Introduction to Cost and Management Accounting

NQF

Subject Examiner's Report

Unit Title: **Introduction to Cost and Management Accounting**

Unit Code: **ICMA**

Session: June 2016

Question 1

Question 1

Reynolds Limited is a manufacturer of commercial refrigeration equipment. The following costs were incurred in May 2016:

	£
Fuel for delivery vehicles	650
Refrigerant for use in items produced	2,500
Invoice from cleaning company for cleaning offices	425
Stationery for use in admin office	77
Wages for factory cleaners	3,250
Spare parts for production machinery	836
Components for assembly into products	11,600
Wages for production workers	19,300
Electricity to power production machinery	2,300

Identify the amounts (if any) to be posted to each of the following ledger accounts, showing clearly whether a debit or credit is required in each case:

- Direct materials
- Indirect materials
- Direct labour
- Indirect labour
- Production overheads
- Admin expenses
- Selling and distribution costs

(14 marks)

Explain the difference between a direct cost and an indirect cost. **(3 marks)**

The following information relates to a component used in many of the company's products:

Item	Compressor FC14
Annual demand	9,000 units
Delivery cost per order	£75.00
Holding cost per item per annum	£1.25

Using the formula EOQ = $\sqrt{\frac{2cd}{h}}$ calculate the economic order quantity for component FC14. **(3 marks)**

Explain how the holding cost of £1.25 is calculated. Support your answer with three examples of the types of holding cost incurred. **(5 marks)**

1. Comments on learners' performance

Most students demonstrated an understanding of how to record the transactions. There was also some good application of knowledge to the inventory management techniques.

There was some scope for better discussion of the elements of holding costs.

2. Mark scheme

a)	DM	2,500.00 + 11,600.00 = 14,100.00
	IM	836.00
	DL	19,300.00
	IL	3,250.00
	PO	2,300.00
	AE	425.00 + 77.00
	SD	650.00

All posted as debits. 1 mark per amount, 1 mark per DR/CR correct.

b) Direct cost varies in line with output.
Indirect cost does not vary in line with output.
Direct cost can be identified as part of the product.
Indirect cost cannot.

1 mark per valid point, maximum 3 marks

c) (i) $\sqrt{\frac{2 \times 75.00 \times 9,000}{1.25}}$ = 1,039.23 rounds to 1,039 units

1 mark for each of c, d and h in the right place

(ii) Holding cost comprises the annual cost of storing components divided by the number of items held. (2 marks)

Costs include rent of facility, depreciation of storage equipment, wages of stores workers, loss / damage / deterioration of some items of inventory, insurance costs.

(1 mark per valid item, maximum 3)

3. Recommendations

None.

Examiner's tips

Any explanation should be developed to a sufficient depth.

Question 2

Ward Manufacturing is having difficulty producing enough items to meet the demand for its product. At present the company manufactures and sells 18,000 units of its product but the sales manager estimates that 24,000 units could be sold if enough items could be manufactured. The directors are therefore considering setting up an additional production line to increase the amount that can be produced by a further 6,000 units.
It has been estimated that to set up the production line will incur additional fixed costs of £12,000 each year. Each product is sold for £8.00 and requires 0.5 kilograms of material and 6 minutes of direct labour. Material costs £6.00 per kilogram and labour is paid at a rate of £15.00 per hour.

Calculate the unit contribution of the product. **(5 marks)**
Calculate the breakeven point for the new production line. **(2 marks)**
If the sales manager's forecast sales are achieved calculate the margin of safety in:
(i) Units **(1 mark)**
(ii) As a percentage to one decimal place **(1 mark)**
Explain the meaning of each of the following terms:
(i) Breakeven point **(2 marks)**
(ii) Margin of safety **(2 marks)**
(iii) Unit contribution **(2 marks)**
(iv) Fixed overhead **(2 marks)**
(i)Recommend whether the new production line should be set up. Your answer should make reference to t
(ii) Explain why breakeven analysis alone is not sufficient to make a decision. **(2 marks)**
(iii) Identify any other factors you feel should be taken into account before making a final decision. **(2 marks)**

1. Comments on learners' performance

There was reasonable evidence of apply the appropriate calculations. In the main, this was underpinned by an appropriate ability to explain the features of the technique and to identify factors that should be take into account in decision making.

