

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

SEMESTER 1 EXAMINATIONS, 2001/2002

THIRD YEAR MANAGEMENT ENGINEERING WITH
LANGUAGES EXAMINATION
FOURTH YEAR INDUSTRIAL ENGINEERING AND
INFORMATION SYSTEMS EXAMINATION

MANAGEMENT ACCOUNTING 1 - AY201

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Time allowed: TWO AND A HALF hours

Section A - Obligatory.

Multiple Choice – 33 1/3 marks

All questions carry equal marks

Answers must be filled in on computerised MCQ answer sheet

Negative marking will NOT apply

Section B - Answer any TWO
Questions

All questions carry equal marks

- Separate Answer Books are required for each question attempted in Section B

SECTION A (Multiple Choice)

Your answers to this section must be on the special purpose MCQ (multiple choice questions) Answer Sheet which must be completed separately in accordance with the instructions given.

INSTRUCTIONS FOR COMPLETION OF MCQ SHEET

IT IS MOST IMPORTANT THAT YOU FOLLOW THESE INSTRUCTIONS. THE MCQ ANSWER SHEET FORM WILL BE READ BY MACHINE AND FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN NO MARKS BEING AWARDED FOR THIS SECTION.

- o Enter your Candidate Number in the appropriate line at the top right hand corner:

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URGENT: Your Candidate number for this purpose is your **8 DIGIT STUDENT NUMBER (NOT EXAMINATION NUMBER)**
This number should fill the first 8 boxes and should be followed at the end by **0 (zero)** to complete the nine digit candidate number box e.g. if student number is 12345678 you should enter

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1	2	3	4	5	6	7	8	0
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- o Enter immediately your
 - name
 - examination
 - date
- o Use only HB pencil or blue/black biro
- o Indicate your choice of answer like this (Assuming you consider [c] to be the correct answer for question 1)

> [a] [b] [c] [d] [e]

- o If you have a change of mind Tippex out neatly and remark new choice.
- o Do not mark in any other way, e.g. no ticks, crosses or circles
- o Candidates are strongly advised to spend at the very maximum $\frac{3}{4}$ hour on this section. Each question has a value of 2 marks and accordingly, spending an inordinate amount of time on any one question would be ill-advised.

Section A - Multiple Choice
Obligatory - 15 questions Total Value: 33 1/3 Marks
All questions carry equal marks

The following information is to be used for Questions 1, 2 and 3:

Next year, Doma Paint Company expects to sell 18,000 gallons of paint. Doma is budgeting the following operating results for next year:

Sales	£270,000
Variable expenses	<u>108,000</u>
Contribution margin	£162,000
Fixed expenses	<u>80,000</u>
Net profit	<u>£ 82,000</u>

1. What is Doma's breakeven point next year in sales pounds?
 - a) £ 49,555
 - b) £ 80,000
 - c) £133,333
 - d) £108,000

2. How many gallons of paint would Doma have to sell next year in order to achieve a projected net profit of £100,000?
 - a) 6,667 gallons
 - b) 24,667 gallons
 - c) 20,000 gallons
 - d) none of the above

3. Assume that Doma wants to sell 20,000 gallons next year. What minimum selling price would Doma have to charge for each gallon in order to still obtain its projected net profit of £82,000?
 - a) £11.00
 - b) £13.50
 - c) £14.00
 - d) £14.10

Continued..

4. A predetermined blanket overhead cost absorption rate is:
- a rate calculated in advance for each cost centre
 - a rate calculated using cost pools and cost drivers at the end of a period
 - a single rate calculated in advance for the entire factory
 - a rate calculated at the end of a period using machine hours
5. A product required six quality tests before completion. The quality cost pool amounted to £48,600. Labour hours worked amounted to 4000 and 4,050 quality tests were undertaken in the period. If the company is using an activity-based costing system, the amount relating to quality to be charged to one unit of the product is:
- £12.00
 - £72.00
 - £72.90
 - £12.15
6. Prime Cost is made up of:
- direct materials and direct labour only
 - all indirect costs
 - direct and indirect labour
 - direct material, direct labour and direct expense costs

The following information is to be used for Questions 7 and 8.

Orlando is considering investing £60,000 in a machine which will provide equal benefit each year and which will have no value at the end of its useful life of five years. The total annual cost of operating the machine, including depreciation, will be £26,000. The machine will generate revenue of £30,000 per annum. The company's cost of capital is 18%

Present Value Interest Factor 18%

Year 1	0.847
Year 2	0.718
Year 3	0.609
Year 4	0.516
Year 5	0.437

7. Which of the following is the payback period for this proposal?
- 2.0 years
 - 2.3 years
 - 3.75 years
 - none of the above

Continued..

