



CHARTERED ACCOUNTANTS EXAMINATIONS

PROFESSIONAL LEVEL

P2: ADVANCED MANAGEMENT ACCOUNTING

TUESDAY 16TH DECEMBER 2014

TOTAL MARKS – 100; TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS TO CANDIDATES

1. You have fifteen (15) minutes reading time. Use it to study the examination paper carefully so that you understand what to do in each question. You will be told when to start writing.
2. This paper is divided into TWO sections:
Section A: One (1) compulsory question.
Section B: Four (4) Optional questions. Attempt any three (3) questions.
3. Enter your student number and your National Registration Card number on the front of the answer booklet. Your name must **NOT** appear anywhere on your answer booklet.
4. Do **NOT** write in pencil (except for graphs and diagrams).
5. The marks shown against the requirement(s) for each question should be taken as an indication of the expected length and depth of the answer.
6. All workings must be done in the answer booklet.
7. Discount Factor tables/Present Value and Annuity Tables are attached at the end of the question paper.
8. Graph paper (if required) is provided at the end of the answer booklet.

SECTION A

This is a compulsory question and must be attempted.

QUESTION ONE

- (a) Kumawa Limited is a highly geared company based in Eastern part of Zambia. Under its new strategic plan, it is clear that it wishes to expand its operations. The company has six possible capital investments which have been identified, and the Finance Director has put it clearly that they only have access of K3,100,000. He has made it clear that the projects are not divisible and may not be postponed until a future period. After the projects end it is unlikely that similar opportunities will occur.

During the Management Meeting, the Finance Director provided the following information with regard to the six projects' expected net cash inflows for a five year period.

Project	Initial Outlay	Expected net Cash inflows (including Salvage values)				
		Year 1	Year 2	Year 3	Year 4	Year 5
	K'000	K'000	K'000	K'000	K'000	K'000
U	1,230	350	350	350	350	350
V	900	375	435	320	-	-
W	875	240	240	315	365	-
X	900	310	310	310	310	-
Y	900	200	250	300	350	200
Z	750	175	410	410	-	-

Projects U and Y are mutually exclusive. The projects are all believed to be of similar risk to the company's existing capital investments.

Any surplus funds may be invested in the money market to earn a return of 9% per year, assuming the market is an efficient market.

Kumawa's cost of capital is 12% per year.

Required:

- (i) Calculate for each project, the expected net present value and expected profitability index, then rank the projects according to both of these methods, and explain why these rankings differ; (14 marks)
- (ii) Give advice to Kumawa Limited recommending which projects should be selected. (6 marks)
- (iii) Describe two approaches for adjusting inflation when appraising capital projects. (5 marks)

- (b) Management accounting in profit seeking organizations may be different from that which could apply in non-profit seeking organisations.

Required:

- (i) Contrast the main features of non-profit-seeking organizations with one that is profit-seeking which makes management accounting in this environment different. (5 marks)
- (ii) Discuss how management accountant may respond to the challenge of providing appropriate information in a non-profit-seeking organization.

(5 marks)

- (c) Salis Garments Manufactures Limited was established in 2003. The company makes dust coats and supplies the mining industry.

In order to maintain or increase its market share, the company has recently introduced an enterprise resource planning (ERP) system to coordinate the information systems of all the functions within the company, to replace the separate manufacturing, inventory, accounting and sales systems that had previously been used.

Required:

Explain the system of ERP and how its introduction should improve the competitiveness of Salis Garments Manufactures Limited. (5 marks)

[Total: 40 marks]

SECTION B

There are four (4) questions in this section. Answer any three (3).

QUESTION TWO

- (a) Nsimbi Plc assembles bicycles using a computer controlled robot line. Once assembled, the bicycles are tested by professional engineers and then painted in readiness for dispatch to customers. Two models of bicycles are assembled by Nsimbi Plc from different combinations of the same components.

