



CHARTERED ACCOUNTANTS EXAMINATIONS

PROFESSIONAL LEVEL

P2: ADVANCED MANAGEMENT ACCOUNTING

TUESDAY 4 MARCH 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 compulsory question.
Section B: Four 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 it MUST be attempted.

QUESTION ONE

DEF limited produces and sells drill bits for handheld drilling machines used by mining companies. The production of each drill bit requires 500 grammes of steel at a price of K50.00 per kilogram and 200 millilitres of a hardening chemical that costs K81.00 per litre.

Production of a drill bit requires 5 hours of skilled labour as well as 3 hours of unskilled labour with the skilled and unskilled workers working simultaneously. The wage rate for skilled labour is K10.00 per hour while that for unskilled labour is K5.00 per hour.

The company sells the drill bits at a price of K200.00 per unit. At the end of each year, variances are determined and reported in the conventional way before a management meeting is held to discuss the company's performance.

At the start of the year ended 30 September 2013, the company had budgeted to produce and sell 80,000 drill bits which accounts for the company's market share. The company was aware that the market for drill bits has always been 200,000 units every year. However, the company managed to produce and sell only 75,000 drill bits for a total sales revenue of K14,625,000 in the year ended 30 September 2013. The company used 38,625 kilograms of steel at a total cost of K1,962,150 and 17,210 litres of the hardening chemical at a cost of K1,466,250. Total hours of skilled labour worked were 372,000 hours and total wages paid to skilled workers were K4,464,000. On the other hand, total hours of unskilled labour worked were 230,000 hours and total wages paid to the unskilled workers were K1,035,000.

The production manager is responsible for the purchasing of both the steel and the hardening chemical as well as for the production of the drill bits while the marketing manager is responsible for marketing and sales of the drill bits. At the recent management meeting, the production manager was questioned on the increase in the cost of production, with the marketing manager also being questioned for the reduction in the sales of the drill bits. The production manager explained that the size of handheld drilling machines had been increased worldwide by the manufacturers and therefore, the drill bit holders required bigger drill bits than before. This meant that slightly larger drill bits were required to be produced. This resulted in an increase in the quantity of steel required to make a drill bit by 4% and an increase in the quantity of the hardening chemical by 15%. In addition, due to a rise in the prices of metal on the world markets, the price of steel rose by 2%. There were no changes in the labour hour requirements and the relevant wage rates. The production manager paid for wages at different wage rates from those agreed at the start of the year for operational reasons.

The marketing manager explained that as a result of a change in the type of handheld drilling machines being produced, there was a general decrease in the market size for handheld drilling machines by 10% as some companies opted to stop using handheld drilling machines so that they could use electrically powered drilling machines which are believed to be more efficient.

After listening to the explanations by both the production manager and the marketing manager, the finance manager proposed that the company should change its reporting of variances to incorporate planning and operational variances. This will create room for better

performance evaluation and reporting than the use of the conventional approach that is currently being used by the company.

The general manager now considers whether standard costing is really relevant in the modern environment. He believes that variances that are currently being reported are historical as they are only reported at the end of the year. He believes also that the use of an approach that recognise planning and operational variances will still not make any improvements as the variances will still continue to be historical. The general manager has proposed to use benchmarking as a basis of measuring the performance of the production manager from the following year.

Required:

- (a) Calculate the following variances for the year ended 30 September 2013:
- (i) Steel and hardening chemical price planning variances **(3 marks)**
 - (ii) Steel and hardening chemical price operational variances **(3 marks)**
 - (iii) Steel and hardening chemical usage planning variance **(3 marks)**
 - (iv) Steel and hardening chemical usage operational variance **(3 marks)**
 - (v) Labour rate, mix and yield variances **(6 marks)**
- (b) Calculate the total sales volume contribution variance and show the component parts for market size variance and market share variance. **(6 marks)**
- (c) Assess the performance of both the production manager and the sales manager using your results in parts (a) and (b) above and any other relevant information. **(10 marks)**
- (d) Explain the term benchmarking and discuss the potential benefits that may be obtained by DEF Ltd as a result of implementing a system of benchmarking. **(6 marks)**
- (Total: 40 marks)**

SECTION B

Attempt any THREE (3) questions out of FOUR (4).

QUESTION TWO

JHK Ltd operates a passenger transport business. The company has a fleet of twenty sixty-five (65) seater luxury coaches which are operated on routes over the northern part of Zambia. There is now stiff competition on these routes as more transport businesses have started operating on the same routes as JHK Ltd.

The company operates from the head office situated in the city of Kitwe. It has also branch offices in three provinces in Zambia with each branch office managed by a station manager. Each station manager is a senior manager in the company's hierarchy. Each branch office operates autonomously and holds only information about its own employees. There are ten (10) employees at each of the three branch offices and each office runs its own payroll system. There are also fifteen (15) employees at the head office and these include the chief executive officer and his executive assistant. The head office manages the non-current asset system, accounting and sales ledger system and the human resources systems for the whole company. These systems are updated with information collected from the branch offices by the chief executive officer.

The company's chief executive officer obtains information from the branch office managers by telephone. Sometimes, he visits the branch offices to get reports about the performance of these offices. Information contained in these reports is then posted on to the appropriate computerized systems at head office. The branch offices are all within 400 kilometres of the location of the head office.

The company's chief executive officer would like to know how management of information and decision making may be improved for JHK Ltd.

Required:

- (a) Discuss the relationship between the levels of management in an organization and the information needs of management for planning and control. **(8 marks)**
- (b) Explain how Enterprise Resource Planning could assist JHK Ltd with improved information management. **(8 marks)**
- (c) Explain the nature of, and the main aims of strategic management accounting. **(4 marks)**

(Total: 20 marks)

QUESTION THREE

A company wishes to invest in a project whose useful life will be four years. The project involves the purchase of a production plant to be used in producing a new product to be launched on the market. The following information is available:

(1) The initial capital outlay will be K5,000,000 and it will all be spent at the start of the first year. At the end of the fourth year, the scrap value will be equal to 30% of the initial capital cost. Capital allowances will be available at the rate of 25% per annum using the straight line method.

