5,280)
Administrative costs	(3,400)	(4,200)	(2,600)
Distribution costs	-	(1,260)	(670)
Operating profit	<u>6,000</u>	<u>3,875</u>	<u>7,010</u>
Capital employed	<u>23,540</u>	<u>32,320</u>	<u>82,975</u>

The cost of sales in the Gearbox division includes the cost of components purchased from Zed Ltd.

Required:

Evaluate the performance of Zed Ltd. and each division of W Ltd. using the following performance measures:

- (i) Return on capital employed (ROCE). (3 marks)
- (ii) Asset turnover. (3 marks)
- (iii) Operating profit margin. (3 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Environmental management accounting (EMA) is complementary to the conventional financial management accounting approach with the aim of developing appropriate mechanisms that assist in identification and allocation of environmental related costs.

With reference to the above statement, highlight four areas for the application of EMA. (4 marks)

- (b) Trans Ltd. supplies a product branded "BBG". Although the annual demand for BBG is high, it varies considerably.

The demand during lead time and the associated probabilities are as follows:

Demand during lead time	Probability
600	0.25
650	0.23
700	0.12
750	0.10
800	0.08
850	0.05
900	0.05
950	0.04
1,000	0.03
1,050	0.03
1,100	0.02

Additional information:

1. Trans Ltd. places 5 orders annually.
2. The ordering cost per order amounts to Sh.6,000.
3. The carrying cost amounts to Sh.1,000 per unit.
4. The estimated stock-out cost is Sh.5,000 per unit.
5. The re-order point is 850 units.
6. The lead time is 12 working days.

Required

- (i) Advise the management of Trans Ltd. on the amount of safety stock to be maintained. (14 marks)
- (ii) Determine the probability of stock-out. (2 marks)

(Total: 20 marks)

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KASNEB

CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

WEDNESDAY: 24 May 2017.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Furahia Ltd., an events management company is considering whether to advertise an outdoor concert. The sale of tickets is dependent on the weather, as indicated below:

- If the weather is poor, it is expected that 5,000 tickets will be sold without advertising. There is a 70% chance that the weather will be poor.
- If the weather is good, it is expected that 10,000 tickets will be sold without advertising. There is a 30% chance that the weather will be good.
- If the concert is advertised and the weather is poor, there is a 60% chance that advertising will stimulate further demand and ticket sales will increase to 7,000.
- If the concert is advertised and the weather is good, there is a 25% chance that advertising will stimulate further demand and ticket sales will increase to 13,000.

The profit expected before deducting the cost of advertising at different levels of ticket sales are as follows:

Number of tickets sold	Profit Sh. "000"
5,000	(20,000)
6,000	(5,000)
7,000	35,000
8,000	55,000
9,000	70,000
10,000	90,000
11,000	115,000
12,000	130,000
13,000	150,000

The cost of advertising the concert is expected to be Sh.15,000,000.

Required:

Using a decision tree, advise the management of Furahia Ltd. on whether the outdoor concert should be advertised. (12 marks)

- (b) Samoa Ltd. has to decide which of the three new mutually exclusive products; X, Y and Z, to launch. The company's directors believe that the demand for the three products will vary depending on competitor's reaction. There is a 30% chance that the competitor's reaction will be strong, a 20% chance that the competitor's reaction will be normal and a 50% chance that the competitor's reaction will be weak. The company uses expected value to make this type of decision.

The net present values of the possible outcomes are as follows:

Competitor's reaction	Product X Sh. "000"	Product Y Sh. "000"	Product Z Sh. "000"
Strong	400	800	1,200
Normal	600	1,200	800
Weak	1,000	1,600	1,000

A market researcher believes that he could provide perfect information on potential competitor's reaction in the above market.

Required:

Advise the management of Samoa Ltd. on the maximum amount that should be paid for the information from the market researcher. (8 marks)

(Total: 20 marks)

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QUESTION TWO

- (a) Evaluate three benefits that might accrue to an organisation that adopts Environmental Management Accounting (EMA). (6 marks)
- (b) Jambo Ltd. is a multiproduct firm. The company intends to launch a new product branded "ZP" in the coming months. Production will be in batches of 1,000 units throughout the life of the product. It is expected to achieve a 90% learning curve but the learning would cease after the 64th batch.

Other relevant data of product "ZP" is as follows:

Expected life (production)	<u>256,000 units</u>
	Sh.
Selling price per unit	123
Direct material cost per unit	36
Total direct labour cost (first batch)	52,500
Variable overhead costs per unit	24
Total specific fixed costs	3,875,000

The learning index for a 90% learning curve is -0.152.

Required:

- (i) The expected profit to be earned from the product over its lifetime. (8 marks)
- (ii) It has now been established that the learning effect will continue for all of the 256 batches that will be produced.

Required:

The "learning curve" required to achieve a lifetime product profit of Sh.10 million, assuming that a constant learning rate applies throughout the product's life. (6 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Explain the term "incremental budgeting", citing one of its major limitations as a budgeting technique. (4 marks)
- (b) Discuss the three approaches of evaluating performance. (6 marks)
- (c) You have been provided with the following operating statement which represents an attempt by a firm to compare the actual performance with the budget for the quarter which has just ended:

	Budget	Actual	Variance
	Sh. "000"	Sh. "000"	Sh. "000"
Number of units sold	640,000	720,000	80,000
Sales	<u>1,024</u>	<u>1,071</u>	<u>47</u>
Cost of sales (all variable):			
Materials	168	144	
Labour	240	288	
Overheads	<u>32</u>	<u>36</u>	
Total variable costs	<u>440</u>	<u>468</u>	<u>(28)</u>
Fixed labour cost	100	94	6
Selling and distribution costs:			
Fixed	72	83	(11)
Variable	144	153	(9)
Administrative costs:			
Fixed	184	176	8
Variable	<u>48</u>	<u>54</u>	<u>(6)</u>
	<u>548</u>	<u>560</u>	<u>(12)</u>
Net profit	<u>36</u>	<u>43</u>	<u>7</u>

Required:

- (i) Using a flexible budgeting approach, redraft the operating statement so as to provide a more realistic indication of the variances. (8 marks)
- (ii) Explain why the original operating statement was of little use to the management. (2 marks)

(Total: 20 marks)

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QUESTION FOUR

- (a) A pizza vendor buys pieces of pizza every morning at Sh.450 each by placing an order one day in advance and sells them at Sh.700 each.

