STRICTLY CONFIDENTIAL

THE PUBLIC ACCOUNTANTS EXAMINATION COUNCIL OF MALAWI

2011 EXAMINATIONS

FOUNDATION STAGE

PAPER 3 : MANAGEMENT INFORMATION

(DECEMBER 2011)

TIME ALLOWED : 3 HOURS

SUGGESTED SOLUTIONS

SECTION A

1. (a) (iv)

(b) (i)

(c) (iii)

(d) (ii)

(e) (i)

(f) (iv)

(g) (ii)

(h) (iii)

(*i*) (iv)

(j) (ii)

(k) (i)

(l) (iii)

(m) (ii)

(n) (iv)

(o) (i)

(p) (ii)

(q) (iv)

(r) (iii)

(s) (i)

(t) (iii)

SECTION B

Answer FIVE questions ONLY from this Section

2. (a) $EOQ = \sqrt{\frac{2.D.Co.D}{Cc}}$

where Co = Ordering cost per unit
D = Demand per annum
Cc = Carrying cost per item per annum

(i) $\sqrt{\frac{2\times 2500^{½}\times 80^{½}}{200^{½}\times 0.1333^{½}}} = 500$

= 300 units

∴ Number of orders per year = 15,000/300
= 50 orders

(ii) $\sqrt{\frac{2\times 2800^{½}\times 28^{½}}{25^{½}\times 0.8^{½}}} = 500$

= 280 units

∴ The annual holding cost = 280 x ½ x K2
= K280

(b) Assumptions behind the basic EOQ formula:

(i) That there is a known stockholding cost.

(ii) That there is a known, constant ordering cost.

(iii) That rates of demand are known.

(iv) That there is a known, constant price per unit.

(v) That replenishment is made instantaneously i.e. the whole batch is delivered at once.

(c) (i) Lead time is the period of time between ordering (externally or internally) and replenishment, i.e. when goods are available for use.

(ii) Buffer stock is a stock allowance to cover errors in forecasting the lead time or the demand during the lead time.

(iii) Maximum level is stock level calculated as the maximum desirable which is used as an indicator to management to show when levels have risen too high.

(iv) Reorder level is the level of stock (usually free stock) at which a further replenishment order should be placed. The reorder level is dependent on the lead time and the rate of demand during the lead time.

(v) EOQ is a calculated reorder quantity which minimizes the balance of cost between carrying costs and ordering costs.

3. (a) (i) Budgeted Profit

	Product 1	Product 2	Product 3	Total
	K'000	K'000	K'000	K'000
Sales	2,475	3,948	1,520	7,943
Contribution	1,170	1,692	532	3,394
Attributable fixed costs	(275)	(337)	(296)	(908)
General fixed costs	(520)	(829)	(319)	(1,668)
Profit	375	526	(83)	818
	=K1.60/Unit	=K1.40/Unit	=(K0.04/Unit)	

Workings:

Selling price/unit	11.00	10.50	8.00
Variable cost/unit	5.80	6.00	5.20
Contribution/unit	5.20	4.50	2.80
No. of sales units	225	376	190
Contribution	1170	1692	532

(ii) Product 3 discontinued
Assumptions: Attributable fixed costs for Product 3 are saved but general fixed costs continue unchanged.

	K'000
Contribution for 2 and 3	2,862
Less: Attributable fixed costs	612
General fixed costs	1,668
Profit	582

Thus the profit would be reduced from K818,000 to K582,000.

Loss of contribution of Product 3	K532,000
Savings of attributable cost	K296,000
∴ Loss of profit	K236,000

(iii) The effect of 10% reduction in sales price, Product 2
= New selling price – variable cost
= New contribution = K9.45 – K6 = K3.45/Unit

Existing total contribution / New contribution per unit = 1692000 / 3.45 = 490,435 Units

This is a 30.4% increase over the existing budget of 376,000 units

(b) Any four major assumptions behind the CVP analysis

(i) All costs can be resolved into fixed and variable elements.
(ii) Fixed costs will remain constant and variable costs vary proportionately with activity.
(iii) Over the activity range being considered, costs and revenues behave in a linear fashion.
(iv) That the only factor affecting costs and revenues is volume.
(v) That technology, production methods and efficiency remain unchanged.
(vi) Particularly for graphical methods, that the analysis relates to one product only or to a constant product mix.
(vii) There are no stock level changes or that stocks are valued at marginal cost only.