(2) The amounts of contribution before taxation have been estimated as follows:

	Year 1	Year 2	Year 3	Year 4
	K	K	K	K
Contribution	1,950,000	2,390,000	1,680,000	1,150,000

(3) Company general fixed overheads charged to the Project will be K400,000 per annum.

(4) Working capital investment at the start of each year will amount to 10% of the contribution that is expected to be earned in that year.

(5) All the above figures are stated in current price terms. The nominal cost of capital is 17.66% and the estimated annual rate of inflation for the foreseeable future is 6%.

(6) The company pays tax on its profits at the rate of 35% per annum. Taxes are paid in the year following that in which liability arises.

Required:

(a) Evaluate the proposed investment using the Modified Internal Rate of Return. **(8 marks)**

(b) Further investigation has revealed that the variable cost of production is uncertain and may range between K60 per unit and K80 per unit. The company therefore wishes to choose the best price to charge per unit of the product in order to maximize the NPV. The table below shows the nine possible Net Present Values that would arise:

Variable cost	Probability	Price of K300	Price of K400	Price of K500
K60	0.20	NPV = K62,105	NPV = K70,567	NPV = K57,355
K70	0.50	NPV = K50,312	NPV = K15,100	NPV = K25,000
K80	0.30	NPV = K1,500	NPV = K2,500	NPV = K10,516

Required:

(i) Using the information in the table above, determine the price per unit that corresponds with the use of (1) Expected value (2) Maximax decision rule (3) Maximin decision rule and (4) Minimax regret rule. You should explain the basis of application of each technique. **(9 marks)**

- (ii) Explain what perfect information is and discuss the limitations of using expected values in decision making. **(3 marks)**

(Total: 20 marks)

QUESTION FOUR

CFM Ltd produces handmade tea and cocoa mugs that it supplies to mining and manufacturing companies. There is a high demand for these mugs and annual sales are in the range of 150,000 of each type of mug.

During the year ended 31 December 2013, the company started production of handmade branded coffee mugs. Production of the branded coffee mugs did not disrupt production of tea and cocoa mugs. The branded coffee mugs were produced and sold in batches of 500 mugs each and the total number of mugs sold during the year ended 31 December 2013 was 100,000.

The cost of materials per batch was K1,800 for each of the first 64 batches. The cost of materials per batch for each of the next 64 batches was 90% of the cost per batch of each of the first 64 batches produced. Thereafter, all batches produced had cost 80% of the cost per batch for each of the second 64 batches produced.

The first batch produced took 1,600 hours. Once 128 batches had been produced, cumulative average time per batch had reduced to 335.6 hours per batch. All of the batches produced thereafter took the same amount of time as the 128th batch produced.

Labour is paid for at the rate of K4.00 per hour to all the employees who are engaged in hand making of the branded coffee mugs. Variable overheads are absorbed at the rate of 50% of the direct Labour cost.

The initial selling price per batch of branded coffee mugs was K18,000 and at this price all the 200 batches were sold. A survey carried out by the marketing officer has shown that, for every change in price per batch of the branded coffee mugs by K1,000, the change in the number of batches of mugs that could be sold is 20.

For the year ending 31 December 2014, CFM Ltd wishes to reduce costs and therefore maximize profits from the sales of coffee mugs. The company will have sufficient labour hours which could be used to produce up to 300 batches of the branded coffee mugs.

Required:

- (a) Calculate the learning rate that applied during the learning process in the production of the branded coffee mugs. **(4 marks)**
- (b) Calculate the optimum price and optimum quantity of the branded coffee mugs that would maximize CFM Ltd's profit for the year ending 31 December 2014. **(9 marks)**
- (c) Distinguish between cost control and cost reduction and explain how CFM would use value analysis and functional analysis as a way of reducing costs per branded coffee mug. **(7 marks)**

(Total: 20 marks)

QUESTION FIVE

MNG University is a Zambian private University that operates a school of engineering, a school of law, a school of education, a business school, and a school of post graduate.

The MNG University business School has been offering four year business degree programmes for a number of years. In recent years, the school has faced stiff competition from low cost colleges which are also offering business degree programmes, but in conjunction with foreign Universities. These foreign business degree programmes are all three year programmes and the pass rates are much higher than those of MNG University Business school.

The MNG University business school has intensified its advertising campaigns and now visits secondary schools to market the programmes on offer. Other measures that the MNG business school has taken as a way of retaining its market share are as follows:

- Recruiting renowned lecturers from the Southern African region,
- Acquiring latest editions of all business books used on the degree programmes,
- Installing air conditioners in all the lecture theatres,
- Reducing tuition fees by 10% as a way of increasing enrolments.

The following are the financial results of the MNG university business school for the most recent two years:

Statements of profits and losses for the year ended 31 December:

	2012		2013	
	K	K	K	K
Revenue:				
Tuition fee income		525,000		482,000
Examination fees		156,000		120,000
Accommodation fees		250,000		260,000
Publications		<u>190,000</u>		<u>240,000</u>
Total revenue		1,121,000		1,102,000
Less costs:				
Staff costs	752,000		820,000	
Air conditioners and enrolment	0		18,000	
Hostel costs	26,500		32,600	
Examination costs	54,200		46,200	
Printing publications	54,000		78,000	
Advertising, books and stationery	<u>42,000</u>		<u>57,000</u>	
		<u>(928,700)</u>		<u>(1,051,800)</u>
Net profit		<u>192,300</u>		<u>50,200</u>

The following additional information is also available:

	2012	2013
Total number of students attending classes	540	495
Total number of students in hostels	620	700
Number of first year students enrolled	170	140
Average number of lecturers	15	20

Percentage of students passing exams at first attempt	65%	52%
Average failure rate in the final year	35%	42%
Number of new publications in the year	15	10

Required:

Assess the performance of the MGN University business school in the year ended 31 December 2013 using both the financial information and the non-financial information provided. You should consider each of the following; Tuition fees, examination fees, accommodation income, publications, other costs and suggestions for improvements.