Unsold pizza could be sold the following day at Sh.200 per piece and thereafter if still unsold the pizza is treated as waste.

The pattern of demand of the pizza is given below:

Fresh pizza:

Daily sale	100	101	102	103	104	105	106	107	108	109	110
Probability	0.01	0.03	0.04	0.07	0.09	0.11	0.15	0.21	0.18	0.09	0.02

One day old pizza:

Daily sale	0	1	2	3
Probability	0.70	0.20	0.08	0.02

Additional information:

- The vendor adopts the rule that, if there is no stock of pizza at the end of the previous day, an order of 110 pieces is placed, otherwise an order of 100 or 105 pieces is placed whichever is nearest to the actual fresh pizza sale on the previous day.
- Use the following set of random numbers:

Fresh pizza	37	73	14	17	24	35	29	37	33	68
One day old pizza	17	28	69	38	50	57	82	44	89	60

Required:

Starting with zero stock and a pending order of 105 pieces of pizza, simulate the transactions for 10 days and determine the vendor's profit or loss. (10 marks)

- (b) Vesto Ltd. intends to launch a new product into the market. The management of the company is uncertain of some variables namely; selling price, variable cost and the annual sales volume of the product.

The following information relates to the possible values of the above variables and their associated probabilities:

Selling price per unit	Probability	Variable cost per unit	Probability	Sales volume	Probability
Sh.		Sh.		(Units)	
700	0.20	350	0.10	20,000	0.20
875	0.50	550	0.50	30,000	0.40
900	0.30	600	0.40	40,000	0.40

Additional information:

- The sales volume is the estimated annual sales.
- The uncertain variables are independent of one another.

Required:

Simulate the scenario above to determine the average annual contribution of the product.

Use the following random numbers: 80, 60, 43, 63, 21, 40, 36, 05, 69, 16, 73, 86, 28, 31, 61, 57, 39, 96, 49, 77, 26, 95, 82, 72. (10 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Summarise four factors that should be taken into consideration in establishing the length of a proposed budget period. (4 marks)
- (b) Reka Ltd. has two manufacturing divisions namely; A and B. Division A manufactures a single product branded "RR". Two-thirds of the output of "RR" is sold externally while the balance is transferred to division B where it is used as raw material in the manufacture of a product branded "TT".

The unit costs of product "RR" are as follows:

	Sh.
Direct material	12
Direct labour	6
Direct expenses	6
Variable manufacturing overheads	6
Fixed manufacturing overheads	12
Selling and packaging expense (variable)	<u>2</u>
	<u>44</u>

Additional information:

1. Annually, 10,000 units of product "RR" are sold externally at the standard price of Sh.90 per unit while 5,000 units are transferred to division B at an internal transfer charge of Sh.87 per unit.
2. The selling and packaging expense is not incurred for internal transfers.
3. The unit costs of product "TT" are as follows:

	Sh.
Transferred-in item ("RR")	87
Added direct materials	69
Direct labour	9
Variable overheads	36
Fixed overheads	36
Selling and packaging expense (variable)	<u>3</u>
	<u>240</u>

4. A recent study of the demand and sales relationship of the company's products by the sales division produced the following results:
 - **Division A**

Selling price (Sh.)	60	90	120
Demand (units)	15,000	10,000	5,000
 - **Division B**

Selling price (Sh.)	240	270	300
Demand (units)	7,200	5,000	2,800
5. The manager of division B has proposed that transfers from division A should be made at Sh.36 per unit which represents the variable costs plus a minimum mark-up.

Required:

Advise the management of Reka Ltd. on the following:

- (i) The current effect of the transfer pricing system on the company's profits. (10 marks)
- (ii) The effect on profit of adopting the above proposal from the manager of division B. (6 marks)

(Total: 20 marks)

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CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

WEDNESDAY: 23 November 2016.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

(a) Business organisations are required to factor in environmental concerns in their decision making.

Describe four ways of aligning business operations with environmental issues. (8 marks)

(b) The following information relates to night shift operations at Waki Ltd., a manufacturing company.

1. The night shift workers normally consist of 30 skilled men, 15 semi-skilled men and 10 unskilled men, who are paid at standard hourly rates of Sh.80, Sh.60 and Sh.40 respectively.
2. A normal working week consists of 40 hours.
3. The weekly output for night shift workers is expected to be 2,000 units.
4. In the second week of the month of October 2016, the night shift workers consisted of 40 skilled men, 10 semi-skilled men and 5 unskilled men, who were paid at Sh.70, Sh.65 and Sh.30 respectively. During that week, 4 hours were lost due to abnormal idle time and 1,600 units were produced.

Required:

Compute for the second week of October 2016:

- (i) Labour cost variance. (2 marks)
- (ii) Labour rate variance. (2 marks)
- (iii) Labour efficiency variance. (3 marks)
- (iv) Labour mix variance. (3 marks)
- (v) Idle time variance. (2 marks)

(Total: 20 marks)

QUESTION TWO

(a) SL Ltd. manufactures and stocks component Q which is used as an input material in another department within the organisation. The past data on component Q is as follows:

- Average demand per day is 130 units.
- Average production lead time is 5 days.

The frequency distribution of actual demand during lead time is given below:

Actual demand (units)	Frequency
300-399	0
400-499	16
500-599	20
600-699	25
700-799	14
800-899	8
900-999	3

The company targets an 85% service level during lead time.