	Ordinary bicycle	Mountain bicycle
Selling price per bicycle	K800	K1,200
Component costs per bicycle	K150	K 310
	Minutes per bicycle	Minutes per bicycle
Assembly time	80	130
Testing time	120	180
Painting time	60	30

The following costs are derived from Nsimbi Plc's budget for the year to 31 December 2014:

Assembly	K180 per hour
Testing	K 60 per hour
Painting	K 20 per hour

There will be no increase in costs in 2014. Nsimbi Plc is now preparing its detailed plans for the last half of 2014. During this period, assembly and testing time available will be limited to 1,000 and 875 hours respectively. Painting times is readily available as painting is undertaken by part-time workers drawn from the local residents.

The maximum levels of demand for each bicycle will be:

Ordinary bicycle	300
Mountain bicycle	800

The graphical linear programming solution gives the optimum contribution of K109.520. The senior engineer responsible for testing of bicycles feels that the testing time per bicycle used is not appropriate. This is because, those targets were set when those models of bicycles were first assembled, but now bicycles are tested more quickly.

Required:

- (i) Determine the linear programming model for the decision problem if Nsimbi Plc wishes to maximize contribution. (5 marks)

- (ii) Explain how the learning effect for the ordinary and mountain bicycles referred to by the senior engineer would affect the optimum product mix. Use a 90% learning curve to illustrate your answer but do not determine the product mix.

(7 marks)

Note: Formula for a 90% learning curve is $y = ax^{-0.1520}$

- (b) A computer printout for linear programming has been used and the following solution determined.

Contribution	K107,437.50
Variables	
X	268.75
Y	112.50
Constraints	
S1	23.875(slack)
S2	1.45(positive worth)
S3	4.75(positive worth)
S4	31.25
S5	687.50

Required:

Write a report to management interpreting the solution produced by the computer package and make appropriate recommendations. (8 marks)

[Total: 20 marks]

QUESTION THREE

Mwaiseni Plc a chain stores organization has several branches in all the ten provincial headquarters in Zambia. Each branch has a manager who reports directly to the General Manager whose office is in Lusaka.

Since 1991, each branch manager prepares a budget as part of the company's annual budgeting process. You have just been appointed as General Manager and you are concerned about the validity of these annual budgets. You feel that the branch managers will overstate their costs and resource requirements in order to make it easier for them to achieve their budget targets.

Required:

- (a) Explain the differences between the above annual budgeting system and a rolling budget system. (4 marks)

- (b) Describe the problems that could arise, for planning and decision making purposes within Mwaiseni, if the branch managers did overstate their budgeted costs and resource requirements. (4 marks)
- (c) Discuss the behavioural issues that could arise if excess costs and resources are removed from the branch managers' budgets. (6 marks)
- (d) Mwaiseni Plc sells a variety of items among them three popular products.

The following data is available for Dodo, Gigo and Kiki:-

Product	Budget		
	Dodo	Gigo	Kiki
Sales units	12,000	16,800	19,200
Selling price per unit	K 0.75	K 0.80	K 0.35
Variable cost per unit	K 0.38	K 0.45	K 0.23

Product	Actual		
	Dodo	Gigo	Kiki
Sales units	12,800	18,400	17,400
Selling price per unit	K 0.71	K 0.84	K 0.39
Variable cost per unit	K 0.35	K 0.46	K 0.24

Required:

- (i) Calculate the total sales mix contribution variance. (3 marks)
- (ii) Calculate the total sales quantity contribution variance. (3 marks)

[Total: 20 marks]

QUESTION FOUR

At the request of the Board, Njenge a company based in Vubwi recently purchased 100% of the share capital of Mbazo Ltd. This request was made to ensure a steady supply of Mbazo designer jackets to Vubwi, where they are an extremely popular, but Njenge has no plans to sell the jackets in Mwanabombwe.

Following the acquisition, Mbazo Ltd. retained its existing profit centre structure. Division A manufactures lengths of tweed and operates at its full capacity of 6,000 lengths per month. Of this amount, 25% is sold to Division B (which produces one jacket from each length of tweed) and the other 75% is sold to other garment manufacturers. Variable costs in Division A are K24 per length, and variable costs in Division B are K28 per jacket (plus the transfer price paid to Division A for the length of tweed). Fixed costs per month are K30,000 in Division A and K25,000 per month in Division B.