(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 – ADVANCED MANAGEMENT ACCOUNTING

SUGGESTED SOLUTIONS AND MARKING KEY

SOLUTION ONE

(a) (i) Materials price planning variances

$$\begin{aligned} (1) \quad & \text{Steel price planning variance} \\ & = (\text{original std. price} - \text{revised std. price}) \times \text{revised standard usage} \\ & = K51.00 - K50.00 \times (0.520 \text{ kg} \times 75,000) \\ & = \underline{K39,000} \text{ (F)} \end{aligned}$$

(2) Chemical price planning variance

There is no price planning variance as there was no revision to the pricing of the chemical.

(ii) Material price operational variances

$$\begin{aligned} (1) \quad & \text{Steel price operational variance} \\ & = (\text{revised std. price} - \text{actual price}) \times \text{actual usage} \\ & = (K51.00 \times 38,625 \text{ kg}) - K1,962,150 \\ & = \underline{K7,725} \text{ (F)} \end{aligned}$$

$$\begin{aligned} (2) \quad & \text{Hardening chemical price operational variance} \\ & = (\text{revised std. price} - \text{actual price}) \times \text{actual usage} \\ & = (K81.00 \times 17,210 \text{ ltrs}) - K1,466,250 \\ & = \underline{K72,240} \text{ (A)} \end{aligned}$$

(iii) Material usage planning variances

$$\begin{aligned} (1) \quad & \text{Steel usage planning variance} \\ & = (\text{original std. usage} - \text{revised std. usage}) \times \text{original std. price} \\ & = [(0.500 \text{ kg} \times 75,000) - (0.520 \text{ kg (W1)} \times 75,000)] \times K50.00 \\ & = 1,500 \text{ kg (A)} \times K50.00 \\ & = \underline{K75,000} \text{ (A)} \end{aligned}$$

$$\begin{aligned} (2) \quad & \text{Hardening chemical usage planning variance} \\ & = (\text{original std. usage} - \text{revised std. usage}) \times \text{original std. price} \\ & = [(0.200 \text{ ltrs} \times 75,000) - (0.230 \text{ kg (W2)} \times 75,000)] \times K81.00 \end{aligned}$$

$$= 2,250 \text{ kg (A)} \times \text{K}81.00$$

$$= \underline{\text{K}182,250 \text{ (A)}}$$

(iv) Material usage operational variances

(1) Steel usage operational variance

$$= (\text{revised std. usage} - \text{actual usage}) \times \text{revised std. price}$$

$$= [(0.520 \times 75,000) - 38,625] \times \text{K}51.00 \text{ (W3)}$$

$$= 375 \text{ kg (F)} \times \text{K}51.00$$

$$= \underline{\text{K}19,125 \text{ (F)}}$$

(2) Hardening chemical usage operational variance

$$= (\text{revised std. usage} - \text{actual usage}) \times \text{revised std. price}$$

$$= [(0.230 \text{ ltr} \times 75,000) - 17,210 \text{ ltrs}] \times \text{K}81.00$$

$$= 40 \text{ ltrs (F)} \times \text{K}81.00$$

$$= \underline{\text{K}3,240 \text{ (F)}}$$

(v) Labour cost variances

(1) Wage rate variance

	K	K	
Skilled labour			
Standard cost (372,000 hrs x K10.00)	3,720,000		
Actual wages paid were	<u>(3,964,000)</u>		
Wage rate variance		244,000	(A)
Unskilled labour			
Standard cost (230,000 hrs x K5.00)	1,150,000		
Actual wages paid were	<u>(1,035,000)</u>		
Wage rate variance		<u>115,000</u>	(F)
Total wage rate variance		<u>129,000</u>	(A)

(2) Labour mix variance

Actual in budgeted mix	Actual hours	Variance (hours)	Std. wage rate	Labour mix variance
------------------------------	-----------------	---------------------	----------------------	---------------------------

Labour type

				K	K	
Skilled	376,250	372,000	4,250	10.00	42,500	(F)
Unskilled	<u>225,750</u>	<u>230,000</u>	(4,250)	5.00	<u>21,250</u>	(A)
Total	<u>602,000</u>	<u>602,000</u>			<u>21,250</u>	(F)

(3) Labour yield variance

<u>Labour type</u>	<u>Std. hours</u>	<u>Actual in budgeted mix</u>	<u>Variance (hours)</u>	<u>Std. wage rate</u>	<u>Labour mix variance</u>	
				K	K	
Skilled	375,000	376,250	(1,250)	10.00	12,500	(A)
Unskilled	<u>225,000</u>	<u>225,750</u>	(750)	5.00	<u>3,750</u>	(A)
Total	<u>600,000</u>	<u>602,000</u>			<u>16,250</u>	(A)

(b) (i) Total sales volume contribution variance

= actual sales – budgeted sales x revised standard contribution

= 75,000 – 80,000 x K89.85 (W3)

= 5,000 units (A) x K89.85

= K449,250 (A)

(ii) Market size variance

= revised budgeted sales – original budgeted x revised std. contribution

= [(80,000/200,000 x 90% x 200,000) – 80,000] x K89.85 (W3)

= 72,000 – 80,000

= 8,000 units x K89.85

= K718,800 (A)