2. Mark scheme

) Material cost is 0.5 x 6.00 = 3.00 Labour cost is 0.1 x 15 = 1.50
8.00 (1) – 3.00 (2) – 1.50 (2) = 3.50

b) 12,000 (1) / 3.50 (1) = 3,429 units O/F applies but must be rounded up.
Also accept 18,000 + 3,429 = 21,429 total units

c) (i) 6,000 – 3,429 = 2,571 units or 24,000 – 21,429 = 2,571units
(ii) 2,571 / 6,000 = 42.9% also accept 2,571 / 24,000 = 10.7%

d) (i) The point at which contribution = fixed costs (1)
The point at which neither profit nor loss is made (1)

(ii) The different between expected sales (1) and the breakeven point (1)
(iii) The different between unit selling price (1) and unit marginal cost (1)
(iv) Costs that do not change (1) with the level of production (1)

e) Report to: Directors
From: Student
Date: 01 June 2016
Subject: Proposed investment (2 marks total for headings etc)

This report is to advise on whether or not the new production line should be set up. (1)
On the basis of the financial forecast the new line is a viable proposition and should go ahead. (1)

In order to meet the additional fixed costs an additional 3,429 units will need to be sold which is 2,571 less than the expected additional 6,000 units of sales (1) giving a margin of safety of 42.7% of the additional units or 10.7% of total output. (1)

Breakeven analysis relies on the accuracy of the sales forecast (1) and also does not take into account cashflows after the breakeven point has been reached (1). It also ignores other factors (1) that might be relevant to the decision, for example:

- is there sufficient extra labour available in the area to operate the new line?
- can the company cope with the logistics of handling / delivering the extra units?
- is the high demand permanent or is the product temporarily fashionable?
- are there new competitors thinking of coming into the market?
- can raw material supplies be guaranteed to be available and at the same cost at the higher level of output?

(1 mark per valid point to maximum of 2. Other answers possible)

3. Recommendations

None.

Examiner's tips

Prepare any response in a systematic manner. Ensure that workings to any solution are prepared and presented in full.

Question 3

Chapman Ltd operates a system of standard costing and has recorded the following information for the month of May 2016:

	£
Opening inventory of raw materials	6,102
Opening inventory of work in progress	13,444
Opening inventory of finished goods (675 units @ £12.00)	8,100
Raw materials purchased	21,455
Direct wages paid (3,960 hours @ £11.00)	43,560
Indirect wages paid	16,344
Other overhead expenditure	3,222
Raw materials issued to production	23,388
Finished goods completed (7,290 units @ £12.00)	87,480

7,402 units were sold during the month.
Fixed overheads are absorbed at a rate of £5.00 per direct labour hour.

(a) Draw up the following ledger accounts and show the entries required to record the above transactions:

(i) Raw materials control
(ii) Wages control
(iii) Fixed overhead control
(iv) Work in progress
(v) Finished goods

(19 marks)

(b) Identify the under- or over-absorption of fixed overheads for the month. **(1 mark)**

(c) Identify the closing inventory (balance c/d) of the following:

(i) Raw materials
(ii) Work in progress
(iii) Finished goods

(3 marks)

(d) Identify two reasons why it is important to record labour costs accurately. **(2 marks)**

1. Comments on learners' performance

Some students demonstrated an ability to develop the required calculations. There was considerable scope for an improved understanding of the underlying rationale for and process of apportionment and absorption.