Required:

- (i) The re-order level. (9 marks)
- (ii) The safety stock level. (3 marks)

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- (b) Innovators Ltd. has designed a new model of a manufacturing machine. The cost and sales price of the first machine to be produced has been estimated as follows:

“Sh.000”	
Materials	25,000
Labour (2,000 hours x Sh.15,000 per hour)	30,000
Overhead (50% of labour cost)	<u>15,000</u>
	70,000
Profit mark-up (25%)	<u>17,500</u>
Selling price	<u>87,500</u>

The company plans to sell all the machines at full cost plus 25%. A 90% learning curve is expected to apply to the production work. Only one customer has expressed interest in buying the machine so far, but he views Sh.87,500,000 as too high a price to pay. He could buy more of the machines in the coming periods.

Required:

- (i) If the customer above paid Sh.87,500,000 for the first machine, determine the price he would have to pay later for a second machine. (4 marks)
- (ii) Advise the management of Innovators Ltd. on the price quotation per machine if the customer above places an order for the third and the fourth machines as a single order. (4 marks)

(Total: 20 marks)

QUESTION THREE

Best deal Ltd. has developed a new product and is currently considering the marketing and pricing policy that it should employ for the product. Specifically, it is considering whether the sales price should be set at Sh.150 per unit or at a higher price of Sh.240 per unit. Sales volume and respective probabilities at these two prices are as follows:

Sales price of Sh.150		Sales price of Sh.240	
Forecast sales volume	Probability	Forecast sales volume	Probability
20,000	0.1	18,000	0.1
30,000	0.6	16,000	0.3
40,000	0.3	20,000	0.3
		24,000	0.3

Additional information:

1. Fixed production cost of the venture will be Sh.380,000.
2. The level of advertising and publicity costs will depend on the sales price and the market aimed for. With a sales price of Sh. 150 per unit, the advertising and publicity costs will amount to Sh.120,000. With a sales price of Sh.240 per unit, these costs will amount to Sh.1,220,000.
3. Labour and variable overhead costs will amount to Sh.50 per unit produced.
4. Each unit produced requires 2 Kgs of raw materials and the basic cost is expected to be Sh.40 per Kg. However, the suppliers of the raw materials are prepared to lower the price in return for a firm agreement to purchase a guaranteed minimum quantity. If Best deal Ltd. contracts to purchase at least 40,000 Kgs, then the price will be reduced to Sh.37.5 per Kg for all purchases. If Best deal Ltd. contracts to purchase a minimum of 60,000 Kgs, then the price will be reduced to Sh.35 per Kg for all purchases. It is only if Best deal Ltd. guarantees either of the above minimum levels of purchases in advance that the appropriate reduced prices will be effected.
5. If Best deal Ltd. was to enter into one of the agreements for the supply of the raw materials and was to find that it did not require to utilise the entire quantity of materials purchased, then the excess could be sold. The sales price will depend upon the quantity that is offered for sale. If 16,000 Kgs or more is sold, the sales price will be Sh.29 per Kg for all sales. If less than 16,000 Kgs are offered, the sales price will only be Sh.24 per Kg.
6. Irrespective of the amount sold, the costs incurred in selling the excess raw materials per kg. will be as follows:

Sh.	
Packaging	3.00
Delivery	4.50
Insurance	1.50
7. Best deal Ltd.'s management team feels that losses are undesirable while high expected monetary values are desirable. Therefore, it is considering the utilisation of a formula that incorporates both aspects of the outcome to measure the desirability of each strategy. The formula to be used to measure desirability is:

$$\text{Desirability} = L + 3 E$$

Where L = The lowest outcome of the strategy.
E = The expected monetary value of the strategy.

The higher this measure is, the more desirable the strategy.

The marketing manager seeks your advice, as the management accountant, to assist in deciding on the appropriate strategy.

Required:

- (a) Prepare statements showing the various expected outcomes of each of the choices open to Best deal Ltd. (14 marks)
- (b) Advise the management of Best deal Ltd. on the best choice of strategies if the company's objective is to:
- (i) Maximise expected monetary value. (2 marks)
 - (ii) Minimise the harm done to the firm if the worst outcome of each choice was to occur. (2 marks)
 - (iii) Maximise the score on the above mentioned measure of desirability. (2 marks)
- (Total: 20 marks)**

QUESTION FOUR

Everlast Ltd. operates three health and fitness centres in the country. Each centre offers dietary plans and fitness facilities or programmes to clients under the supervision of dieticians and fitness trainers.

Residential accommodation is also available at each centre. The centres are located in the Western, Eastern and Central parts of the country.

The following information is available:

1. Summary of financial data for Everlast Ltd. for the financial year ended 30 June 2016:

	Western Sh. "000"	Eastern Sh. "000"	Central Sh. "000"	Total Sh. "000"
Revenue:				
Fees received	1,800	2,100	4,500	8,400
Variable cost	<u>(468)</u>	<u>(567)</u>	<u>(1,395)</u>	<u>(2,430)</u>
Contribution	1,332	1,533	3,105	5,970
Fixed cost	<u>(936)</u>	<u>(1,092)</u>	<u>(2,402)</u>	<u>(4,430)</u>
Operating profit	<u>396</u>	<u>441</u>	<u>703</u>	1,540
Interest cost on long-term debt at 10%				<u>(180)</u>
Profit before tax				1,360
Income tax for the year				<u>(408)</u>
Profit for the year				<u>952</u>
Average book values for 2016:				
Assets:				
Non-current assets	1,000	2,500	3,300	6,800
Current assets	<u>800</u>	<u>900</u>	<u>1,000</u>	<u>2,700</u>
Total assets	<u>1,800</u>	<u>3,400</u>	<u>4,300</u>	<u>9,500</u>
Equity:				
Share capital				2,500
Retained earnings				4,400
Non-current liability:				
Long-term borrowing				1,800
Current liabilities	80	240	480	<u>800</u>
Total equity and liabilities				<u>9,500</u>

2. Everlast Ltd. defines residual income (RI) for each centre as operating profit minus required rate of return of 12% of the total assets of each centre.