Division B sells all of its output to Njenge for K80 per jacket. At present it purchases all of its lengths of tweed from Division A, but it has recently been approached by an external supplier which has offered to supply lengths of tweed of the same quality at a price of K44 each. Division A has been approached by another garment manufacturer which has offered

to purchase (under a long-term supply arrangement) the 1,500 lengths of tweed which are at present sold to Division B. The price offered by this garment manufacturer is K50 per length, although the manager of Division A estimates that the incremental cost of transporting these lengths of tweed to the garment manufacturer would be K10 each (payable by Division A).

Required:

- (a) Explain as to whether Division B should continue buying tweed from Division A. (3 marks)
- (b) Calculate the optimal transfer price. (4 marks)
- (c) Calculate how much net profit from the sale of 1,500 jackets will be included in each division’s monthly performance report using the transfer price in part (b) above. (5 marks)
- (d) Comment on whether the results in your answer to part (c) provide a fair reflection of the performance of each division, and respond to the suggestion that Division B should be closed down. (8 marks)

[Total: 20 marks]

QUESTION FIVE

Mpandamano Industries manufactures die machinery. To meet its expansion needs, it recently (2011) acquired one of its suppliers, Lushomo Steel. To maintain Lushomo’s separate identity, Mpandamano reports Lushomo operations as an investment SBU. Mpandamano monitors all its investment SBUs on the basis of return on investment (ROI). Management bonuses are based on ROI, and all investment SBUs are expected to earn a 12 percent minimum before income taxes. Lushomo’s ROI has ranged from 14 percent to 18 percent since 2011. The company recently had the opportunity for a new investment that would have yielded 13 percent ROI.

However, division management decided against the investment because it believed that the investment would decrease the division’s overall ROI.

The 2013 operating statement for Lushomo follows. The division’s operating assets were K13,000,000 at the end of 2013 a six percent increase over the 2012 year end balance.

LUSHOMO DIVISION

Operating Statement for Year Ended December 31, 2013

	K'000	K'000
Sales		25,000
Cost of goods sold		<u>16,600</u>
Gross profit		8,400
Operating expense		
Administration	2,340	
Selling	3,810	<u>6,150</u>
Income before income taxes		2,250

Required:

- (i) Calculate the following performance measures for 2013 for the Lushomo division:
 - (a) Return on average investment in operating assets employed. (2 marks)
 - (b) Residual Income (RI) calculated on the basis of average operating assets employed. (2 marks)
- (ii) Explain which performance measure (ROI or RI) should Mpandamano Industries use to provide the proper incentive for each division to act autonomously in the firm's best interests? Would Lushomo management have been more likely to accept the capital investment opportunity if RI had been used as a performance measure instead of ROI? (6 marks)
- (iii) Outline the advantages and disadvantages of RO1 and R1 as divisional performance measures. (7 marks)
- (iv) Discuss briefly the type of strategic performance measurement you would recommend for Lushomo Division? (3 marks)

[Total: 20 marks]

END OF PAPER

Formulae Sheet

Learning curve

$$Y = ax^b$$

Where Y = cumulative average time per unit to produce x units

a = the time taken for the first unit of output

x = the cumulative number of units produced

b = the index of learning ($\log LR / \log 2$)

LR = the learning rate as a decimal

Demand curve

$$P = a - bQ$$

$$b = \frac{\text{change in price}}{\text{change in quantity}}$$

a = price when Q = 0

$$MR = a - 2bQ$$

Modified Internal Rate of Return

$$MIRR = \left[\frac{PV_R}{PV_I} \right]^{\frac{1}{n}} (1 + r_e) - 1$$

Present Value Table

Present value of 1 i.e. $(1 + r)^{-n}$

Where r = discount rate
 n = number of periods until payment

Periods (n)	Discount rate (r)										
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	2
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	3
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	4
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	5
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	6
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	7
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	8
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	9
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	10
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	11
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	12
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	13
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	14
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	15
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694	2
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579	3
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482	4
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402	5
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335	6
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279	7
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233	8
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194	9
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162	10
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135	11
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112	12
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093	13
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078	14
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065	15

