STRICTLY CONFIDENTIAL

THE PUBLIC ACCOUNTANTS EXAMINATION

COUNCIL OF MALAWI

2009 EXAMINATIONS

FOUNDATION STAGE

PAPER 3 : MANAGEMENT INFORMATION

(DECEMBER 2009)

TIME ALLOWED : 3 HOURS

SUGGESTED SOLUTIONS

1. (a) (ii)

    (b) (iv)

    (c)   (i)

    (d) (iii)

    (e) (iv)

    (f) (iii)

    (g)   (i)

    (h) (ii)

    (*i*)   (i)

    (j) (iv)

    (k) (iii)

    (l)   (i)

    (m) (ii)

    (n) (iv)

    (o) (ii)

    (p) (iii)

    (q) (iv)

    (r) (ii)

    (s)   (i)

    (t) (iii)

1 Mark each (TOTAL : 20 MARKS)

2. (a) Re-order point = Safety stock + Normal Usage in lead time

$$= 2000^1 + \left(\frac{5,000^1}{25^1} \times \frac{15^1}{1} \right)$$

3 Marks

$$= 2000 + 3000$$

$$= 5,000$$

<u>**1 Mark**</u>

<u>**4 Marks**</u>

Therefore the re-order point is when stock falls to 5,000
Note: this solution assumes lead time which refers to working days.

However should the 15 days refer to calendar days, then the re-order level would be:

$$2,000^1 + \left(5,000^1 \times \frac{15^1}{30^1} \right)$$

$$= 2,000 + 2,500$$

$$= 4,500$$

$\therefore$ The re-order point is when stock falls to 4,500.

(b) (i) EOQ $= \sqrt{\dfrac{2 \times 484.60^1 \times 409,500^1}{40^1}}$

$=$ 3,150

3 Marks

(ii) Order Frequency $= \dfrac{409,500^{1/2}}{3,150^{1/2}}$

$=$ 130 times a year

1 Mark

(iii) Annual Procurement costs $= \dfrac{Csd}{Q}$

$\qquad\qquad\qquad\qquad\qquad = \dfrac{484.60^1 \times 409,500^1}{3150^1}$ **3 Marks**

$\qquad\qquad\qquad\qquad\qquad = K62,998 \cong K63,000$

Annual holding costs $= \tfrac{1}{2} QCh$

$\qquad\qquad\qquad\qquad = \tfrac{1}{2}^1 \text{ x } 3150^1 \text{ x } 40^1$ **3 Marks**

$\qquad\qquad\qquad\qquad = K63,000$

i.e. costs will be equal at the EOQ. **6 Marks**

(c) The amount of safety stock is the level where the total costs associated with safety stock are at a minimum. That is, where the safety stock holding cost plus the stock out cost is lowest. **2 Marks**
(TOTAL : 16 MARKS)

3. (a) (i) The present position is as follows:

	K
Sales (40,000 x K200)	8,000,000 1
Less: Marginal cost (W1)	400,000 1 (= K10/can)
= Contribution	7,600,000
Less: Fixed costs	1,600,000 1
= Net profit	6,000,000

On the assumption that fixed costs remain unchanged, the special order will produce the following contribution.

	K
Sales (10,000 x K130)	1,300,000 1
Less: Marginal cost (10,000 x K10)	400,000 1
= Contribution	1,200,000

∴ The new order brings in more contribution which, because fixed costs are already covered, results in increased net profit. Thus, purely on the cost figures, the order should be accepted. **1 Mark**
6 Marks

(W1) K5.6m – K1.6m = K4.0m
K4,000,000/40,000 cans = K10 per can
K10 x 40,000 cans
= K400,000

(ii) However, there are several other factors which would need to be considered before a final decision is taken. These include:

- Will the acceptance of one order at a lower price lead other customers to demand lower prices as well? **1 Mark**

- It this special order the most profitable way of using the spare capacity? **1 Mark**

- Will the special order lock up capacity which could be used for future full price business? **1 Mark**

- Is it absolutely certain that fixed costs will not alter? **1 Mark**

1 Mark each = 4 Marks

(b) CVP analysis assumptions

(i) All costs can be resolved into fixed and variable elements. **1 Mark**

(ii) Fixed costs will remain constant and variable costs vary proportionately with activity. **1 Mark**

(iii) Over the activity range being considered, costs and revenues behave in a linear fashion. **1 Mark**

(iv) That the only factor affecting costs and revenues is volume. **1 Mark**

(v) That technology, production methods and efficiency remain unchanged. **1 Mark**

(vi) Particularly for graphical methods, that the analysis relates to one product only. **1 Mark**

(vii) There are no stock level changes and that stocks are valued at marginal cost only. **1 Mark**