3. At present, Everlast Ltd. does not allocate long-term borrowings of the group to the three separate centres.
4. Each centre faces similar risk.
5. Tax is payable at the rate of 30%.
6. The market value of the equity capital of Everlast Ltd. is Sh.9 million and the cost of equity is 15%.
7. The market value of long-term borrowing is equal to its book value.
8. The directors are concerned about the return on investment (ROI) generated by Eastern centre and are considering using sensitivity analysis in order to show how target ROI of 20% might be achieved.
9. The marketing director stated at a recent board meeting that "The Group's success depends on the quality of service to our clients. In my opinion, we need only to concern ourselves with the number of complaints received from clients during each period as this is the most important performance measure of our business. The number of complaints received from clients is a perfect performance measure. As long as the number of complaints received from customers is not increasing from period to period, then we can be confident about our future prospects".

Required:

The directors of Everlast Ltd. have requested you as the management accountant to prepare a report providing them with explanations as to the following:

- (a) The most successful centre. Your report should include commentary on return on investment (ROI), residual income (RI) and economic value added (EVA) as measures of financial performance. Detailed calculations regarding each of the three measures must be included as part of your report. (12 marks)
 - (b) The percentage change in revenue, total cost and net assets during the period that would have been required in order to achieve a target ROI of 20% for Eastern centre. (6 marks)
 - (c) State whether you agree with the statement of the marketing director in note (9) above. (2 marks)
- (Total: 20 marks)**

QUESTION FIVE

Sang Ltd. has two divisions namely; X and Y. Division X manufactures electrical components which it sells to division Y and external customers.

Division Y has designed a new product branded "Yetu" and has requested division X to supply the electrical component which is required in the manufacture of the new product. Each unit of product "Yetu" will require one electrical component. This component will no longer be sold by division X to external customers. Division X has quoted a transfer price to division Y of Sh.45 for each unit of the electrical component.

It is the policy of Sang Ltd. to reward managers based on their individual division's return on capital employed.

The details of the monthly production for each division are as follows:

Division X

- Output The electrical component will be produced in batches of 1,000 units. The maximum capacity is 6,000 components per month.
- Variable cost Sh.15 per component.
- Fixed cost Sh.50,000 (these are incurred specifically to manufacture the electrical component).

Division Y

- Output Product "Yetu" will be produced in batches of 1,000 units. The maximum customer demand is 6,000 units of product "Yetu" per month.
- Variable cost Sh.9 per unit plus the cost of electrical component.
- Fixed cost Sh.75,000 (these are incurred specifically to manufacture product "Yetu").

The relationship between the monthly customer demand and the selling price of product “Yetu” is as follows:

Demand (units)	Selling price per unit (Sh.)
1,000	120
2,000	110
3,000	100
4,000	90
5,000	80
6,000	67

Required:

- (a) Based on a transfer price of Sh.45 per electrical component, advise the management of Sang Ltd. on the monthly profit that would be earned as a result of selling product “Yetu”. (6 marks)
- (b) Determine the maximum monthly profit from the sale of product “Yetu” for Sang Ltd. (4 marks)
- (c) Using the marginal cost of electrical component as a transfer price, advise the management of Sang Ltd. on the monthly profit that would be earned as a result of selling product “Yetu” by divisions X and Y and the company as a whole. (6 marks)
- (d) (i) Using the above scenario, discuss the problem of setting a transfer price. (2 marks)
- (ii) Suggest a transfer pricing policy that would help Sang Ltd. to overcome the transfer pricing problems that it faces. (2 marks)

(Total: 20 marks)

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CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

WEDNESDAY: 25 May 2016.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

- (a) Management accountants are required to conduct themselves ethically. A commitment to ethical professional practice requires observation of principles that express values and standards that guide conduct such as honesty, fairness, objectivity and responsibility.

Required:

With reference to the above statement, summarise six benefits of ethical behaviour by management accountants in business. (6 marks)

- (b) (i) The learning phenomenon applies to time and will affect any cost which is a function of time. Whenever costs are estimated, the potential impact of learning should be considered.

Required:

Highlight four areas where the learning curve is applied in business. (4 marks)

- (ii) Describe four limitations of using the learning curve in business. (4 marks)

- (c) Space Com Ltd. is about to bid on a new radar system. Although the product uses new technology, Space Com Ltd. believes that a learning rate of 75% is appropriate. The first unit is expected to consume 700 hours and the contract is for 40 units.

Required:

- (i) The total amount of hours required to build the 40 units. (2 marks)

- (ii) The average time to build each of the 40 units. (2 marks)

- (iii) Assuming that a worker works 2,080 hours per year, determine the number of workers that should be assigned to this contract to complete it in a year. (2 marks)

(Total: 20 marks)

QUESTION TWO

The Raha Resort, which is privately owned, is a world famous luxury hotel and cricket complex. It has been chosen as the venue to stage "The Ribon Cup", a cricket tournament which is contested by teams from across the world. The tournament is scheduled to take place during the month of December 2016. The resort will offer accommodation for each of the five nights that guests would require accommodation.

The following information is available regarding the period of the tournament:

1. Hotel data:

Total number of rooms 2,400

Rooms mix:

- Double rooms 75%
- Single rooms 15%
- Family rooms 10%

Fees per room per night (Sh.):

- Double rooms 4,000
- Single rooms 3,000
- Family rooms 6,000

Number of guests per room:

- Double rooms 2
- Single rooms 1
- Family rooms 4

Note: When occupied, all rooms will contain the number of guests as above.