Annuity Table

Present value of an annuity of 1 i.e. $\frac{1 - (1 + r)^{-n}}{r}$

Where r = discount rate
 n = number of periods

Periods (n)	Discount rate (r)										
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	1
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	2
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487	3
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170	4
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791	5
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355	6
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	7
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335	8
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	9
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145	10
11	10.37	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	11
12	11.26	10.58	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	12
13	12.13	11.35	10.63	9.986	9.394	8.853	8.358	7.904	7.487	7.103	13
14	13.00	12.11	11.30	10.56	9.899	9.295	8.745	8.244	7.786	7.367	14
15	13.87	12.85	11.94	11.12	10.38	9.712	9.108	8.559	8.061	7.606	15
(n)	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%	
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833	1
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528	2
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106	3
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589	4
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991	5
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326	6
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605	7
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837	8
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031	9
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192	10
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327	11
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439	12
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533	13
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611	14
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675	15

P2 SUGGESTED SOLUTIONS

SOLUTION ONE

(a) (i) Net present values

Project U

CF	Discount factor of an annuity	Initial Outlay	NPV
K350,000 x	3.605	- K1,230,000	= K31,750

Project V

Year	Cashflow K	Discount factor K	Present Value k
1	375,000	0.893	334,875
2	435,000	0.797	346,695
3	320,000	0.712	<u>227,840</u>
4			
Total present value		909,410	
Less initial outlay		<u>900,000</u>	
NPV		<u>9,410</u>	

Project W

Year	Cashflow K	Discount factor K	Present Value K
1	240,000	0.893	214,320
2	240,000	0.797	191,280
3	315,000	0.712	224,280
4	K365,000	0.636	<u>232,140</u>
Total present value		862.020	
Less initial outlay		<u>(875,000)</u>	
NPV		(12,980)	

Project X

Cashflow x	Discount factor of An annuity	- Initialoutlay	= NPV
(K310,000 x	3.037)	- K900,000	= K41,470

Project Y

Year	Cashflow K	Discount factor K	Present Value K
1	K200,000	0.893	178,600
2	K250,000	0.797	199,250
3	K300,000	0.712	213,600
4	K350,000	0.636	222,600
5	K200,000	0.567	<u>113,400</u>

Total present value	927,450
Less initial outlay	<u>900,000</u>
NPV	27,450

Project Z

Year 000	Cashflow K	Discount factor K	Present Value K
1	175,000	0.893	156,275
2	410,000	0.797	326,770
3	410,000	0.712	<u>291,920</u>

Total present value	774,965
Less initial outlay	<u>750,000</u>
NPV	<u>24,965</u>

Calculation of profitability index (PI)

PI = Present value of cash flows ÷ Initial outlay

Project	PV K	Divide by Initial Outlay K	PI
U	1,261,750	1,230,000	1.026
V	909,410	900,000	1.010
W	862,020	875,000	0.985
X	941,470	900,000	1.046
Y	927,450	900,000	1.031
Z	774,965	750,000	1.033

Rankings

	NPV	PI
1	X	X
2	U	Z
3	Y	Y
4	Z	U
5	V	V
6	W	W

The rankings differ because NPV is an absolute measure of the benefit from a project, while PI is a relative measure and shows the benefit per Kwacha of outlay. Because the initial outlay vary in size the two methods may give different rankings.

- (ii) In a capital rationing situation, the projects should be selected based on the greatest total NPV from the limited outlay available.
- Note that U and Y projects are mutually exclusive.
 - W is not considered because it gives a negative NPV, and the total initial outlay is limited to K3, 100,000.

