OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

SEMESTER 1 EXAMINATIONS, 2001/2002

SECOND COMMERCE EXAMINATION
THIRD CORPORATE LAW EXAMINATION
THIRD INFORMATION TECHNOLOGY EXAMINATION
FOURTH YEAR INDUSTRIAL ENGINEERING EXAMINATION

MANAGEMENT ACCOUNTING 1 - AY207

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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
After filling in your eight digit student number on MCQ answer sheet – place a zero in the final box

Answer any TWO Questions from Section B

All questions carry equal marks

Separate Answer Books must be used for each question in Section B

Section A - OBLIGATORY
Multiple Choice Questions

1. A Ltd. manufactures three products, the selling price and cost details of which are given below:

	Product X	Product Y	Product Z
	£	£	£
Selling price per unit	75	95	95
Direct materials (£5/kg)	10	5	15
Direct labour (£4/hr)	16	24	20
Variable overhead	8	12	10
Fixed overhead	24	34	30

In a period when direct materials are restricted in supply, the most profitable use of direct materials is:

Most profitable

(a) XYZ
(b) YXZ
(c) ZYX
(d) XZY

2. Your company regularly uses material K and currently has in stock 600kg, for which it paid £1,350 two weeks ago. If this were to be sold as raw material, it could be sold today for £2.00 per kg. You are aware that the material can be bought on the open market for £3.25 per kg.
You have been asked to determine the relevant cost of 600kg of material K to be used in a job for a customer. The relevant cost of the 600kg is:

(a) £1,500
(b) £1,350
(c) £1,950
(d) none of the above

Cont'd..

Section A cont...

3. B Ltd. makes three components: Q, R and S. The following costs have been recorded:

	Component Q Unit cost £	Component R Unit cost £	Component S Unit cost £
Variable cost	2.50	8.00	5.00
Fixed cost	2.00	8.30	3.75
Total cost	4.50	16.30	8.75

Another company has offered to supply the components to B Ltd. at the following prices

	Component Q	Component R	Component S
Price each	£4	£7	£5.50

Which component(s), if any, should B Ltd. consider buying in?

(a) Buy in all three components
(b) Do not buy any
(c) Buy in Q and U
(d) Buy in R only

4. The following data relates to the total overhead expenditure of a flooring business at two activity levels:

Square metres varnished	12,500	14,625
Overheads	£85,950	£90,200

What is the estimate of the total overhead expenditure if 16,200 square metres are to be varnished?

(a) £111,391
(b) £99,914
(c) £93,350
(d) £95,000

Cont'd..

Section A cont'd..

5. C plc. makes a single product which it sells for £20 per unit. Fixed costs are £66,800 per month and the product has a contribution to sales ratio of 40%.
In a period when actual sales were £207,000, C plc.'s margin of safety in units was:

(a) 10,350
(b) 4,600
(c) 2,000
(d) 8,000

6. D Ltd. manufactures and sells two products, J and K. Annual sales are expected to be in the ratio of J:1, K:3. Total annual sales are planned to be £420,000. Product J has a contribution to sales ratio of 40%, whereas that of product K is 50%. Annual fixed costs are estimated to be £120,000.
The budgeted break-even sales value (to the nearest £1,000):

(a) £133,333
(b) £387,000
(c) £252,632
(d) £300,000

7. The following details relate to product R:

Level of activity (units)	**1000 (£/unit)**	**2000 (£/unit)**
Direct materials	4.00	4.00
Direct labour	3.00	3.00
Production overhead	3.50	2.50
Selling overhead	1.00	0.50
	11.50	10.00

The total fixed cost and variable cost per unit are:

	Total fixed cost £	**Variable cost per unit £**
(a)	2000	1.50
(b)	2000	8.50
(c)	3000	7.00
(d)	3000	8.50

Cont'd..

8. T plc. uses a standard costing system. Budgeted production in April was 750 units. Each unit required 8kg of raw material @ £0.80kg. The following details relate to actual materials purchased and issued to production during April, when actual production was 800 units:

Materials purchased	7,800 kg costing £6,630
Materials issued to production	6,500 kg

Which of the following correctly states the material price and usage variance to be reported?