4. (a) (i) Payback Period

	Project Cashflows (K)		Cumulative (K)
Year 1	40,000 x K20 =	800,000	800,000
2		800,000	1,600,000
3		800,000	2,400,000
4		800,000	
5		800,000	

$\therefore$ The Payback period $= 2\frac{400{,}000^{½}}{800{,}000^{½}}$ years = 2.5 years

(ii) NPV = 800,000 x $A\overline{\ 5\ }|_{20\%}$

= 800,000[1] x 2.991[1] = K2,392,800
Less Investment = K2,000,000
392,800

(b) Disadvantages of ARR

(i) It ignores the timings of outflows and inflows.

(ii) It uses a measure of return – the concept of accounting profit. Profit has subjective elements, is subject to accounting conventions and is not as

appropriate for investment decision making as the cash flows generated by the project.

(iii) There is no universally accepted method of calculating ARR.

(c) Advantages of the Payback method

(i) It is simple to understand and calculate.

(ii) It is more objective than the ARR because it uses project cash flows rather than accounting profits.

(iii) It favours quick return projects which may produce faster growth for the firm and enhance liquidity.

(iv) Choosing projects which pay back quickest will tend to minimize time related risks. However, not all risks are related merely to time elapsed.

(d) All discounted cashflow methods (DCF) measure are cash flows and make due allowance for the time value of money.

Use of cash flows:

All DCF methods use cash flows and not accounting profits. Accounting profits are invariably calculated for stewardship purposes and are period oriented, thus necessitating accrual accounting with its conventions and assumptions.

For investment appraisal purposes, a project oriented approach using cash flows is preferred because it is more objective and the accounting conventions regarding such matters as revenue/capital expenditure and stock valuation become largely redundant. The cash flows to be included are the net after tax incremental cash flow effect of the project i.e. the difference in cash flow between having and not having the project.

Time value of money

There is general acceptance that any serious attempt at investment appraisal must make due allowance for the time value of money. Money has a time productivity i.e. money received earlier can be put to use; for example, it can be invested to earn interest. This means that sums arising at different times cannot be compared directly, they must be reduced to equivalent values at some common date. The common date may be at any time but discounting methods typically use now, i.e. the present time, as the common date.

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5. (a)

Weight g	Midpoint x	f	fx
198 and less than 199	198.5	3	595.5
199 and less than 200	199.5	8	1596.0
200 and less than 201	200.5	93	18646.5
201 and less than 202	201.5	148	29822.0
202 and less than 203	202.5	48	9720.0
		300	60,380.0

$$\text{Mean} = \frac{\Sigma fx}{\Sigma f} = \frac{60380}{300} = 201.27\text{g}$$

(b) Advantages of the arithmetic mean

(i) It is easy to calculate.

(ii) It is widely understood.

(iii) The value of every item is included in the computation of the mean.

(iv) It is well suited for further statistical analysis.

(c) Properties of the Standard Deviation

(i) It is based on all the values in the distribution and so is more comprehensive than dispersion measures based on quantities, such as the quartile deviation.

(ii) It emphasizes the effect of larger deviations rather than the mean deviation, because it squares all the deviations : $(x - \bar{x})$.

(iii) It is suitable for further statistical analysis.

(iv) It is more difficult to understand than some other measures of dispersion.

(d) Main properties of the Range

(i) It is easy to find and to understand.

(ii) It is easily affected by one or two extreme values.

(iii) It gives no indication of spread between the extremes.

(iv) It is not suitable for further statistical analysis

6. (a) An operating system or operating software is a program or a set of programs

which provide the 'bridge' between applications software and the hardware. For example, access to data files held on disk during the process of a business application would be managed by the operating system. An operating system would normally include a number of utility programs in addition to the control software.

(b) Tasks typically performed by an Operating System

(i) Initial set-up of the computer, when it is switched on.
(ii) Checking that the hardware (including peripheral devices) is functioning properly.
(iii) Calling up program files and data files from external storage into memory.
(iv) Opening and closing files, checking file labels, etc.
(v) Assigning program and data files from memory to peripheral devices.
(vi) Maintenance of directories in external storage.
(vii) Controlling input and output devices, including interaction with the computer operator or user.
(viii) Controlling system security.
(ix) Handling interruptions.
(x) Handling checkpoint procedures.