The possible selections are:-

Projects	Expected NPV K	Total NPV K	Total Outlay K
U,V,X	31,750+9,410+41,470	82,630	3,030,000
U,V,Z	31,750+9,410+24,965	66,125	2,880,000
U,X,Z	31,750+41,470+24,965	98,185	2,880,000
U,X,Y	9,410+41,470+27,450	78,330	2,700,000
U,X,Z	9,410+41,470+24,965	75,845	2,550,000
X,Y,Z	41,470+27,450+24,965	93,885	2,550,000

The recommended selection is projects D, A & F. In this situation because of similarity in size of projects, only three can be undertaken and the NPV ranking clearly leads to D, A and F. The profitability index will not work if projects are indivisible or where multiple limiting factors exists. The PI might lead to the incorrect solution of D, E and F.

- (iii) The net present value can be adjusted by two basic ways to take inflation into account. First, a discount rate can be used, based on the required rate of return, that includes an allowance for inflation. Remember that cash flows must also be adjusted for inflation. Secondly, the anticipated rate of inflation can be excluded from the discount rate, and the cash flows can be expressed in real terms. In other words, the first method discounts nominal cash flows at a normal discount rate and the second method discounts real cash flows at a real discount rate.

- (b) (i) The differences between profit seeking organisations (PSOs) and non-profit organisations(NPOs) are outlined below.

By definition there are no profit objectives for NPOs; they do not exist to maximize or optimize, profits over any period , unlike PSOs for whom periodic profit is an important statistic. The absence of a profit motive may imply the absence of a profit measure. A PSO can compare expenses and revenues to produce profit, a guide to the success of the organisation. This same implication cannot be drawn from a comparison made for an NPO.it may mean in a latter case, that the NPO has spent an amount related to that which was allocated or funded. That is, some goods, or more likely services, have been provided for a predetermined cost. It says nothing about the adequacy of that provision or the efficiency with which it was provided.

In the non- profit environment there is a reduced role for market force. A PSO is influenced and can take signals from the choice exercised by measurement and judgment issues caused by not – for profit and dimensions.

- (ii) The MA Must endeavor to provide information which demonstrates the provision of value for money by the NPO. Value for money is a focus on , and

regularly monitoring through performance indicators of ,economy, efficiency and effectiveness. This implies that:

- Economy in the acquisition of resources of the right quality and the right type for the right price.
- Efficiency in the use of resources i.e. the appropriate quantity of inputs are used to attain a given level of output.
- Effectiveness, the outputs achieved should be those that enable the organization to achieve its pre-stated general objectives in all areas of delivering the service.

MA is required to provide information to assist in decision-making, planning and control.

Decision –making involves selecting between competing alternatives. In this a statement of the costs of each alternative needs to be set out and these inputs must be compared with the benefits achieved or outputs. The latter are the more problematic and often involve a description and some approximate financial or non- financial measure of achievement. The outcomes for various competing alternatives can the be compared .This process, called cost –benefit analysis, is not easy because the features involved may not be easily aggregated or compared directly.it is also influenced by a high degree of subjective judgment and opinion, for example consider having to make a choice between spending for educational or medical purposes or judging the quality of service in different settings.

Planning and control involves the production of periodic budgets and the use of feedback to monitor actual attainment. In NPOs, budgets often identify a spending limit. They are the decisions taken but codified in terms of organisation structure, responsibilities and timescale.

The MA should support management with a diverse range of statistics beyond the immediate objectives and achievements of the organisation. This will include information on other organisations and regions or other ways of achieving objectives. A maximum ingenuity is required to produce information in NPOs in order to overcome some of the difficulties and complexities involved. Some NPOs are undertaking various forms of privatization, creating artificial markets or requiring compulsory competitive tendering in some areas of operation. These are further ways to attempt to obtain value for money in the non profit environment. Its likely to increase the competitive element but it s unlikely to simplify the role of the M.A IN NON –PROFIT OGANISATIONS.