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Costs:

Variable cost per guest per night Sh.1,000

Attributable fixed costs for the five-day period:

- Double rooms Sh.5,160,000
- Single and family rooms (total) Sh.3,000,000

2. Accommodation for guests is provided on an all-inclusive basis (meals, drinks and entertainment).
3. The hotel management expects all single and family rooms to be "sold out" for each of the five nights of the tournament. However, they are unsure whether the fee in respect of double rooms should be increased or decreased. At a price of Sh.4,000 per room per night they expect an occupancy rate of 80% of available double rooms. For each Sh.100 increase/decrease, they expect the number of rooms to decrease/increase respectively by 40.
4. The objective of the hotel management is to maximise profit.

Required:

- (a) (i) The fees that should be charged per double room per night in order to maximise profits during the tournament. (6 marks)
- (ii) The profit that would be earned from staging the tournament as a consequence of charging the fee determined in (a)(i) above. (4 marks)
- (b) The management of the hotel is concerned about the level of variable costs per guest per night to be incurred in respect of the tournament. A recent review of proposed operational activities has concluded that variable cost per guest per night in all rooms in the hotel would be reduced by 20% if proposed changes in operational activities were made. However, this would result in additional attributable fixed costs amounting to Sh.2,000,000 in respect of the five-day period.

Required:

Advise the management whether, on purely financial grounds, they should make the proposed changes in operational activities. (6 marks)

- (c) Discuss two initiatives that the management might consider in order to further improve the profit from staging the cricket tournament. (4 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Sawasawa Ltd. is a fitness centre serving traders within the Central Business District (CBD). Currently, the centre has 4,000 members with each member paying a subscription fee of Sh.35,000 per annum.

The centre comprises of a gym, a swimming pool and a small exercise area.

A competitor plans to open a new fitness centre within the same locality. This is expected to cause a decrease in membership numbers for Sawasawa Ltd. unless its facilities are upgraded.

Consequently, Sawasawa Ltd. is considering the following options in a bid to improve its membership numbers:

Option 1

No upgrade. In this case, membership numbers would be expected to fall to 3,250 per annum for the next four years. Operational costs would remain unchanged at the current level of Sh.4,500 per member per annum.

Option 2

Upgrade the exercise area. The capital cost of this upgrade would be Sh.18,000,000. The expected effect on membership numbers for the next four years is as follows:

Probability	Effect on membership numbers
0.3	Remain at their current level of 4,000 members per annum.
0.7	Increase to 4,800 members per annum.

The effect on operational costs for the next four years is expected to be:

Probability	Effect on operational costs
0.4	Increase to Sh.6,000 per annum per member.
0.6	Increase to Sh.8,000 per annum per member.

Any improvements are expected to last for four years.

Required:

- (i) Using the expected monetary value (EMV) criterion, recommend the decision that Sawasawa Ltd. should make. (8 marks)
- (ii) Advise on the maximum price that Sawasawa Ltd. should pay for perfect information about the upgrade of the exercise area. (4 marks)
- (b) James Makali prides himself as the largest sausage supplier in the city. Small, freshly baked sausages are the speciality of his shop. He has sought help in determining the number of sausages he should make each day so as to maximise his long run profitability.

From an analysis of past demand, he estimates the demand for sausages as follows:

Demand (packets)	Probability of demand
1,800	0.05
2,000	0.10
2,200	0.20
2,400	0.30
2,600	0.20
2,800	0.10
3,000	0.05

Additional information:

- The selling price per packet amounts to Sh.90.
- The cost per packet which includes handling and transportation amounts to Sh.65.
- Sausages that are not sold at the end of the day are sold as day-old merchandise the following day at Sh.30 per packet.

Required:

Using continuous analysis of probability distribution of demand, advise on the optimal production quantity (in packets) for the sausages. (8 marks)

(Total: 20 marks)

QUESTION FOUR

- (a) Environmental Management Accounting (EMA) is broadly defined as the identification, collection, analysis and use of two types of information for internal decision making namely:
- Physical information on the use and flow of energy, water and materials including waste.
 - Monetary information on environmental related costs, earnings and savings.

The management accountant possesses important cost data and information regarding the environment.

Required:

With regard to the above statement, evaluate the role of management accountants in Environmental Management Accounting (EMA). (6 marks)

- (b) Ujuzi Ltd. operates a standard marginal cost accounting system. The information relating to product "Exa" which is manufactured in one of the company's department is given below:

	Standard marginal cost per unit
	Sh.
Direct materials: 6 kgs at Sh.40 per kg.	240
Direct labour: 1 hour at Sh.70 per hour	70
Variable production overhead	<u>30</u>
	<u>340</u>

Additional information:

- Variable production overheads vary with units produced.
- Budgeted fixed production overheads per month amount to Sh.1,000,000.

3. Budgeted production for product Exa amounted to 20,000 units per month.
4. Budgeted selling price per unit amounted to Sh.440.
5. The actual results for the month of April 2016 were as follows:

Units of Exa produced	18,500
	Sh.
Direct materials purchased and used (113,500 kgs.)	4,426,500
Direct labour (17,800 hours)	1,299,400
Variable production overheads incurred	588,000
Fixed production overheads incurred	<u>1,040,000</u>
	<u>7,353,900</u>
Actual selling price per unit Sh.480	

Required:

- (i) Prepare in columnar format, the original budget, flexed budget and actual profit statement. (6 marks)
- (ii) Statement reconciling the original budgeted profit and the actual profit.
(Show all operating variances).

(8 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Discuss the application of the Fitzgerald and Moon's building block model in performance measurement with particular focus to service organisations. (10 marks)
- (b) The following information relates to investment opportunities available to Tumaini Ltd:

Investment opportunity	Annual profit Sh.	Cost of investment Sh.
A	300,000	900,000
B	300,000	1,600,000
C	240,000	1,200,000
D	280,000	800,000
E	260,000	1,000,000

Additional information:

1. The company currently has profits of Sh.1,250,000 and investments of Sh.5,000,000.
2. The minimum required rate of return of the company is 20%.
3. The company will only invest in projects that will improve on the current performance.