(viii) There is assumed to be no uncertainty. **1 Mark**

Any three, 1 Mark each = 3 Marks

(c) Limitations of break even and profit charts

(i) Fixed costs are likely to change at different activity levels. A stepped fixed cost line is probably the most accurate representation. **1 Mark**

(ii)   Variable costs and sales are unlikely to be linear. Extra discounts, overtime payments, the effect of the learning curve, special price contracts and other similar matters make it likely that the variable cost and revenue lines are some form of curve rather than a straight line.   **1 Mark**

(iii)   The charts may be reasonable pointers to performance within normal activity ranges, say 70% - 120% of average production. Outside this relevant range the relationship depicted almost certainly will not be correct.   **1 Mark**

(iv)   The charts depict relationships which are essentially short term. This makes them inappropriate where the time scale spans several years.

1 Mark

(v)   It is assumed that either, there is a single product or a constant mix of products or a constant rate of mark-up on marginal cost.   **1 Mark**

(vi)   Risk and uncertainty are ignored and perfect knowledge of cost and revenue functions is assumed.   **1 Mark**

(vii)   CVP analysis, like marginal costing, makes the assumption that changes in the level of output are the sole determinant of cost and revenue changes. This is likely to be a gross over-simplification in practice although volume changes, of course, do have a significant effect on costs and revenues.

1 Mark

(viii)   It is assured that the firm is a price taker, i.e. a perfect market is deemed to exist.   **1 Mark**

Any three, 1 Mark each = 3 Marks

(TOTAL: 16 MARKS)

4.   (a)   Variances

    (i)   Material price variances

	K	
Actual cost	2,508,000	Price variance
AQ x SP (66000) x K40)	2,640,000	K132,000 F **1 Mark**

    (ii)   Material usage variance

SQ x SP (13,000 x 5kgs x K40)	2,600,000	Usage variance K40,000 A **1 Mark**

    (iii)   Labour rate variance

Actual wages	3,251,300	Rate variance
Att x SR (53300 x K60)	3,198,000	K53,300 A **1 Mark**

    (iv)   Labour efficiency variance

SQ x SP (13,000 x 4hrs x K60	3,120,000	Efficiency variance K78,000 A **1 Mark**

    (v)   Fixed overhead expenditure variance

	K	
Actual overheads	2,200,000	Expenditure variance
Budgeted overheads (12,000 x 4hrs x K40)	1,920,000	K280,000 A **1 Mark**

    (vi)   Fixed overhead capacity variance

AH x OAR (53,300 x K40)	2,132,000	Capacity variance K212,000 F **1 Mark**

    (vii)   Fixed overhead efficiency variance

SH x OAR (13,000 x 4 x K40)	2,080,000	Efficiency variance K78,000 A **1 Mark** **7 Marks**

(b)   Profit Reconciliation

		K	
Budgeted profit (12,000 x K400)		4,800,000	**½ Mark**
Extra production 1000 x K400		400,000	**½ Mark**
= Budgeted profit for actual production		5,200,000	
Less cost variances:			

	K	
Material Price	132,000 F	
Material Usage	40,000 A	
Labour Rate	53,300 A	
Labour Efficiency	78,000 A	**1 Mark**
Overhead Expenditure	280,000 A	
Overhead Capacity	212,000 F	
Overhead Efficiency	52,000 A	

		K
		159,300 A
= Actual Profit (W1)		5,040,700

W1		K'000	K'000	
	Sales		13,000	½
	Less:			
	Materials	2,508 ½		
	Labour	3,251.3 ½		
	Overhead	2,200 ½	7,959.3	½
	Actual profit		5,040.7	½

5 Marks

(b)   Disadvantages of Standard Costing

(i)   It may be expensive and time consuming to install and to keep up-to-date a standard costing system.   **1 Mark**

(ii)   In volatile conditions with rapidly changing methods, rates and prices, standards quickly become out-of-date and thus lose their control and motivational effects. This can cause resentment and loss of goodwill. A possible method of overcoming this problem is by use of planning and operational variances but this involves more subjectivity and more work.