(iii) Market share variance

= actual sales – revised budgeted sales x revised std. contribution

= 75,000 – 72,000 x K89.85 (W3)

$$= 3,000 \times K89.85$$

$$= \underline{K269,550 (F)}$$

Workings

- (1) Revised standard usage of steel = 500 g x 1.04
= 520 g
- (2) Revised standard usage of the chemical = 200 ml x 1.15
= 230 ml
- (3) Revised standard price of steel = K50.00 per kg x 1.02
= K51.00 per kg
- (4) Revised standard contribution per unit of a drill bit

	K	K
Standard selling price		200.00
Revised standard cost of materials		
Steel (520 g x K51.00)	26.52	
Chemical (230 ml x K81.00)	18.63	
Skilled labour (5 hours x K10.00)	50.00	
Unskilled labour (3 hours x K5.00)	<u>15.00</u>	
Total revised standard variable costs		<u>(110.15)</u>
Revised standard contribution		<u><u>89.85</u></u>

- (c) When assessing the performance of both the production manager and the marketing manager, it is necessary to take into account the planning and operational variances computed above as well as the explanations for each variance that is given by each of the two managers. Firstly, planning variances are caused by planning errors which are beyond the managers' control. Managers may be responsible for variances caused by operational problems which are within their control.

The assessment of the performance of the production manager covers the following issues:

- (i) Increased size of handheld drilling machines

As a result of the increase in the size of handheld drilling machines, larger drill bits were required as even the size of the drill bit holders increased. This therefore meant that more steel and hardening chemical were required to produce a larger steel bit. These factors are beyond the control of the production manager and therefore he cannot be expected to control the planning variances for materials usage.

(ii) Increased metal prices

The worldwide increase in the prices of metals meant that the standard cost of steel needed to produce a drill bit was higher than expected. This is beyond the production manager's control and the resulting adverse steel price planning variance cannot be blamed on him.

(iii) Materials operational variances

In the area of materials price control, the production manager performed well on the purchase of steel as evidenced by a favourable steel price operational variance. Despite increased prices of metal worldwide, the production manager was able to buy steel cheaply. Also, there was improved productivity as the usage operational variance for steel was also favourable.

However, performance in the purchase of the hardening chemical was poor as the manager bought the hardening chemical at a higher price than expected. The manager did not provide any explanation for buying the chemical at a higher price than expected. It may, however be argued that the manager bought a more expensive material whose quality was higher with a view to improving productivity. This is shown by the favourable hardening chemical usage operational variance.

(iv) Labour cost

As evidenced by the adverse wage rate variance for skilled labour, the production manager may have paid at a higher wage rate than agreed in order to motivate the skilled workers with a view to improving productivity. The production manager may have tried to save on the cost by paying the unskilled workers at a slightly lower rate than agreed on as shown by the favourable wage rate variance for unskilled labour.

The production manager's decision led to usage of fewer hours of skilled labour and more hours of unskilled labour than expected as

shown by the favourable labour mix variance and he may be commended for this course action. However, the production manager's decisions regarding labour usage worsened the productivity of labour. The result was an adverse yield variance and the manager may be said to have performed poorly in the area of efficient employment of labour.

(v) Overall conclusion

The production manager did not perform well as the production cost, taking account of all operational variances and labour variances was higher than expected resulting in an overall material cost and labour cost variance of K166,150 (A). The production manager may therefore be held accountable for the increase in the production cost.

The marketing manager may not be held accountable for the total sales volume variance of K449,250 (A). He explained that there was a reduction in the market size for handheld drill bits. The adverse market size variance (sales volume planning variance) cannot be blamed on the marketing manager since he has no control over the market size.

The marketing manager may be commended for the favourable market share variance. This shows that although the market size reduced, the company's market share rose above the original market share for the drill bits market.

(Other valid explanation of relevant points raised will be acceptable)

(d) Benchmarking is the establishment, through data gathering of targets and comparators against other companies or division. Relative levels of performance may be identified and by the adoption of best practice, performance may be expected to improve. The main types of benchmarking are as follows:

- (i) Internal benchmarking: This compares one operating unit or function with another operating unit or function within the same company.
- (ii) Process (Functional) benchmarking: This compares internal functions with those of the best external practitioners of those functions, regardless of the industry they are in.
- (iii) Competitive benchmarking: This gathers information about direct competitors.
- (iv) Strategic benchmarking: This is a type of competitive benchmarking that aims at strategic action and organizational change.

Potential benefits that may arise if benchmarking were introduced are as follows:

- (i) Benchmarking can assess the existing position and provide a basis for establishing standards of performance.
- (ii) The comparisons are carried out by the managers who have to live with any changes implemented as a result of the exercise.
- (iii) Benchmarking focuses on improvement in key areas and sets targets which are challenging but achievable.
- (iv) Sharing of information, comparing the past failures and successes can be a source of innovation.
- (v) Benchmarking may make it possible to identify achievable cost savings and realistic targets should help improve budgeting.

(Other valid points raised will be acceptable)

QUESTION TWO

- (a) An organisation normally has three levels of management. At the top, there is the strategic level, followed by the tactical level and finally the operational level. Anthony presented the relationship between the levels of management in an organisation and the managerial functions in the form of a triangle now referred to as Anthony's decision hierarchy (triangle).

The link between the level of management and the information requirement of management is the function for which that information should be used.

Strategic level management is concerned with broad issues affecting the firm such as markets to operate in. The function performed at this level is mainly that of strategic planning which is concerned with setting strategic objectives and formulating strategies to enable those objectives be achieved. Information required at the strategic level is therefore mainly from external sources. This information should be highly summarized but meaningful to enable the strategic level managers to perform their functions. Although strategic level managers are mainly involved in strategic planning, they also carry out some strategic control function. This involves taking action to establish whether strategic objectives are achievable.