8. Which of the following is the net present value?
- a) + £33,810
 - b) - £ 9,968
 - c) + £47,492
 - d) none of the above
9. Which of the following best describes an activity involved in performing the management function of planning?
- a) budgeting
 - b) analysing feedback
 - c) decentralising activities
 - d) centralising activities
10. Verve Ltd., a specialist in chemical refining, has limited time available on its hydro-chem machines. Some details of the company's four main products are:

	<u>Product A</u>	<u>Product B</u>	<u>Product C</u>	<u>Product D</u>
Selling price per unit	£60	£120	£120	£80
Variable cost per unit	£30	£40	£50	£30
Fixed cost per unit	£6	£8	£10	£6
Hydro-chem machine (hours per unit)	2	4	5	5

In order to make the best use of the hydro-chem machine, which product should be ranked first in an optimum production plan?

- a) Product A
- b) Product B
- c) Product C
- d) Product D

Continued..

11. Analysis of Clarecastle Ltd.'s catering service suggests the following for next year:

<u>Total contribution</u>	<u>Probability</u>
£ 40,000,000	0.10
£ 60,000,000	0.15
£100,000,000	0.30
£130,000,000	0.30
£160,000,000	0.15

If the company's estimated total fixed costs are £ 60,000,000 next year, what is the probability of at least breaking even?

- a) 0.10
 - b) 0.25
 - c) 0.90
 - d) none of the above
12. Fresh Wreath Corporation manufactures wreaths according to customer specifications and ships them individually to customers via United Parcel Service (UPS). Which two terms below describe the cost of shipping these wreaths?
- a) variable cost and product cost
 - b) variable cost and period cost
 - c) fixed cost and product cost
 - d) fixed cost and period cost
13. Which of the following activities at Bic's Deli would be considered a non-value-added activity?
- a) inspecting bread for mould before using it for a sandwich
 - b) cleaning the corned beef off the meat slicer before cutting the salami
 - c) spreading horseradish on the bread of a customer's sandwich
 - d) both a) and b) above.

Continued..

The following information is to be used for questions 14 and 15.

Casablanca Manufacturing Corporation has determined that machine hours is an appropriate cost driver for total overhead cost. Shown below are machine hours and total overhead costs for the past six years:

<u>Year</u>	<u>Machine hours</u>	<u>Total Overhead Cost</u>
19x0	150,000	£339,000
19x1	140,000	£328,000
19x2	160,000	£350,000
19x3	120,000	£304,000
19x4	170,000	£362,500
19x5	200,000	£400,000

14. If Casablanca expects to incur 190,000 machine hours in 19x6, what will the estimated total overhead cost be using the high-low method?
- a) £228,000
 - b) £387,500
 - c) £376,000
 - d) £388,000
15. What is Casablanca's independent variable?
- a) the year
 - b) the machine hours
 - c) the total overhead cost
 - d) the slope

End of Multiple Choice Section

Section B – Answer any TWO questions
Separate answer books must be used for each question

Question 1

Chekhov Ltd. manufactures kitchen furniture. The furniture is sturdy but basic. The company plans to sell 2,000 sets of four chairs and one table for an inclusive price of £150 per set in the month of January 1992. Budgeted fixed costs associated with the product is £152,000 for that month. The budgeted contribution from each set based on standard costs is £75.00, details as follows:

Budgeted Selling Price		£150.00
Direct Labour (10 Hours)	£15.00	
Wood (5 square metres)	£37.50	
Vinyl (5 square metres)	<u>£22.50</u>	<u>£ 75.00</u>
Contribution per set		£ 75.00
		=====

In point of fact, actual sales for January were lower than expected at 1,900 sets. The following were the overall results.

Sales		£313,500
Direct labour (19,200 hours)	£34,560	
Wood (9,600 square metres)	£67,680	
Vinyl (9,200 square metres)	<u>£44,160</u>	<u>£146,400</u>
		£167,100
Fixed Costs		<u>£143,400</u>
Actual Profit for January		£ 23,700
		=====

You are required:

- (a) complete the January 1992 budget and using variance analysis, set out a detailed statement reconciling the actual net profit with the budgeted figure in a manner which will best enable the company to examine the position.

(24 Marks)

- (b) discuss the qualities which you feel a useful variance analysis report should possess and discuss some of the problems which cause variances to arise.

(9 1/3 Marks)

Total : 33 1/3 marks

Question 2:

Bosworth Ltd. manufactures three products and the following information is available concerning these products, together with other operating information.