Required:

- (i) The return on investment (ROI) and the residual income (RI) for each of the investment opportunities. (5 marks)
- (ii) Based on the performance measures above, rank the investment opportunities in their order of preference. Comment on the project (s) that the company should invest in. (5 marks)
(Hint: Select the project (s) that will maximise the final profitability).

(Total: 20 marks)

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KASNEB

CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

WEDNESDAY: 25 November 2015.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

Zomau Ltd. is in the process of setting a selling price for one of its products.

Three prices are under consideration; Sh.40, Sh.43 and Sh.44 per unit.

The following information is also provided about future demand for the product under different market conditions:

Market condition	Demand (in units) under the three prices		
	Sh.40	Sh.43	Sh.44
Best possible	18,000	16,000	14,500
Most likely	16,000	14,500	14,000
Worst possible	12,000	10,000	8,000

Fixed costs are estimated to be Sh.240,000 and the variable cost per unit is Sh.20.

Required:

Advise the company on the best possible price to set for the product on the basis of the following decision making criteria:

- (a) Maximax decision rule. (4 marks)
- (b) Maximin decision rule. (4 marks)
- (c) Laplace criterion of rationality. (4 marks)
- (d) Minimax criterion. (4 marks)
- (e) Advise Zomau Ltd. whether it is worth acquiring perfect information, assuming that the cost of obtaining the information is Sh.3,167. (4 marks)

(Total: 20 marks)

QUESTION TWO

- (a) Describe four advantages of activity based budgeting (ABB). (8 marks)
- (b) The following data relate to Mambo Leo Ltd's estimated usage of raw materials for the month of December 2015.

Usage (units)	Probability
1,440	0.06
1,520	0.14
1,600	0.30
1,680	0.16
1,760	0.13
1,840	0.10
1,920	0.07
2,000	0.04

Additional information:

1. Stock outs will cost the company Sh.80 per unit.
2. Average monthly holding cost is estimated at Sh.10 per unit.
3. A lead time of four days is required for ordering raw materials.
4. The economic order quantity for the raw materials is 1,600 units every 30 days.

Required:

- (i) The optimal safety stock. (10 marks)
- (ii) The probability of being out of stock. (2 marks)

(Total: 20 marks)

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QUESTION FOUR

- (a) Transfer prices are of critical importance in evaluating performance because they influence both revenues of the selling division and costs of the buying division.

In reference to the above statement, explain five transfer pricing policies that could be adopted and their implications. (10 marks)

- (b) The following data relate to the operations of division X of Pendo Ltd.:

	Sh.
Selling price per unit	90
Variable cost per unit	54
Fixed costs per year	900,000
Investments	2,700,000

Additional information:

1. Y Ltd. has placed a special order for 10,000 units per year from Pendo Ltd. The firm has requested for a special price.
2. The current volume of production is 43,000 units.
3. Accepting the special order will increase fixed costs by Sh.90,000 and investment by Sh.240,000.

Required:

- (i) The number of units to be sold to achieve a return on investment of 25% without the special order. (2 marks)
- (ii) The return on investment without the special order. (2 marks)
- (iii) The lowest price at which Pendo Ltd. could sell the additional 10,000 units without reducing the return on investment in (b) (ii) above. (6 marks)

(Total: 20 marks)

QUESTION FIVE

- (a) Citing three reasons, explain the purpose of cost estimation. (6 marks)

- (b) Wood Ltd. makes quality wooden benches for both indoor and outdoor use. Results have been disappointing in recent years and a new managing director, Mr. P. Rono was appointed to raise production volumes.

After an initial assessment, Mr. P. Rono considered that budgets had been set at low levels which were easily achieved by employees. He argued that employees would be better motivated by setting budgets which challenge them more in terms of higher expected output.

Other than changing the overall budgeted output, Mr. P. Rono has not altered any part of the standard cost card. Thus, the budgeted output and sales for the month of October 2015 was 4,000 benches. The standard cost card below was prepared on this basis.

	Sh.
Wood: 25 kilogrammes at Sh.3.20 per kilogramme	80
Labour: 4 hours at Sh.8 per hour	32
Variable overheads: 4 hours at Sh.4 per hour	16
Fixed overheads: 4 hours at Sh.16 per hour	<u>64</u>
Total cost	192
Standard profit	<u>28</u>
Standard selling price	<u>220</u>

Additional information:

1. Overheads are absorbed on the basis of labour hours. The company uses absorption costing system.
2. There were no stocks at the beginning of October 2015.
3. Stocks are valued at standard cost.
4. Actual results for the month of October 2015 were as follows:

	Sh.
Wood: 80,000 kilogrammes at Sh.3.50 per kilogramme	280,000
Labour: 16,000 hours at Sh.7 per hour	112,000
Variable overheads	60,000
Fixed overheads	<u>196,000</u>
Total production cost (3,600 benches)	648,000

QUESTION THREE

- (a) (i) In the context of management accounting, explain the term "life cycle costing". (2 marks)
- (ii) Kipevu Ltd. is considering launching a new product branded "KV". The product is estimated to have a life of three years.