2. Mark scheme

a) b) and c)

Raw materials control

Bal b/d	6,102	WIP	23,388
Bank	21,455	Bal c/d	4,169

Wages control

Bank	43,560	WIP	43,560
Bank	16,344	Fixed overhead control	16,344

Fixed overhead control

Wages control	16,344	WIP	19,800
Bank	3,222		
P&L	234		

This is over absorption (1) which will be credited to the profit and loss account

WIP

Bal b/d	13,444	Finished goods	87480
R M control	23,388		12,712
Wages control	43,560		
FOH control	19,800		

Finished goods

Bal b/d	8,100	Cost of sales	88824
WIP	87480	Bal c/d	6,756

1 mark for each correct figure posted

d) To ensure correct wages are paid
To ensure product cost is correctly calculated

(1 mark each other answers possible, maximum 2 marks)

3. Recommendations

None.

Examiner's tips

Ensure that all workings to any solution are presented in full. Develop any interpretation to an appropriate depth.

Question 4

Trident Business Systems (TBS) produces computer systems and software for a wide range of clients. It has recently tendered for a contract to supply an inventory control system for a major manufacturing company, the details of which are presented below.

All employees work 7 hours per day and charge out rates are as follows:

Title	**Charge-out rate £ per hour**
Systems Analysts	100
Hardware designers	60
Programmers	45
Network cable installers	30
Client trainers	20

Items used in TBS installations	**Price £**
Desktop PCs	295 each
Laptop PCs	454 each
CAT6 cabling	10 per metre
24 port network switches	80 each
Network laser printers	230 each

Elements required for the proposed contract are as follows:

1 x	Systems Analyst for 2 days
1 x	Hardware designer for 1 day
3 x	Programmers for 2 days
4 x	Network cable installers for 4 days
2 x	Client trainers for 3 days
40 x	Desktop PCs
25 x	Laptop PCs
900 x	metres of CAT6 cabling
7 x	24 port network switches
6 x	Network laser printers

Calculate the cost of supplying and installing the inventory control system. **(20 marks)**
Calculate the price at which the contract should be priced if the company wishes to earn a 25% profit margin on sales. **(2 marks)**
Identify three other factors that should be taken into account when making a final decision on the price at which the job should be offered. **(3 marks)**

1. Comments on learners' performance

Good responses reflected an ability to record the relevant transactions and to develop a recommendation based thereon. Weaker responses were either unable no apply the required computations and, in particularly, lacked the depth of understanding that was needed.

2. Mark scheme

a)

Systems analyst	14	(1)	@	100	(1)	=	1,400
Hardware designer	7	(1)	@	60	(1)	=	420
Programmers	42	(1)	@	45	(1)	=	1,890
Cabling technicians	112	(1)	@	30	(1)	=	3,360
Client trainers	42	(1)	@	20	(1)	=	840
PCs	40	(1)	@	295	(1)	=	11,800
Laptops	25	(1)	@	454	(1)	=	11,350
CAT6 cable	900	(1)	@	10	(1)	=	9,000
Hubs	7	(1)	@	80	(1)	=	560
Printers	6	(1)	@	230	(1)	=	1,380
						Total	42,000

(b) x 100/75 = 56,000 (2)

(c) Whether the company is busy or quiet – if short of orders a lower profit margin is acceptable.

If the company is very busy a higher price may be quoted rather than not quoting at all, otherwise in future

Whether an initial order might lead to future business – again a lower initial profit might be worthwhile to secure the relationship with the customer.

Availability of resources – if in short supply is this the most profitable use? Quote higher price if materials or labour is scarce.

Degree of competition for the order. Might have to quote a lower price to win the order if there are many competitors.

(1 mark per reasonable suggestion, max 3) (other answers possible)

3. Recommendations

None.

Examiner's tips

Ensure that any quantitative technique is applied in a coherent and systematic manner.

Question 5

You are assisting with the setting up of the annual budget at Kitchen Kreations, a manufacturer of kitchen equipment.

(a) The following overhead costs are incurred in the manufacture of a range of kitchen products:

- Cleaning has a fixed element of £15,000 and a variable cost of £2.50 per unit.
- Machine power has a variable cost of £4.00 per unit.
- Supervision is a stepped fixed cost, and each supervisor can deal with a maximum of 5,000 units of output at a cost of £20,000 per supervisor.