1 Mark

(iii)   There is research evidence to show that overly elaborate variances are imperfectly understood by line managers and thus they are likely to be ineffective for control purposes.   **1 Mark**

(iv)   Virtually all aspects of setting standards involve forecasting and subjective judgements with inherent possibilities of error and judgement.   **1 Mark**

(v)   The usefulness of a number of variances relating to overheads, sales margins, mix and yield is questionable.   **1 Mark**

(vi)   All forms of variance analysis are post mortems on past events. Obviously the past cannot be altered so that the only value variances can have is to guide management if identical or similar circumstances occur in the future. This implies stable, repeating situations which is not always a reflection of reality.   **1 Mark**

(vii)   The philosophy behind standard costing, i.e. setting a predetermined standard cost and assuming that actual production is satisfactory if the standard is met is increasingly being challenged. It is claimed that such a philosophy is inappropriate in modern manufacturing environments where there is a continual drive for improvement.   **1 Mark**

Any five, 1 Mark for each = 5 Marks
(TOTAL: 16 MARKS)

5. (a) Workings:

Opening stock	1,200
Process 2	10,800
	12,000
Less: closing stock	1,000
Production	11,000 **1**

∴ Normal loss (10%) 1,100 **½** valued @ K0.20 each = K220 **½**

Total scrapped 1,350

∴ Abnormal loss 250 **1**

Calculation of Equivalent Units

		Input from Process 2		Materials added in Process		Direct wages		Production overheads	
	Units	Units	%	Units	%	Units	%	Units	%
Opening stock	1,200	-	-	720 ¼	60	480 ¼	40	360 ¼	30
Normal loss	1,100	-	-	-	-	-	-	-	-
Abnormal loss	250	250 ¼	100	125 ¼	50	100 ¼	40	50 ¼	20
Fully processed	8,450	8,450 ¼	100	8,450 ¼	100	8,450 ¼	100	8,450 ¼	100
Closing stock	1,000	1,000 ¼	100	800 ¼	80	600 ¼	60	400 ¼	40
Equivalent prod	12,000	9,700		10,095		9,630		9,260	

Costs	K	K	K	K	K
Process 2	7,980				
Less scrap	220	7,760 **½**			
Added in Process 3			2,019	2,889	6,482
Per unit		0.80 **½**	0.20 **½**	0.30 **½**	0.70 **½**

Total unit cost = K2.00

Evaluation

	Input from Process 2	Materials Added in Process	Direct wages	Production Overheads	Total
	K	K	K	K	K
Opening stock	-	144 ¼	144 ¼	252 ¼	540
Normal loss	-	-	-	-	-
Abnormal loss	200 ¼	25 ¼	30 ¼	35 ¼	290
Fully processed	6760 ¼	1690 ¼	2535 ¼	5915 ¼	16900
Closing stock	800 ¼	160 ¼	180 ¼	280 ¼	1420
	7760	2019	2889	6482	19150

(b)   These are unavoidable losses arising from the nature of the production process. It is therefore logical and equitable that the cost of such losses be included in the cost of good production. If any value can be recouped from the sale of imperfect articles or materials, then this would be credited to the process account, thus reducing the overall cost.   **3 Marks**
(TOTAL:16 MARKS)

6.   (a)   (i)   Project cash flows

Year 1   400,000 x K20 =   8,000,000 ½   Cumulative
        2   8,000,000 ½   8,000,000 ½
        3   8,000,000 ½   16,000,000 ½
        4   8,000,000   24,000,000
        5   8,000,000

∴   Payback $= 2 \dfrac{4000000}{8000000}$ years ½

$= 2.5$ years   **3 Marks**

(ii)   Net present value
NPV $= 8{,}000{,}000 \times A^{5}/_{20}\%$ less Investment Cost.

$= (8{,}000{,}000 \times 2.992)^{2} - K20{,}000{,}000^{1}$

$= 23{,}928{,}000 - 20{,}000{,}000$

$= K3{,}928{,}000$

Note: -   Depreciation and fixed overheads are excluded from the cash flows.

-    The cost of old equipment of K1,000,000 is a sunk cost hence, not relevant cash flow.   **3 Marks**

(iii)   Payback can be defined as the time it takes the cash inflows from a capital investment to equal the cash outflows, usually expressed in **½ Mark** years.   In (a)(i) above, the payback period is 2.5 years.   This period provides the time taken for the equipment to pay back the capital that was used in acquiring it.   Much as management may be persuaded to **½ Mark** rely on this method for decision-making, this method has its own disadvantages.   The major ones include:

-    Payback is a rough measure of liquidity and not of the overall project worth.   **½ Mark**
-    Payback provides only a crude measure of the timing of project cash flows.   Projects may be ranked equally even though there are clear differences in the timings of cash flows.

NPV is one of the discounted cash flow methods and it uses cash flows and makes due allowance for the time value of money.   **1 Mark**

All DCF methods use cash flows and not accounting profits.