The following costs are estimated to be incurred at different phases of the product's lifecycle:

	Sh."000"	Sh."000"
Research and development		1,500
Product design		600
Operating costs: Year 1	360	
Year 2	420	
Year 3	<u>432</u>	1,212
Disposal cost (at the end of year 3)		60

Additional information:

1. The company's target revenues for the three years are as follows:

Year	Revenue (Sh."000")
1	900
2	1,800
3	2,400

2. The present value factors are estimated as follows:

Year	Present value factor
1	0.9100
2	0.8300
3	0.7500

Required:

Advise the management of Kipevu Ltd. on whether the product should be launched. (8 marks)

- (b) Tamu Catering Services seized a market opportunity to supply ready meals to XYZ Airlines. The meals are served to passengers as part of inflight services under two categories namely; economy class and business class. An analysis of results for the financial year ended 31 October 2015 for each category are shown below:

	Economy class	Business class
Number of meals (million)	3.5	7
	Sh."million"	Sh."million"
Sales	<u>350</u>	<u>980</u>
Costs:		
Ingredients (variable)	175	560
Labour (fixed)	70	140
Administrative (fixed)	<u>110</u>	<u>220</u>
Total costs	<u>355</u>	<u>920</u>
Profit/(loss)	<u>(5)</u>	<u>60</u>

Additional information:

- The unit costs and prices applicable to this business have been stable and are expected to remain as such for the foreseeable future.
- The cost of ingredients are identifiable directly to each category.
- Other costs (labour and administrative) are common to both categories and have been allocated to the two categories in proportion to the total number of meals sold each year.
- The business could expand beyond its present volume without incurring any increase in fixed costs. The fixed costs would also not change if either of the categories was abandoned.

Required:

- (i) The total sales required to break-even. (6 marks)
- (ii) The total sales required to earn a revenue of Sh.300 million. (4 marks)

(Total: 20 marks)

	Sh.
Closing stock (400 benches at Sh.192 each)	<u>(76,800)</u>
Cost of sales	571,200
Sales (3,200 benches at Sh.225 each)	<u>720,000</u>
Actual profit	<u>148,800</u>

5. The average monthly production and sales prior to October 2015 had been 3,400 units and budgets had previously been set at this level. Very few variances had historically been generated by the standard costs used.
6. Mr. P. Rono has made some significant changes to the operations of the company. However, the other directors are now concerned that Mr. P. Rono has been too ambitious in raising production targets.

Required:

Prepare an operating statement for the month of October 2015 showing all operating variances and reconciling budgeted and actual profits. (14 marks)

(Total: 20 marks)

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KASNEB

CPA PART III SECTION 5

ADVANCED MANAGEMENT ACCOUNTING

PILOT PAPER

September 2015.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question. Show ALL your workings.

QUESTION ONE

- (a) Langa Langa Ltd. was privatised three years ago. The board of directors are trying to enhance performance for the benefit of shareholders. The board has introduced the use of economic value added (EVA) as a key performance indicator.

The following financial information is available for the year ended 30 June 2015.

	Sh. "million"
1. Income statement	
Sales	575
Operating costs	(460)
Operating profit	115
Finance costs	(38)
Profit before tax	77
Corporate tax at 30%	(23.1)
Profit after tax	<u>53.9</u>
2. Statement of financial position indicates capital employed as at 1 July 2014 as Sh.1,060 million.	
3. Operating costs include:	
	Sh. "million"
Research and development costs	20
Depreciation	98
Goodwill amortised	11.5
Advertising costs	3.5
4. Goodwill written off in the previous years amounted to Sh.34.5 million.	
5. Economic depreciation is approximately Sh.114 million.	
6. Cost of capital is as follows:	
Equity	18%
Debt	10%
Debt to equity ratio	60%

Required:

Calculate the company's performance using EVA.

(10 marks)

- (b) The executive director of Theta Ltd. attended a seminar on performance measurement organised by a management consulting firm. He identified the following areas to be assessed:

1. Financial return to shareholders.
2. Maintain high market share.
3. Increase productivity annually.
4. Offer up to date product range of high quality.
5. To be known as responsible employer.
6. To acknowledge sound responsibility.
7. To grow and survive autonomously.

Required:

- (i) Suitable measures of performance for each of the stated goals.
- (ii) Explain one goal that could be considered to be sufficient to incorporate all others.

(7 marks)

(3 marks)

(Total: 20 marks)

QUESTION TWO

- (a) "Just in Time (JIT) manufacturing enables purchasing, production and sales to occur in quick succession with inventory being maintained at minimum level.

Required:

With reference to the above statement, explain three problems associated with adoption of JIT system. (3 marks)

- (b) Katibu Ltd. holds regular stocks of sports equipment. For one of the stock item, they have decided to use economic order quantity with no stock out model.

Additional information:

1. The equipment have erratic demand but on average they sell 400 items per week, with the standard deviation of 125 units per week.
2. The items are supplied by a foreign supplier at Sh.800 per item. Lead time is 3 weeks.
3. The predicted annual stock holding cost is 15% of inventory value.
4. Delivery and order processing is approximately 12 man hours with wages being Sh.25,600 per week for a 40 hours week.
5. Assume normal distribution on demand.

Required:

- (i) Calculate the economic order quantity (EOQ). (3 marks)
- (ii) Suppose the company is incorrect in its predicted delivery and order processing costs but correct in all other predictions. If the actual cost is Sh.12,000, compute the maximum amount that the company should pay to discover true incremental costs. (6 marks)
- (iii) Determine the re-order point and the buffer stock held if there is to be no more than 1% chance of stock-out during the re-order period. (4 marks)
- (iv) If managers set re-order level at 1,500 units, what is the probability of stock-out on any given order cycle. (2 marks)
- (v) How many times would you expect stock-out during the year. (2 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Identify four factors to be considered before deciding whether to investigate variances. (4 marks)
- (b) The management accountant might use opportunity cost in the following situations:
- (i) Non routine decisions such as accept or reject special offer.
 - (ii) Make or buy decisions.
 - (iii) Setting of transfer prices from one division to another.

Required:

Discuss giving examples the use of opportunity cost in each of the above cases. (5 marks)

- (c) Sally manufacturing Ltd. manufactures a product using three types of raw materials; "Exe", "Wye" and "Zed". The managing director is concerned that material costs have been increasing over time.

The management accountant has suggested the use of statistical quarterly control (SQC) charts to monitor the variance movements.