The tactical level managers are involved in both management planning and management control. Loosely, it would be said that approximately half of the functions are associated with planning and the other half are associated with controlling. Management control is more concerned with decisions about the efficient use of an organisation's resources to achieve the established objectives. The actual dividing line between management planning and management control is very thin and it is therefore difficult to make a clear distinction between the two functions. Information used by tactical level management is mainly obtained from internal sources, embraces the entire organisation, is routinely collected and relatively summarised.

At the operational level, management is concerned more with operational control than with planning. Little long term planning takes place at this level. Operational control is concerned with providing assurance that specific tasks are carried out efficiently and effectively. Operational level managers perform their functions more frequently than the higher level managers. The source of information that is used by the operational managers is internal and it is highly detailed.

- (b) An Enterprise Resource Planning (ERP) system is a computerized system that integrates information from all parts of the organisation. This provides integration between different parts of the organisation and may therefore include modules for:
- (i) Manufacturing which should provide information about production planning and control, materials procurement, plant maintenance and quality management.
 - (ii) Sales and distribution which provides information about sales order management, customer management and distribution and transportation.
 - (iii) Accounting which should provide information about accounts receivable, accounts payable, budgeting and standard costing.
 - (iv) Human resource management which should provide information about recruitment and workforce scheduling and other human resources related functions.

As a result of implementing an ERP system, JHK Ltd would benefit in a number of ways. Firstly, there is currently duplication of information held and most likely, some information may be inconsistent. ERP would eliminate duplication of information storage as all the information would be held on a single database. An ERP system would also ensure that this perceived possibility of inconsistencies in information held is eliminated. In addition, the potential errors which could occur when posting information from provincial offices on to the computer at head office would also be eliminated.

Secondly, an ERP would offer some decision support facility in addition to information storage. This would assist with improving decision making at JHK Ltd. Thirdly, the use of an ERP would reduce the cost of accessing information. There would be no need for the chief executive officer to travel to the various provincial offices to access information. This information would be accessed from many locations cheaply.

- (c) Strategic Management Accounting is a form of management accounting in which emphasis is placed on information about factors, both internal and external to the organisation and on non-financial internally generated information.

One of the main aims of strategic management accounting is to provide information to enable a firm achieve a competitive advantage through its external focus.

Another aim of strategic management accounting is to support the forward looking and the outward looking processes of planning and decision making and also, to provide the values upon which they are based.

Strategic management accounting translates the consequences of different strategies into some accounting information which may be used in financial performance evaluation. It relates business operations to financial performance, thereby helping in ensuring that business activities are focused on shareholders' needs.

SOLUTION THREE

(a) Discounted cash flows for the project

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
	K	K	K	K	K
Contribution	1,950,000	2,390,000	1,680,000	1,150,000	
Tax payable at 35%		(682,500)	(836,500)	(588,000)	(402,500)
Tax saved (W2)		<u>437,500</u>	<u>437,500</u>	<u>437,500</u>	<u>(87,500)</u>
Post tax cash inflows	1,950,000	2,145,000	1,281,000	999,500	(490,000)
Scrap value				1,500,000	
Working capital (W3)	<u>(44,000)</u>	<u>71,000</u>	<u>53,000</u>	<u>115,000</u>	
Net cash in flow	1,906,000	2,216,000	1,334,000	1,615,000	(490,000)
DCF at 11% (W2)	<u>0.901</u>	<u>0.812</u>	<u>0.731</u>	<u>0.659</u>	<u>0.593</u>
Present values	<u>1,717,306</u>	<u>1,799,392</u>	<u>975,154</u>	<u>1,064,285</u>	<u>(290,570)</u>
Sum of present values of future cash flows			=	<u>K5,265,567</u>	
Total initial outlay			=	capital + working capital	
			=	K5,000,000 + K195,000	
			=	<u>K5,195,000</u>	

Modified Internal Rate of Return (formula attached to the question paper)

$$= [PVR/PVI]^{(1/n)} [r + 1] - 1$$

$$= [5,265,567/5,195,000]^{(1/6)} [1.11] - 1$$

$$= \underline{11.43\%}$$

Based on the use of the modified internal rate of return (MIRR), the project is financially worthwhile as the MIRR of 11.43% exceeds the company's cost of capital of only 11%.

Workings:

$$(1) \text{ Real discounting rate} = (1 + \text{Nominal rate}) / (1 + \text{inflation rate}) - 1$$

$$= (1.1766) / (1.06) - 1$$

$$= 1.11 - 1$$

$$= \underline{0.11}$$

The real discounting rate is 11% per annum

$$(2) \text{ Balancing allowance or charge at the end of the project's life}$$

Wear and tear allowance per year

$$= 25\% \times \text{K}5,000,000$$

$$= \underline{\text{K}1,250,000}$$

Tax benefit per year

$$= 35\% \times \text{K}1,250,000$$

$$= \underline{\text{K}437,500}$$

Balancing adjustment at the end of the project's life

$$= \text{initial capital outlay} - \text{total wear and tear allowances} - \text{scrap value}$$

$$= [\text{K}5,000,000 - (3 \times \text{K}1,250,000)] - (30\% \times \text{K}5,000,000)$$

$$= \text{K}5,000,000 - \text{K}3,750,000 - \text{K}1,500,000$$

$$= \underline{\text{K}250,000} \text{ (balancing charge)}$$

Tax on balancing charge

$$= 35\% \times \text{K}250,000$$

$$= \underline{\text{K}87,500}$$

$$(3) \text{ Working capital}$$

Year		<u>Investment</u>	<u>Change</u>
		K	K
0	Working capital (10% x K1,950,000)	195,000	(195,000)
1	Working capital (10% x K2,390,000)	239,000	(44,000)
2	Working capital (10% x K1,680,000)	168,000	71,000
3	Working capital (10% x K1,150,000)	115,000	53,000
4	Working capital	0	115,000

(b) (i) Choice of selling price under risk

(1) Using the Expected Value technique

The expected value is the weighted average value of several possible outcomes using the probabilities of occurrence as the weights. The decision criteria is to choose the alternative course of action that maximizes the expected value. The expected values of NPV are as follows:

At a selling price per unit of K300

$$\begin{aligned} \text{NPV} &= (0.20 \times \text{K}62,105) + (0.50 \times \text{K}50,312) + (0.30 \times \text{K}1,500) \\ &= \underline{\text{K}38,027.00} \end{aligned}$$

At a selling price per unit of K400

$$\begin{aligned} \text{NPV} &= (0.20 \times \text{K}70,567) + (0.50 \times \text{K}15,100) + (0.30 \times \text{K}2,500) \\ &= \underline{\text{K}22,413.40} \end{aligned}$$

At a selling price per unit of K500

$$\begin{aligned} \text{NPV} &= (0.20 \times \text{K}57,355) + (0.50 \times \text{K}25,000) + (0.30 \times \text{K}10,516) \\ &= \underline{\text{K}27,125.80} \end{aligned}$$

The best selling price would be a price of K300 per unit.

(2) Using Maximax decision rule

The best Net Present Values are achieved when the variable cost is K60.00 per unit and these NPVs are K62,105, K70,567 and K57,355. The highest of these values of K70,567 corresponds with the price of K400 per unit. Therefore, based on the use of maximax decision criteria, the selling price per unit should be K400.

(3) Using Maximin decision rule

The lowest Net Present Values are achieved when the variable cost is K80.00 per unit and these NPVs are K1,500, K2,500 and K10,516. The highest of these values of K10,516 corresponds with the price of K500 per unit. Therefore, based on the use of maximin decision criteria, the selling price per unit should be K500.

(4) Minimax regret decision rule

The regret table below shows the opportunity losses that would arise:

Variable cost	Selling Prices		
	K300	K400	K500
	K	K	K
K60 (opportunity losses)	1,538	0	13,212
K70 (opportunity losses)	0	35,212	25,312
K80 (opportunity losses)	<u>9,016</u>	<u>5,316</u>	<u>0</u>
Maximum regret	<u>9,016</u>	<u>35,212</u>	<u>25,312</u>

The lowest of the maximum regrets of K9,016 corresponds with a selling price of K300. Therefore, using minimax regret criteria, the selling price per unit should be K300.

- (c) In decision making under conditions of risk and uncertainty, the term perfect information refers to any information that would create certainty as to what will be the outcome from a particular decision. As a result of being provided with perfect information, decision makers would be able to arrive at the right decision.

Expected values are weighted average values which use the probabilities of occurrence of outcomes as the weights. One disadvantage of using expected values is that they ignore risk by concentrating on a single result for decision making. Secondly, expected values may not be possible outcomes as it is possible to arrive at an expected value that is not a real value. However, the expected value is an optimizing technique which enables management to choose decision variables which would maximize the possible benefits.

QUESTION FOUR

- (a) Cumulative average time per batch, y is given by the learning curve formula. Given that when $x = 128$, $y = 355.6$ and $a = 1,600$, there is a need to calculate the rate of learning. The learning curve formula as a linear logarithmic equation is used.

$$\begin{aligned} \log a + b \log x &= \log y \\ \Leftrightarrow \log 1,600 + (b \log 128) &= \log 335.6 \\ \underline{b \log 128} &= \underline{\log 335.6 - \log 1,600} \\ \Leftrightarrow \log 128 & \qquad \qquad \qquad \log 128 \\ \Leftrightarrow & \qquad \qquad \qquad b = -0.3219 \\ \Leftrightarrow \text{but it is known that} & \qquad \qquad b = \log \text{ learning rate} / \log 2 \\ \Leftrightarrow \log \text{ learning rate} &= b \times 0.3010 \\ \Leftrightarrow \log \text{ learning rate} &= -0.3219 \times 0.3010 \\ \Leftrightarrow \text{learning rate} &= -0.09689 \\ \Leftrightarrow \text{learning rate} &= \text{Anti log } (-0.09689) \end{aligned}$$

\therefore learning rate = 80%

- (b) In order to maximize profit, CFM Ltd should produce and sell 253 batches or 126,500 units (253 batches x 500 mugs/batch) of the branded coffee mugs at a price per batch of K15,350 per batch (or K30.70 per mug) as shown below:

- (i) Profits are maximized when marginal revenue = marginal cost;

$$\begin{aligned} \text{Therefore: MR} &= \text{MC is;} \\ \Leftrightarrow 28,000 - 100Q \text{ (W5)} &= 2,700 \text{ (W4)} \\ \Leftrightarrow -100Q &= 2,700 - 28,000 \\ \Leftrightarrow -100Q &= -25,300 \\ \Leftrightarrow Q &= -25,300 / -100 \\ \therefore \underline{Q} &= \underline{253 \text{ batches}} \end{aligned}$$

- (ii) The price at which these 253 batches should be sold is:

$$\begin{aligned} P &= 28,000 - 50Q \\ &= 28,000 - (50 \times 253) \\ &= \underline{\underline{K15,350}} \end{aligned}$$

Workings:

- (1) Cumulative average time when $x = 127$ batches of coffee mugs is:

$$Y = 1,600 \times (127)^{-0.3219}$$

$$= \underline{336.4 \text{ hours}}$$

- (2) Time taken to produce the 128th batch is as follows:

	Hours
The first 128 batches took (128 x 335.6 hours per batch)	42,956.8
The first 127 batches took (127 x 336.4 hours per batch) (W1)	<u>42,722.8</u>
Time taken by the 128 th batch	<u>234.0</u>

All the batches to be produced in the year ending 31 December 2014 will take 234 hours each.