Required:

Calculate the total cost of overheads at an output of:

(i) 3,000 units **(3 marks)**
(ii) 6,000 units **(3 marks)**
(iii) 10,000 units **(3 marks)**

(b) Some further total costs have already been calculated as follows:

Units	**3,000**	**6,000**	**10,000**
		Total Cost	
Cost Item	**£**	**£**	**£**
Quality Control Costs	15,000	24,000	36,000
Machine power	11,250	22,500	37,500
Rent	30,000	30,000	30,000

(i) Identify whether each of these cost items is a fixed, variable or semi-variable cost. **(3 marks)**
(ii) Calculate the fixed and variable element of each cost item as appropriate. If any are zero you should clearly state this in your answer. **(6 marks)**

Explain what is meant by the following process costing terms:

(i) Normal loss **(2 marks)**
(ii) 50% complete for labour **(3 marks)**
(iii) Abnormal gain **(2 marks)**

1. Comments on learners' performance

The limited number of responses reflected a fair understanding of cost classification and of the selected process costing terms.

2. Mark scheme

Cleaning	22,500	30,000	40,000
Machine power	12,000	24,000	40,000
Supervision	20,000	40,000	40,000

(Total 9 marks)

b) i) QC = Semi Variable (1)
MP = Variable (1)
Rent = Fixed (1)

ii) QC fixed = 6000 (1) variable = 3.00 per unit (1)
MP fixed = 0 (1) variable = 3.75 per unit (1)
Rent fixed = 30,000 (1) variable = 0 per unit (1)

c) i) The percentage of input material (1) that is expected to be wasted (1)
ii) A partially completed unit (1) of Work in Progress (1) has 50% of the material content (1)
iii) When the volume of output (1) is greater than the expected amount (1)

3. Recommendations

None.

Examiner's tips

Ensure that an appropriate understanding of cost classification and process costing is developed.

Question 6

Explain the meaning of the following terms:

Time Value of Money	**(3 marks)**
Discount Factor	**(2 marks)**
Present Value	**(3 marks)**
Positive Net Present Value	**(2 marks)**

(b) Beesley Ltd sells 30,000 units of its product each year at a price of £42.00 per unit.
Beesley Ltd requires that all projects have a payback period of three years or less and has a cost of capital of 15% for which the discount factors are:

Year	Factor
0	1.000
1	0.870
2	0.756
3	0.658
4	0.572
5	0.497

Beesley Ltd is thinking of investing £250,000 in new machinery to improve the efficiency of its production line. The machinery will last for five years and will be depreciated on a straight-line basis. At the end of this time it is anticipated that the machinery will generate a disposal revenue of £50,000.
At present each unit produced requires 0.5 kilos of material at a cost of £12.00 per kilo and 2 hours of labour at a cost of £9.00 per hour. With the new machinery in place, the selling price and the material cost will not change but the labour hours required per unit will reduce by 20%.

Identify the relevant cash flows of the proposed investment. **(6 marks)**
Calculate the payback period for the proposed investment. **(2 marks)**
Calculate the net present value of the proposed investment. **(1 mark)**
Recommend whether the project is a worthwhile investment on the basis of the above analysis. Your answer should identify any other factors you feel should be taken into account when making this decision.**(6 marks)**

1. Comments on learners' performance

Stronger responses reflected an understanding of the distinction between cash and revenue expenditure. There was also some evidence of an understanding of how to apply the required investment appraisal technique.