Additional information:

1. The production capacity is 10,000 units and the company is operating at full capacity. The usage per unit of output is 2.5 kgs of each raw material.
2. Cost records shows the following monthly usage of the raw materials:

Month	Exe (kgs)	Wye (kgs)	Zed (kgs)
January	24,250	26,000	25,750
February	26,000	23,500	24,000

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Month	Exe (kgs)	Wye (kgs)	Zed (kgs)
March	27,750	24,250	23,500
April	26,000	25,250	26,750
May	30,500	26,250	23,000
June	29,500	26,750	28,250
July	31,500	27,750	24,750
August	28,500	28,000	26,500
September	29,250	28,750	25,250
October	30,750	29,750	23,250
November	29,750	30,000	24,500
December	31,000	30,500	26,000

- The standard usage is 25,000 kgs per month with a standard deviation of 2,500 kgs per month.
- The management accountant is suggesting investigation of any usage greater or less than two deviations from the expected ($\pm 2\sigma$).

Required:

- Indicate the variance investigation decisions. (3 marks)
 - Present the SQC charts for material usage for the period and make the necessary conclusions. (8 marks)
- (Total: 20 marks)**

QUESTION FOUR

- Explain the importance of recognising the effects of learning curves when preparing performance reports. (4 marks)
- Explain how companies might introduce a cost reduction programme without affecting its customer's perceptions of product values. (4 marks)
- The finance director of Estimator Solutions Ltd. have availed to you the following data for a company:
 - The company has one single manufacturing department.
 - The cost data available relate to the last 16 months as follows:

Departmental overhead cost (Sh.'000')	Direct labour hours ('000')	Direct material quantity (kgs.) ('000')	Number of orders processed ('000')
25,835	878	970	88
24,451	1,088	934	100
28,611	1,281	667	108
32,361	1,340	1,243	110
28,967	1,090	964	90
24,817	1,067	903	67
29,975	1,188	876	88
26,135	928	820	28
31,361	1,319	984	19
26,008	790	933	90
27,812	934	966	93
28,612	871	940	87
22,992	781	518	81
31,836	1,236	1,017	236
26,252	902	881	92
26,977	1,140	751	140

- A computer program has been used to analyse the above data. The results are as follows:

Regression	Dependent variable	Independent variable	Coefficient	Standard error	t-value
I	Overhead	Labour hours	8.50	1.93	4.4
		Materials	6.95	2.21	
		Orders	6.59	7.19	0.9
	Y intercept (Sh.'000')		12,052	2,286	5.3
	Adjusted $r^2 = 0.76$		1,281		
	Standard errors of estimate				

Regression	Dependent variable	Independent variable	Coefficient	Standard error	t-value
II	Overhead	Labour hours	8.88	1.87	4.7
		Materials	7.06	2.19	3.2
	Y intercept (Sh.'000')	12,190	2.267	5.4	
	Adjusted $r^2 = 0.76$	1,273			
	Standard errors of estimate				
III	Overhead	Labour hours	10.98	2.27	4.8
	Y intercept (Sh.'000')		16,310	2.421	6.7
	Adjusted $r^2 = 0.60$				
	Standard errors of estimate		1.646		
IV	Overhead	Labour hours	10.68	3.26	3.27
	Y intercept (Sh.'000')		18,277	2.997	8.14
	Adjusted $r^2 = 0.39$		2027		
	Standard errors of estimate				

Coefficient of correlation between variables is as follows:

	Overhead	Labour	Material	Orders
Overhead	1.000			
Labour	0.7913	1.000		
Material	0.6580	0.3489	1.000	
Orders	0.3253	0.2420	0.1324	1.000

Required:

- (i) The most reasonable estimate of recently experienced overhead cost function. Justify your answer. (4 marks)
 - (ii) Determine if the equation provides a useful prediction of overheads that might be experienced next month. (5 marks)
 - (iii) Explain the purpose for which the managers might use the predicted equation. (3 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) Delcom Ltd. is planning to introduce a new product. Market research information suggests that the product should sell 100,000 units over its life cycle at a price of Sh.420 per unit. The company seeks to make a mark-up of 40% of product cost. Life cycle costs of the product will be as follows:

	Sh.	Sh.
Design and development costs		10,000,000
Marketing and distribution costs		5,000,000
Manufacturing costs per unit		
Direct materials	50	
Direct labour	60	
Variable production overheads	60	
Fixed production overheads	30	200
End of life costs		4,000,000

Required:

- (i) The lifecycle cost per unit. (3 marks)
- (ii) The product's cost gap. (2 marks)
- (iii) The management accountant estimates that if the company spends additional Sh.1,000,000 on design, manufacturing cost per unit could be reduced. Compute the maximum manufacturing cost per unit that will be tolerated if the company was to earn the required mark-up. (5 marks)

(iv) To manage cost effectively the company should emphasis on cost management at the planning and design stage. Explain decisions that can be made at the planning and design stage which can affect the cost of product and reduce the cost gap. (4 marks)

(b) The management accountant of Rebitech Ltd. is preparing budgets for the coming period.

The following data is available for last year:

1. Sales Sh.40,000,000
Variable costs 60% of sales
Fixed cost Sh.14,000,000

2. He is worried that costs will rise next year. The inflation rates and probabilities of occurrence are provided as follows:

Average inflation	Probability
4%	0.2
6%	0.5
8%	0.3

3. Inflation will affect all variable costs and fixed costs except depreciation which will remain constant at Sh.300,000 per annum and rent (fixed lease rental) at Sh.3,000,000 per annum.

4. The sales manager has informed the accountant that it might be difficult to raise the selling price despite inflation. He estimates sales demand at current price as follows:

	Sales Sh.	Probability
Pessimistic	40,000,000	0.3
Most likely	44,000,000	0.4
Optimistic	52,000,000	0.3

Required:

(i) Probability of at least breaking even. (3 marks)

(ii) Probability of achieving a profit of at least Sh.4,000,000. (3 marks)

(Total: 20 marks)

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