- (3) Cost of materials per batch will be = $K1,800 \times 90\% \times 80\%$
 = K1,296

- (4) Marginal cost per batch is taken to be the same as the variable production cost per batch and this will be:

	K
Cost of materials (W3)	1,296
Cost of direct labour [234 hours (W2) x K4.00]	936
Variable production overhead (50% x K936)	<u>468</u>
Total variable cost per batch	<u>2,700</u>

- (5) Equation of the demand curve is $P = a - bQ$

When $P = K18,000$, Q is = 200 batches and when P changes by K1,000, Q changes by 20 batches.

Therefore $\Leftrightarrow b = \text{change in price/change in quantity}$

$$\Leftrightarrow b = 1,000/20$$

$$\therefore \underline{b = 50}$$

And $\Leftrightarrow a - bQ = P$

$$\Leftrightarrow a - (50 \times 200) = 18,000$$

$$\begin{aligned} \Leftrightarrow a - 10,000 &= 18,000 \\ \Leftrightarrow a &= 18,000 + 10,000 \\ \therefore a &= \underline{28,000} \end{aligned}$$

The equation of the demand curve is $P = 28,000 - 50Q$ and that of marginal revenue is $MR = 28,000 - 100Q$.

- (c) Cost control refers to the management of costs through keeping the costs below a certain target maximum acceptable cost. There is no room for continuous improvement and maintaining output quality when cost control is in use. On the other hand, cost reduction is a management technique concerned with reducing the unit cost of output on a permanent basis without negatively affecting the quality of that output.

Value analysis is a cost reduction technique. It seeks to identify the least cost method of producing a product or service without the desired function of that product or service being compromised. When applying value analysis as a way of reducing costs at CFM Ltd, it would be necessary to determine whether all the processes that are being performed are necessary. Those processes which increase costs but which would not be valued by customers are non-value adding activities and they would be dropped or discontinued. This means that all the materials that are being used should be examined to determine whether alternative materials could be obtained at a lower cost so as to reduce the cost of materials. Reducing the cost of materials would contribute towards the overall reduction of costs. Similarly, it would be necessary to consider whether labour may be replaced by merchandised production if that would reduce costs.

Functional analysis, on the other hand attempts to reduce costs by improving products by adding new product features in a cost effective way. With functional analysis, CFM Ltd would consider adding more features to the mugs. These features would result in the product performing more functions than expected. This improvement in the features making the mugs produced being used, not only as tea, cocoa or coffee mugs would be a way of reducing costs.

SOLUTION FIVE

The MNG University business school has faced stiff competition which has seen its profits decreasing by a huge percentage of 73.89% (W11) from a profit figure of K192,300 in the year ended 31 December 2012 to only K50,200 in the year ended 31 December 2013. This is a weakening in profitability and if not checked, may lead to liquidity problems in the long term. The performance of the MNG University business school in various areas of performance in 2013 has been as follows:

- (i) Tuition fee income

Tuition fee income has reduced from K525,000 in 2012 to K482,000 in 2013 representing a decrease by 8.19% (W1). This is attributed to the decrease in the enrolments in 2013 compared with the enrolments in 2012. The number of students who may be graduating from MNG University business school is not being replaced by an equivalent number of first year students enrolling. The non-financial information shows that in the year 2012, 170 students enrolled in the first year compared with only 140 students who enrolled in the first year in 2013. There is a reduction in the first year enrollment by approximately 17.65%. Reducing the tuition fees did not result in an improvement in enrolments for the business school in the first year. It seems that visiting secondary schools to promote the business schools' programmes seem not to be providing the desired solutions.

The business school has not performed well as it has lost its market share to low cost colleges that are offering shorter but quality foreign business degree programmes.

(2) Examination fee income

Due to the reduced number of students enrolling on business programmes, the examination fees income has also reduced. The reduction from K156,000 in 2012 to only K140,000 in 2013 represents a reduction by 23.08% (W2). There is no information provided about whether students who do not pass examinations at first attempt must pay additional examination fees to retake the failed examinations. This reduction in examination fee income therefore only provides further evidence about the reduced student numbers at MNG University business school.

(3) Accommodation

The number of students residing in the hostels has increased from 620 in 2012 to 700 in 2013, representing an increase by 12.9%. This suggests that the business school performed well in the area of maximizing occupancy rates in the hostels. However, it is strange that a business school could be providing accommodation to persons who are not students. Under normal circumstances, student hostels are available to accommodate students of a university where these hostels are located.

As a result of an increase in the number of students occupying the hostels, the cost of maintaining the hostels has risen from K26,500 in 2012 to K32,600 in 2013 which represents an increase by 23.00% (W7). The cost of maintain hostels as a percentage of the accommodation income has increased from 10.6% in 2012 to 12.54% in 2013. This shows that the business school did not do well in reducing hostel maintenance costs.

(4) Publications

The number of publications has reduced from 15 publications in 2012 to only 10 publications in 2013. This is a decrease in publications by approximately 33.33%. The business school has not performed well in this area despite it being one of the

key areas in which a business school at a university should achieve good results. Although the number of publications reduced, income from sales increased by 26.00% (W4) with a cost increasing enormously by 44.44% from K54,000 in 2012 to K78,000 in 2013.

The number of publications may have reduced due to the increase in printing costs which resulted in an increase in selling prices of publications. Increases in the printing costs are outside the control of the business school.

(5) Staff costs, advertising and other costs

The staff costs have increased from K752,000 in 2012 to K820,000 in 2013, probably as a result of employing lecturers from outside the country on one hand and as a result of an increase in the number of lecturers from fifteen (15) in 2012 to twenty (20) in 2013 on the other hand. This increase in staff costs represents an increase by 9.04%. Lecturers employed from outside the country may have agreed to higher rates of pay resulting in the increase in the staff costs. Individual salary scales which could be used to assess the performance of the business school better are not available.

The increase in advertising costs from K42,000 in 2012 to K57,000 in 2013 represents a percentage increase of 36.00%. As a percentage of tuition fee income, advertising cost was 8% in 2012 and 11.8% in 2013. Relatively, performance worsened in 2013 as the benefit from advertising was not as good as in the year 2012. There is no evidence that there would be improvements in the near future as a result of advertising.