2. Mark scheme

a) i) Money earned in future is not as valuable as money today (1). If money is invested in a project the opportunity cost is the interest that could be earned in a bank (1). Secondly there is the risk that the project may fail and the investment may be lost. (1)
ii) The amount by which future cashflows are discounted (1). The discount factor is greater the further into the future a cashflow takes place. (1)
iii) The value of future cashflows (1) after being discounted (1) to compensate for loss of interest and risk. The equivalent value of future cashflows if the money was received today. (1)
iv) The sum of all discounted cashflows (1) throughout the whole life of the project. (1)

b) Only relevant costs are initial outflow, labour saving (30,000 x 2 x 9 x 20%) and disposal revenue

Year	Cash flow	Cumulative	Discount	PV
0	(250,000) (1)	(250,000)	1.000	(250,000)
1	108,000 (1)	(142,000)	0.870	93,913
2	108,000 (1)	(34,000)	0.756	81,664
3	108,000 (1)	74,000	0.658	71,012
4	108,000 (1)	182,000	0.572	61,749
5	158,000 (1)	340,000	0.497	78,554
			NPV	(d) 136,892 (1)

c) 2 years (1) plus 12x34/108 = 4 months approx (1)

d)

	Report to	: Management
	From	: A student
	Date	:
	Subject	: Proposed investment (2 marks for headers etc)

This report is to advise on the financial viability of the proposed new machinery. (1) On the basis of this analysis the machinery is a good investment and the project should proceed. (1)

Before investing the company would need to be sure that present demand for the product will continue (1) and that sufficient raw material will continue to be available (1). The company also needs to be sure that the expected labour savings will actually be realised (1) and also that the workers will be able to learn the skills needed to operate the new machine. (1)

1 mark per valid point maximum 4 marks (other answers possible)

3. Recommendations

None.

Examiner's tips

Develop an understanding of the features of cash and revenue items. Apply knowledge to the circumstances of any case.

Question 7

((a) Explain what is meant by each of the following terms and explain how each is calculated:

Standard labour cost **(3 marks)**
Fixed overhead expenditure variance **(2 marks)**
Material usage variance **(3 marks)**
Full absorption cost per unit **(2 marks)**

(b) Thompson's Foundry makes high quality kitchen equipment.
The standard cost of a cast iron saucepan which it manufactures comprises the following:

Materials	3 kilos @ 2.50 per kilo
Labour	0.4 hours @ £12.00 per hour
Fixed overheads	0.4 hours @ £27.00 per hour

For the month of May 2016 the budgeted output was 12,000 units and actual results were as follows:

Units produced:	12,500
Material used:	38,000 kilos at a total cost of £91,200
Labour:	5,200 hours at a total cost of £59,800

Fixed overhead expenditure was £132,000

Calculate the following:

Standard material cost for actual production **(1 mark)**
Total labour cost variance **(3 marks)**
Material usage variance **(3 marks)**
Fixed overhead expenditure variance **(3 marks)**

(c) Explain how each of the items in part **(b)** (i) to (iv) will be treated in the accounts. **(5 marks)**

1. Comments on learners' performance

Of the students that responded to this requirement, there was some evidence of understanding. Most students were able to calculate many of the relevant variances.

2. Mark scheme

i) The amount of labour it should cost to make one item (1). The calculation is standard labour time (1) x standard labour rate (1).

ii) The difference between budgeted fixed overheads (1) and actual fixed overhead cost (1)

iii) The difference between the amount of material that should be used for a specific volume of output (1) and the actual amount of material used (1) multiplied by the standard cost per kilo (1)

iv) The cost of one unit comprising variable costs (1) and absorbed overheads (1)

b)
i) 12,500 x 3 x 2.5 (1) = 93,750
ii) (12,500 x 0.4 x 12 (1) = 60,000) – 59,800 (1) = 200 Favourable (1)
iii) (12,500 x 3 x 2.5 (1) = 93,750) – (38,000 x 2.5) (1) = 500 Adverse (1)
iv) (12,000 x 0.4 x 27 (1) = 129,600) – 132,000 (1) = 2,400 Adverse (1)

c)
i) Debited to WIP (1) as part of cost of production (1)
ii) Credited to profit and loss (1) as a revenue
iii) Charged to profit and loss (1) as an expense
iv) Charged to profit and loss (1) as an expense

3. Recommendations

None.