- (c) An ERP system are accounting oriented information systems for identifying and planning the enterprise wide resources needed to take, make, distribute and account for customer orders. It is using information technology to gain competitive advantage. ERP tends to incorporate a number of software developments such as the use of rational data bases, object – oriented programming and upon system portability.

ERP has been described as an umbrella term for integrated business software systems that power a corporate information structure, thus helping companies like

Salis Garmets Manufacturers Limited to control their inventory, purchasing, manufacturing, finance and personnel operations.

In relation to Salis Garmets Manufacturers, the company is a large multinational company and their branches are geographically dispersed and have complex operations. With the introduction of ERP system, the organization will be automated and integrated most of its business processes, share common data and practices across the entire enterprise. The information will be produced and accessed in a real – time environment. The call for quality products entails that Salis would have to order quality materials and the ERP may also incorporate transactions with its suppliers. Managing of Salis’ orders would equally be coordinated as the organization would be in a better position to understand and manage the demand placed in western countries without missing on their fulfillment.

An organization like Salis Manufacturer Limited an ERP system will provide an integrated IT system that will allow for input from different locations and provisions of up-to-date information about inventory, work in progress, sales demand for different products, sales orders and costs. In a competitive environment this should definitely help Salis Manufacturer to respond to customer requests and queries and so provide a better service to the customer and hopefully secure a higher volume of sales.

Employees data can as well be accessed.

SOLUTION TWO

- i) Linear Programming model:
 Let x be Ordinary bicycle
 Let y be mountain bicycle
 Cost per bicycle

	Ordinary bicycle	Mountain bicycle
000	K	k
Component costs	150	310
Assembly	240	390
Testing	120	180
Painting	<u>20</u>	<u>10</u>
Cost per bicycle	530	890
Selling price	<u>800</u>	<u>1,200</u>
Contribution per bicycle	<u>270</u>	<u>310</u>

Objective function

Maximize contribution (Z) = 270 x + 810 y

Constraints:

Assembly time: $\frac{80}{60}x + \frac{130}{60}y \leq 1,000$

Testing time: $\frac{120}{60}x + \frac{180}{60}y \leq 875$

Demand $x \leq 300$

$$Y \leq 800$$

Non-negative:

$$X, Y \geq 0$$

- ii) The testing time is one of the factors that limit the activity level of the company. By the senior engineer being responsible for testing bicycles' statement and that testing time per bicycle's targets used are not appropriate due to a 90 % learning effect, any reduction in the testing times taken will affect the solution above.

A 90 % learning curve implies that the average time taken per bicycle will reduce by 10 % whenever cumulative output doubles. If this learning effect has rendered the originals target times out of date, it will certainly affect the activity level.

To illustrate this, suppose time for each unit produced is based on say 200 units completed before the learning ended the times for y would reduce from 180 minutes to an average of 80.4 minutes. ($y = 180 \times 200^{-.152}$). This is significantly less than the times allowed for in the calculations. Similar effect will apply to the Ordinary bicycle (x)

- a) Report

TO Management
 From: The Management Accountant
 Date : xxxxx
 Subject: Interpretation of the solution provided for by the computer package and the recommendation there of.

Introduction.

The following is the interpretation of the budgeted activities for the 6 months of the last half of the year to 31 December 2014. This is as a follow up on our realization that there may be a limit on the number of printing hours available, and my report will highlight the effects and the results are summarized below:

Findings.

I have observed that if the packaging time constraint is introduced, contribution reduces from K109,520 to K107,438 signifying that packaging time is an effective constraint.

Contribution will be maximized by producing 269 ordinary bicycles and 12 mountain bicycles. This will result in unsatisfied demand of 31 ordinary bicycles and 688 mountain bicycles

While there is a surplus of 23.875 minutes in Assembly time, there is a shortage in both testing and packaging times. Securing extra minute in testing and packaging will yield an increase in contribution of K1.46 and K4.25 respectively.

Conclusion.

Consideration should be made to put assembly workers to alternative use. They could be used to test and package the bicycles possibly after appropriate training. The use of the spare resource will reduce the company's capacity problems.