(c) Factors to be considered when selecting an input method in a computer environment are:

(i) Suitability of the application.
(ii) The timing requirements of the system (response times required).
(iii) The volume of data.
(iv) The accuracy required.
(v) The cost of the method chosen as compared with the benefits to be derived, including building (room) cost, machinery cost, operator cost, media cost.
(vi) The possibility of using turnaround documents for data capture and the benefit of OCR methods.

(d) A turnaround document is a document that is initially produced by a computer. It is then used to collect more data and then re-input into the computer for processing.

Examples include:

(i) Credit card companies include a payment counterfoil with their computer-produced bill which will then be used for inputting payment data into a computer.

or

(ii) Multiple choice examination papers. An examining body that stores multiple choice questions on a computer file can produce examination papers by computer. Candidates are then asked to tick the correct answer, and the position of the answer made will be detectable by an optional mark reader (OMR), and so the examination paper can be marked by a computer.

(e) (i) A transaction file is a file containing records that relate to individual transactions that occur from day to day. The transaction records must all be processed.

(ii) A master file is a file containing reference data which is normally altered (updated) infrequently; and also transactions data which is built up over time.

(iii) A reference file or index file is a file containing reference data which is normally altered (updated) infrequently. It contains no transactions data. Reference files are often classified as a type of master file because they also contain 'standing' reference data.

7. (a) (i) Conversion cost is a term used to describe the costs of converting purchased materials into finished or semi-finished products. It is thus total production cost minus initial material inputs costs i.e. the sum of additional direct materials, direct wages, direct expenses and absorbed production overhead.

(ii) Work-in-process represents the estimated cost of incomplete work that is not yet ready to be transferred to finished stock.

(iii) Equivalent units represent the number of equivalent fully complete units which the partly complete units (i.e. WIP) represent.

(iv) Normal loss is an unavoidable loss arising from the nature of the production process, and it is therefore logical and equitable that the cost of such losses is included as part of the cost of good production.

(v) Abnormal loss is a loss above the level deemed to be the normal loss rate for the process. This loss cannot be foreseen and is due to such factors as plant breakdown, industrial accidents, inefficient working or unexpected defects in materials.

(b) (i) Fully complete production = Input – closing WIP
= 36000Kgs – 8000 Kgs
= 28,000Kg

Normal loss = 28,000Kg x 10%
= 2,800Kg

Abnormal loss = Actual loss – Normal loss
= 3,600Kg – 2,800Kg
= 800Kg

∴ Good Output = 28,000Kg – 3,600Kg
= 24,400Kg

(ii)

Previous	Completed Units	Abnormal Loss	WIP	Total Equiv Units	Cost K	Cost/ Unit K
Process cost	24,400 ½	800 ½	8,000 ½	33,200	166,000	5.00
Conversion cost	24,400 ½	800 ½	4,000 ½	29,200	73,000	2.50

Valuation:

Completed Units:	24,400½ x K7.50½		= K183,000
Abnormal loss :	800½ x K7.50½		= 6,000
Closing WIP :	8000 units½ x K5.00½	= K40,000	
	4000 units½ x K2.50½	= 10,000	
			K50,000

The short-cut method has been used to compute the unit costs. This method allocates the normal loss between completed units, WIP and the abnormal loss. Because the units actually lost are fully complete, it is likely that losses are detected on completion. Therefore the short-cut method is not theoretically correct. Nevertheless, the computations suggest that it was the examiner's intention that the question should be answered using the short-cut method.

(c) Joint products and by-products both arise from a joint production process whereby the products are not separately identifiable until after they have emerged from this joint process. Joint products have relatively high sales value whereas by-products have a low sales value compared with the sales value of a joint product. Joint products are also crucial to the commercial viability of an organisation, whereas by-products are incidental.

Examples of Joint products:

- In oil refining, joint products include diesel fuel, petrol, paraffin, lubricants.
- In meat processing, joint products include the various grades of meat and hides.
- In mining, joint products frequently include the recovery of several metals from the same crushing.

Examples of by-products:

- In meat trade, bones, grease and certain offals are regarded as by-products.
- In timber trade, sawdust, small off-cuts, bark are usually regarded as by-products.

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