As the NPV is positive at the cost of capital as calculated in (a)(ii) above, the equipment should be purchased. **1 Mark**

(b) Merits of using cash flows

(i) Cash flows are more objective and in the end are what actually count. Profits cannot be spent. **1 Mark**

(ii) Accounting conventions regarding revenue/capital expenditure classifications, depreciation calculations, stock valuations become largely redundant. **1 Mark**

(iii) The whole life of the project is to be considered, therefore it becomes unnecessary and misleading to consider accounting profits which are related to periods. **1 Mark**

(iv) The timing or expected timing of cash flows is easily ascertained. **1 Mark**
3 Marks

(c) Assumptions in the basic DCF appraisal

(i) Uncertainty does not exist. **1 Mark**

(ii) Inflation does not exist. **1 Mark**

(iii) The appropriate discount rate to use is known. **1 Mark**

(iv) A perfect capital market exists, i.e. unlimited funds can be raised at the market rate of interest. **1 Mark**
3 Marks

(TOTAL: 16 MARKS)

7. (a) (i) <u>Overhead Absorption Bases</u> = $\dfrac{K600,000^{1}}{K200,000^{1}}$ **2 Marks**

Percentage of wages

= 300% on direct labour

Per labour hour = $\dfrac{K600,000^{1}}{40,000^{1}}$ **2 Marks**

= K15 per labour hour

Per machine hour = $\dfrac{K600,000^{1}}{50,000^{1}}$ **2 Marks**

= K12 per machine hour

_____

6 Marks

(ii) Job AX Pricing Calculations

	K	
Direct materials	3,788	
Direct labour	1,100	
Direct expenses	<u>422</u>	
Prime cost	5,310	
Production overheads (120hrs x 12)	<u>1,440</u>	**1 Mark**
Factory cost	6,750	
Admin overhead (20% of factory cost)(W1)	<u>1,350</u>	**1 Mark**
Total cost	8,100	
Profit	<u>900</u>	**1 Mark**
Price	<u>9,000</u>	

<u>Workings</u>

Absorption of admin overheads

	K
Budgeted total cost	
Direct material	800,000
Direct labour	200,000
Direct expenses	<u>40,000</u>
Prime cost	1,040,000
Production overheads	<u>600,000</u>
Factory cost	<u>1,640,000</u>
Admin overhead	328,000

$$\text{OAR for admin overheads} \quad = \quad \frac{\text{Admin overheads}}{\text{Factory cost}}$$

$$= \quad \frac{\text{K328,000}^{\mathbf{1}}}{\text{K1,640,000}^{\mathbf{1}}} = 20\% \text{ on Factory cost} \qquad \underline{\textbf{1 Mark}}$$

<u>4 Marks</u>

(b) Arguments for the use of total absorption in routine costing.

(i) Fixed costs are a substantial and increasing proportion of costs in modern industry. Production cannot be achieved without incurring fixed costs which thus form an inescapable part of the cost of production, so should be included in stock valuations. Marginal costing may give the impression that fixed costs are somehow divorced from production. **1 Mark**

(ii) Where production is constant but sales fluctuate, net profit fluctuations are less with absorption costing than with marginal costing. **1 Mark**

(iii) Where stock building is a necessary part of operations, the inclusion of fixed costs in stock valuation is necessary and desirable. Otherwise a series of fictitious losses will be shown in earlier periods to be offset eventually by excessive profits when the goods are sold. **1 Mark**

(iv) The calculation of marginal cost and the concentration upon contribution may lead to the firm setting prices which are below the total cost although producing some contribution. Absorption cost makes this less likely because of the automatic inclusion of fixed charges. **1 Mark**

(v) The International Accounting Standard (IAS2) recommends the use of absorption costing for financial accounts because costs and revenues must be matched in the period in which the revenue arises, not when the costs are incurred. Also it recommends that stock valuations must include production overheads incurred in the normal course of business even if such overheads are time related, i.e. fixed. The production overheads must be based on normal activity levels. **<u>1 Mark</u>**

Any four, 1 Mark each = <u>4 Marks</u>

(c) ABC is a method of charging overheads to cost units on the basis of benefits received from the particular indirect activity. ABC seeks not only to allocate overheads to product costs on a more realistic basis than simply production volume, but also attempts to show the relationship between overhead costs and the activities that cause them. **1 Mark**

Merits include:

(i) More realistic product costs are provided especially in Advanced Manufacturing Technology (AMT) factories where support overheads add a significant proportion of total costs.

(ii) More overheads can be traced to the product.

(iii) ABC recognizes that it is activities which cause cost, not products and it is products which consume activities.

(iv) ABC focuses attention on the real nature of cost behaviour and helps in reducing costs and identifying activities which do not add value to the product.

(v) ABC recognizes the complexity and diversity of modern production by the use of multiple cost drivers, many of which are transaction based rather than product volume.

(vi) ABC provides a reliable indication of long-run variable product cost which is relevant to strategic decision making.

(vii) ABC is flexible enough to trace costs to processes, customers, areas of managerial responsibility, as well as product costs.

Any four, 1 Mark each = 4 Marks
(TOTAL: 16 MARKS)

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