Signed

Management accountant.

SOLUTION THREE

- (a) An annual budgeting system is a system of preparing a set of budgets for a 12 month period, usually coinciding with the financial year of the company.

A rolling budget system is a system of budgeting that is continuous. Once the budget has been prepared, it is added to each month, or perhaps quarterly, thus ensuring that a budget always exists for the next 12 months and possibly for longer depending on the company's budgeting policy.

One of the key differences between these two systems is that, when a rolling budget system is being used, managers see budgeting as part of their ongoing planning and decision making processes, rather than as a separate exercise which is used to measure their performance.

- (b) If the branch managers overstate their budgeted costs and resource requirements then the following planning and decision making problems could arise within Mwaiseni Plc:-

- It may cause Mwaiseni to order excess items which would result in higher inventory holding costs as the items remain unused, or result in inefficient handling or theft of items as the branch managers try to prove that their budget was correct and not draw attention to themselves by having favourable variances in their performance reports.
- It may cause Mwaiseni to recruit and train additional employees in order to meet the budgeted resource requirements. This will lead to higher than necessary staff levels, higher payroll and employee costs and may lead to future redundancies or inefficient operations as the branch managers try to prove that their budget was correct and not draw attention to themselves by having favourable variances in their performance reports.
- It may cause Mwaiseni to invest in new additional equipment which is not really needed and which would therefore be a drain on the cash resources of Mwaiseni. This could prevent them from investing in other areas of the business that would represent a more profitable use of the money available.
- It may cause Mwaiseni to borrow funds in order to fund the new capital investment or the additional working capital in the business. This funding would not really be required but if taken would cause Mwaiseni to incur additional financing costs.

- (c) Behavioural problems could arise from the removal of the excess costs and resources from the managers' budgets if it is removed without agreement from the managers.

There are two main difficulties here:

- If the manager agrees that the excess can be removed this is an admission that their original budget was wrong and as a result their integrity as a manager is questioned. They are vulnerable to the accusation that they do not understand their own branch and as a result their ability to be a manager is also questioned.
- If the excesses are removed without the manager's agreement then there is the risk that the manager will disown their budget and as a result they will not be motivated towards achieving it. They may even take operational decisions that lead to adverse variances when measured against the mended budget to try to ensure that the performance reports show that their original budget was correct.

- (d) (i) Total Sales Mix Contribution Variance

Product	AQM SM Units	AQM AM Units	Difference Units	Standard Contribution Per Unit K	Variance K
Dodo	12,150	12,800	650(F)	0.37	240.50(F)
Gigo	17,010	18,400	1,390(F)	0.37	486.50(F)
Kiki	<u>19,440</u>	<u>17,400</u>	<u>2,040(A)</u>	0.12	<u>244.80(A)</u>
	<u>48,600</u>	<u>48,600</u>	<u>-</u>	<u>-</u>	<u>482.20(F)</u>

- (ii) Total Sales Quantities Contribution Variance

Product	AQM SM Units	AQM AM Units	Difference Units	Standard Contribution Per Unit K	Variance K
Dodo	12,150	12,000	150(F)	0.37	55.50(F)
Gigo	17,010	16,880	210(F)	0.37	73.50(F)
Kiki	<u>19,440</u>	19,200	<u>240(F)</u>	0.12	<u>28.80(F)</u>
	<u>48,600</u>	<u>0</u>	<u>600(F)</u>		<u>157.80(F)</u>

SOLUTION FOUR

- (a)
- Opportunity cost of transfer from Division A = (K50 - K10) = K40.
 - Price quoted by external supplier = K44.
 - Hence, it is preferable if the sheets of tweed are sourced from Division A.
- (b)
- Marginal cost + Opportunity cost of making the transfer = K40.
 - Division A: this is the same as the price offered by the garment manufacturer, so Division A will have no objection to making the transfer.
 - Division B: $K40 < K44 \Rightarrow$ will prefer to source internally rather than externally.