Installing air conditioners in the lecture theatres does not seem to have been valued by students and potential students as the business school has not increased the enrolments in 2013 as a result of installing the air conditioners. It would be necessary to educate the current and potential students on the values of air conditioned learning environments.

(6) Improving performance

MNG university business school will need to improve its performance by offering its courses competitively. The course duration for all business degree programmes need to be reduced to three years and priced competitively, in the light of increased competition. Also, the MNG university business school should find ways of improving pass rates. Students prefer courses which they can complete in a short period of time and where the chances of passing are higher.

(Other ways and approaches of structuring the answer will be acceptable)

Workings

(1) Decrease in tuition fee income = 8.19 % $[1 - (482,000/525,000)] \times 100\%$

- | | | |
|------|----------------------------------|---|
| (2) | Decrease in examination fees | = <u>23.08%</u> $[1 - (120,000/156,000)] \times 100\%$ |
| (3) | Increase in accommodation fees | = <u>4.00%</u> $[(260,000/250,000) - 1] \times 100\%$ |
| (4) | Increase in publications income | = <u>26.00%</u> $[(240,000/190,000) - 1] \times 100\%$ |
| (5) | Decrease in total revenue | = <u>1.69%</u> $[1 - (1,102,000/1,121,000)] \times 100\%$ |
| (6) | Increase in staff costs | = <u>9.04%</u> $[(820,000/752,000) - 1] \times 100\%$ |
| (7) | Increase in hostel costs | = <u>23.00%</u> $[(32,600/26,500) - 1] \times 100\%$ |
| (8) | Decrease in examination costs | = <u>15.00%</u> $[1 - (46,200/54,200)] \times 100\%$ |
| (9) | Increase in cost of publications | = <u>44.44%</u> $[(78,000/54,000) - 1] \times 100\%$ |
| (10) | Increase in cost of advertising | = <u>36.00%</u> $[(57,000/42,000) - 1] \times 100\%$ |
| (11) | Decrease in profit | = <u>73.89%</u> $[1 - (50,200/192,300)] \times 100\%$ |

P2 MARKING KEY

Question One

- | | | | |
|-----|-------|---|-----------------|
| (a) | (i) | Material price planning variances | 3 marks |
| | (ii) | Material price operational variances | 3 marks |
| | (iii) | Material usage planning variances | 3 marks |
| | (iv) | Material usage operational variances | 3 marks |
| | (v) | Labour variances | <u>6 marks</u> |
| | | Total marks for part (a) | <u>18 marks</u> |
| (b) | (i) | Total sales volume variance | 2 marks |
| | (ii) | Market size variance | 2 marks |
| | (iii) | Market share variance | <u>2 marks</u> |
| | | Total marks for part (b) | <u>6 marks</u> |
| (c) | | Performance of the production manager | 7 marks |
| | | Performance of the sales manager | <u>3 marks</u> |
| | | Total marks for part (c) | <u>10 marks</u> |
| (d) | | Explanation of benchmarking including the types | 2 marks |

Benefits of benchmarking	<u>4 marks</u>
Total marks for part (d)	<u>6 marks</u>
Total marks for Question One	40 marks

Question Two

(a)	Strategic management and strategic planning	2 marks
	Tactical management	2 marks
	Operational management	2 marks
	Management control and operational control	<u>2 marks</u>
	Total marks for part (a)	<u>8 marks</u>
(b)	Explanation of Enterprise Resource Planning	2 marks
	Improvements	<u>6 marks</u>
	Total marks for part (b)	<u>8 marks</u>
(c)	Nature of strategic management accounting	2 marks
	Main aims of strategic management accounting	<u>2 marks</u>
	Total marks for part (c)	<u>4 marks</u>
	Total marks for question Two	20 marks

Question Three

(a)	Real discounting rate	1 mark
	Capital allowances and balancing charges, with tax implications	1 mark
	Working capital	2 marks
	Discounted cash flow	2 marks
	Modified internal rate of return	1 mark
	Recommendation	<u>1 mark</u>
	Total marks for part (a)	<u>8 marks</u>
(b)	(i) Expected value calculation and explanation	2 marks
	Maximax decision criteria calculation and explanation	2 marks
	Maximin decision criteria calculation and explanation	2 marks

Minimax regret decision criteria calculation and explanation	<u>3 marks</u>
Total marks for part (b) (i)	<u>9 marks</u>
(ii) Explanation of perfect information	1 mark
Limitations of expected values	<u>2 marks</u>
Total marks for part (b) (ii)	<u>3 marks</u>
Total marks for part (b)	<u>12 marks</u>
Total marks for question three	20 marks

Question Four

(a) Identification of the variables	1 mark
Calculation of the learning rate	<u>3 marks</u>
Total marks for part (a)	<u>4 marks</u>
(b) Calculation of the steady production hours per batch	1 mark
Calculation of the cost of materials per batch	1 mark
Calculation of total variable cost	1 mark
Calculation of the value of 'a' in the equation for the demand curve	1 mark
Calculation of the value of 'b' in the equation for the demand curve	1 mark
Calculation of optimum selling price per batch	2 mark
Calculation of optimum sales quantity	<u>2 mark</u>
Total marks for part (b)	<u>9 marks</u>
(c) Cost control	1 mark
Cost reduction	1 mark
Value analysis	3 marks
Functional analysis	<u>2 marks</u>
Total marks for part (c)	<u>7 marks</u>
Total marks for question Four	20 marks

Question Five

Calculation of relevant performance indicators and general comment	4 marks
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Tuition fee income	3 marks
Examination fees	3 marks
Accommodation income	2 marks
Publications	2 marks
Staff costs and other costs	3 marks
Proposals for performance improvement	3 marks
Total marks for question Five	20 marks