Examiner's tips

Ensure that an understanding of how to calculate and interpret variances is developed.

Question 8

Explain the meaning of the following budgeting terms:

Marginal cost	**(2 marks)**
Flexed budget	**(2 marks)**
Fixed overhead absorption rate	**(2 marks)**
Adverse material usage variance	**(2 marks)**

Further information:

Garnet Ltd manufactures a garden ornament, the standard cost card for which is presented below:

Material	2 kilos @ £3.00 per kilogram
Labour	0.5 hours @ £10.00 per hour

Garnet Ltd is setting its budget for the coming year and is considering three different levels of output.

Level1: At a selling price of £45 per unit the company believes it can sell 10,000 units and the fixed overheads will comprise the following:

Rent	£100,000
Supervision	£44,000
Depreciation	£60,000

Heat light and power is a semi-variable cost with a fixed element of £30,000 per year and a variable cost of £1.50 per unit.

Level 2: If the selling price is reduced by 5%, the company believes it will be possible to sell an additional 2,000 units with no increase in fixed costs.

Level 3: If the selling price is reduced by 10%, the company believes it can sell 15,000 units but this will require an additional supervisor who will cost £22,000 per annum and an additional machine costing £300,000 which will be depreciated over a ten-year period.

(b) Prepare a budget for each of the three levels of output, showing clearly the total contribution and profit earned at each level. **(9 marks)**

(c) The owners of Garnet Ltd have asked you to:

Identify the advantages and disadvantages of each level of output. **(6 marks)**

Recommend which level of output is the best course of action for Garnet Ltd. **(2 marks)**

1. Comments on learners' performance

Responses reflected some ability to prepare the required budgets and to develop the relevant calculations. Better responses were able to critically discuss the implications of each level of output.

2. Mark scheme

a) i) The additional variable cost (1) incurred to make one extra unit (1)
ii) A budget in which variable costs (1) are adjusted in line with a different level of output (1)
iii) The amount of fixed overheads consumed (1) in one hour or production (1)
iv) The amount by which material usage exceeds (1) the standard amount for the quantity produced (1)

b)

Units	10,000		12,000		15,000	
Revenue	450,000	(1)	513,000	(1)	607,500	(1)
Material	60,000		72,000		90,000	
Labour	50,000		60,000		75,000	
Variable Heat, Light and Power	15,000		18,000		22,500	
Total Contribution	325,000	(1)	363,000	(1)	420,000	(1)
Rent	100,000		100,000		100,000	
Supervision	44,000		44,000		66,000	
Fixed Heat, Light and Power	30,000		30,000		30,000	
Depreciation	60,000		60,000		90,000	
Profit	91,000	(1)	129,000	(1)	134,000	(1)

c) Report to: Management (2 marks for headers)
From: Student
Re: Levels of output
Date: June 2016

This report is to advise on the best level of output for the forthcoming year.
(1 mark for intro)

Of the three levels of output the most profit is earned at a price of £40.50 which will enable the greatest volume to be sold.

This is because fixed overheads are shared across a greater number of units which effectively makes each unit cheaper to make.

A further advantage of this price is that it will make it more difficult for competitors to enter the market.

A disadvantage is the company must invest in a new machine to make it possible and if the forecast level of sales is not achieved the cost of this machine will not be recovered.

An advantage of setting the price at £42.75 is that the profit earned will be almost as great as at the highest level of output but without the risk of having to invest in extra machinery.

A disadvantage of this approach is that other companies will find it easier to compete against a higher price and this is even more true if the price is kept at the current level of £45.00.

My recommendation is that if the company is confident that the level of sales of 15,000 units can be sustained the price should be set at £40.50 but if there is significant uncertainty the price should be set at £42.75.

(1 mark per valid point, maximum 5) (other answers possible)

3. Recommendations

None.

Examiner's tips

Ensure that any explanation and interpretation is developed to a sufficient depth.