- Also: Division B: Net marginal revenue $K80 - K28 = K52 > K40 \Rightarrow$ will prefer to source internally rather than not produce jackets at all.

(c)

		Division A		Division B
External Sales			1,500*80	120,000
Transfer price	1,500*40	60,000		(60,000)
Variable cost(excluding transfer price)	1,500*24	36,000	1,500*28	42,000
Fixed costs	25%*30,000	7,500		25,000
Profit(loss)		16,500		7,000

- (d)
- The transfer price is based on an external market price, which is sustainable over the long run because it is being offered as part of a long-term supply agreement. Therefore, even though it results in Division B having to pay a price which results in a net loss, it is unrealistic to argue that the transfer price does not result in profit figures which reflect fairly the economic performance of each division.
 - There is no way of knowing whether the figures reflect fairly the managerial performance of each division, since there is no distinction made between controllable and uncontrollable costs.
 - Given the poor economic performance of Division B, there is a good case for shutting it down. Assuming that fixed as well as variable costs would be avoided, the profits of Cavan Tweed Ltd. (and therefore of its parent company Vixen Ltd.) would be K7,000 per month higher. The sales which Division A currently makes to Division B would be made to the garment manufacturer instead.
 - There is a strategic reason for keeping Division B open, however. Cavan Tweed was acquired for the specific purpose of securing the supply of tweed jackets to Vixen's parent company, Renarde. If Division B is closed then this objective will no longer be served.

Rationale

- Purpose of question: To test candidates on certain aspects of performance evaluation, especially transfer pricing and the distinction between managerial and economic performance.
- Options: Variation in the points made in answer to part (d) are acceptable.
- Essential components: Candidates need to be able to identify what calculations are required in order to answer parts (a), (b) and (c). In part (d), they need to be able to explain why the transfer pricing arrangement provides a fair reflection of economic (if not necessarily managerial) performance, and that there are significant arguments both for and against the closure of Division B.

SOLUTION FIVE

(i) (a) ROI
 Operating assets at start of 2011 (bases upon a 6% rise over the year)

$$\begin{aligned} \text{K13,000,000} &= 12,264,150 \\ &\times 1.06 \\ \text{ROI} &= \frac{\text{K2,250,000}}{\frac{\text{K12,264,150} + \text{L13,000,000}}{2}} \times 100 \\ &= \frac{\text{K2,250,000}}{\text{K12,632,075}} \times 100 \\ &= 17.80\% \end{aligned}$$

(b) Residual Income

	K
Average annual operating income before tax	2,250,000
Less minimum required return on average assets employed (K12,632,075 x 0.12)	<u>1,515,849</u>
Residual Income	734,151

(ii) With regard to ROI, the Lushomo division has been achieving a % return varying between 14% and 18% since 2008, and in 2011 its ROI was 17.8% which is towards the top of that range.

A new investment opportunity forecast to yield and a 13% annualized ROI, although above the company wide minimum acceptable ROI of 12% would clearly take the current 17.8% return to a lower percentage figure. Consequently, there is little to motivate the divisional management of Lushomo to accept the proposal – as if their bonus were to be based upon achieved % ROI, then their future bonus is likely to be reduced.

On the other hand, the Residual Income method of performance measurement shows that the Lushomo division currently generates an annualized K734,151. Regarding the proposed investment with an ROI of 13%, then if this were to be accepted, the proposal would generate approximately K1 of extra residual income per K100 of extra assets employed by the proposal – i.e. the ROI on the proposal at 13% exceeds the minimum acceptable % return by 1%.

- (iii) Advantages and disadvantages of ROI and RI as divisional performance measures.
- (iv) Argued that both ROI and Residual Income methods of performance measurement are short-run annualized measures.
 Argue that NPV is a better measure for both the divisional management and for the company as a whole, particularly if the NPV evaluation is risk adjusted.
 Alternative it is possible to take a broader more comprehensive series of performance measurements such as would be incorporated into a Balanced Scorecard approach.

END OF SUGGESTED SOLUTIONS