All of December 1998 production will possibly be dedicated to supplying just one customer who may place an unusually large order for 20,000 units of Product A, 10,000 units of Product B and 30,000 units of Product C, subject to the price quoted being acceptable. Bosworth sets price by adding 10% to product cost. The company has been costing its products on an Activity Based Costing (ABC) basis for a short time now, and has assigned budgeted manufacturing overheads for December to Activity Cost pools as follows:

<u>Cost Drivers</u>	<u>(Activity Levels)</u>	<u>Activity Centre</u>	<u>Related Cost Pools</u>
Machine Hours	(20,000 hours)	Servicing/ Maintenance	£ 37,000
Production Runs	(115 runs)	Production Scheduling	£ 18,860
Material Quantities (kg)	(800,000 Kg)	Material Handling	£120,000
Total Budgeted Manufacturing Overhead			£175,860

Additional projected production data for December is as shown in the following table:

	Product A	Product B	Product C
Direct Material and Labour costs assigned directly to products	£ 50,000	£ 30,000	£ 60,000
Machine Hours	5,000	5,000	10,000
Production Runs	35	17	63
Materials Usage (kgs)	280,000	190,000	330,000
Labour Hours	2,000	1,000	3,000

Cont'd...

Prior to the introduction of Activity Based Costing, manufacturing overhead was allocated on a plant-wide basis using direct labour hours as an activity base. The production manager who has been with the company for a long time, is a reluctant convert to the new ABC methodology and he continues to advocate the value of the old system.

You are required to:

- (a) determine for each product, the unit cost and selling price
- (i) on an Activity Based Costing (ABC) approach as currently practised by Bosworth,
 - (ii) on a conventional costing basis as previously employed by the company.
- (20 Marks)**
- (b) outline the benefits to be expected from the introduction of the ABC costing system, and put forward arguments which may convince the production manager to accept the new ABC method.
- (8 Marks)**
- (c) explain to what extent ABC costing may be a more suitable basis than the conventional method for determining prices for Bosworth's products.
- (i) for the pricing of this specific order,
 - (ii) for the pricing of each of the three products in the more usual circumstances of supplying a number of customers with individual products.

(5 $\frac{1}{3}$ Marks)

Total: 33 $\frac{1}{3}$ Marks

Question 3:

Larch Ltd. are manufacturers of high quality office furniture. They are currently evaluating an extension of their Claremorris premises. The proposed project will involve the manufacture of a new office bureau for the export market. The bureau is expected to sell for £500.

The Finance Manager and Production Manager are considering two manufacturing options. The first option involves a highly labour intensive manufacturing process and the second a highly automated manufacturing process.

Requirements	Labour Intensive Manufacturing Process	Automated Manufacturing Process
Machine Hours	20	60
Raw Materials	20 Kg	15 Kg
Skilled labour hours	40	10
Semi-skilled labour hours	20	-

For the labour intensive process, variable production overheads will be 10% of total labour costs. The automated manufacturing process will involve variable production overheads of £1.50 per machine hour.

Raw materials are expected to cost £3 per Kg. Skilled labour costs for the labour intensive process is expected to cost £5 per hour and for the automated manufacturing process, £4 per hour. A semi-skilled labour hour is expected to cost £2.50.

For safety purposes the bureau will have to be packaged in a specially designed reinforced crate. The automated manufacturing process will automatically produce a packaged product at the end of the production line. The only variable packaging cost is therefore the cost of the crate, anticipated to be £8.00 per bureau.

The bureau will have to be packaged by staff at the end of the labour intensive manufacturing process. The combined packaging materials and labour cost is £13.00 per bureau. Variable packaging overhead costs will be 40% of the labour packaging cost.

Sales commission of 10% of selling price has been agreed with the sales team for this new product.

Fixed costs of operating each process are:

Labour intensive manufacturing process	£200,000
Automated manufacturing process	£800,000

Question 3 Cont ...

You are required to:

- (a) Calculate the breakeven sales volume and the volume that must be achieved in order to earn a profit of £300,000 per annum, for each of the proposed manufacturing processes. Also, calculate the volume of production/sales at which the level of profit earned would be the same irrespective of which manufacturing process is chosen.
(18 Marks)
- (b) Calculate the margin of safety for each production process if a sales level of 3,500 is anticipated by the Marketing Manager.
(3 Marks)
- (c) Assume now that (i) the volume of production/sales will be 3,500 units, (ii) Larch Ltd. have adopted the labour intensive manufacturing process and (iii) that an additional packaging machine can be purchased to eliminate labour costs associated with packaging. How much would Larch Ltd. be prepared to pay for this additional machine?
(5 Marks)
- (d) Identify the assumptions underlying CVP analysis and discuss how they limit the usefulness of CVP.
(7 1/3 Marks)

Total: 33 1/3 Marks