	Price	**Usage**
(a)	£325 (A)	£320 (A)
(b)	£390F	£ 80 (A)
(c)	£390 (A)	£ 80 (A)
(d)	£390 (A)	£400 (A)

The following information is to be used for Question 9 and 10.

F Ltd. absorbs overhead using a predetermined machine hour rate. Relevant information for the year just ended is:

Estimated machine hours	145,000
Actual machine hours worked	130,000
Estimated overhead cost	£797,500
Actual overhead cost	£754,000

9. What was the absorption rate per machine hour used to absorb manufacturing overhead into products during the past year?

(a) £5.20
(b) £5.50
(c) £6.13
(d) £5.80

10. What was the amount of over or underabsorbed overhead for the year?

(a) £43,500 underabsorbed
(b) £39,000 underabsorbed
(c) £43,500 overabsorbed
(d) £39,000 overabsorbed

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Section A cont'd..

11. A hotel's heating department has a total budget cost allowance for next year of £480,000, based on a budgeted level of operation of 60 per cent of maximum. Of the budgeted costs, 80 per cent are wholly fixed irrespective of the level of operation, the remaining 20 per cent being variable with the level of operation. What will be the heating department's total budget cost allowance for a level of operation of 88 per cent maximum?

(a) £422,400
(b) £659,200
(c) £524,800
(d) £704,000

12. Analysis of PKL Ltd.'s Industrial cleaning service suggests the following for next year:

Total contribution	**Probability**
£40,000	0.10
£70,000	0.15
£100,000	0.20
£130,000	0.30
£160,000	0.20
£180,000	0.03
£200,000	0.02

If the company's estimated total fixed costs are £160,000 next year, what is the probability of at least breaking even?

(a) 0.95
(b) 0.05
(c) 0.75
(d) 0.25

13. A product required six safety inspection checks before completion. The safety inspection cost pool amounted to £45,000. Labour hours worked amounted to 4,500 and 10,000 safety inspection tests were undertaken in the period. If the company are using an activity-based costing system, the amount relating to safety checks to be charged to one unit of the product is:

(a) £10
(b) £27
(c) £60
(d) £4.50

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14. The BAC Processing Company is evaluating a potential investment in a new tomato-juice extraction machine. This machine is much more efficient that the company's existing technology and it would reduce both waste and energy usage. The machine would cost £450,000, last 3 years, have no salvage value and generate the following annual cost savings:

Year	**£**
1	100,000
2	200,000
3	250,000

Assuming the firm's cost of capital is 12%, what is the Net Present Value to this project? (Note: Present Value Interest Factors $_{.12,t}$)

(a) £426,700
(b) £23,300
(c) £350,000
(d) £100,000

15. At present, the selling price of a product is £95 and output is 400 units. Each increase or decrease in price of £20 results in a corresponding decrease or increase in demand of 100 units. The correct expression for selling price as a function of one unit of output (x) is:

(a) £175 - £0.10x
(b) £175 - £0.20x
(c) £135 - £0.20x
(d) £135 - £0.10x

-End of Multiple Choice Section-

SECTION B

ANSWER TWO QUESTIONS FROM THIS SECTION

Separate Answer Books must be used for each question

Question 1.

Because of a fall in demand for its products, the production manager of Old Head Electronics Ltd. has proposed that over the next 24 weeks, idle capacity and labour should be used for the manufacture of a component normally purchased from outside suppliers. The following statement is used to support her case:

Cost of manufacturing 200,000 units required	£
Material	
Type A, 100,000kg at actual cost of £2 per kg	100,000
Type B, 4,000kg at actual cost of £27 per kg	108,000
Type C, 10,000kg already in stock at actual cost of £15 per kg	150,000
Labour	
Skilled, 18,000 hours at £16 per hour	288,000
Two supervisors	50,000
Semiskilled, 10,000 hours at £8 per hour	80,000
Overheads	
Depreciation of existing machines:	
- 10,000 hours of machine time at £5 per hour	50,000
Other overheads, 10,000 machine hours at £14 per hour	140,000
Total cost	966,000
Cost per unit	£4.83

The following information is also available:

(a) Type A material is regularly used by the company; large stocks are currently held because of substantial purchases made @ £2kg before a recent price increase to £2.80 per kg.

Cont'd..

Question 1 cont'd..

(b) 4,000kg of Type B material have been in storage since excess stocks were purchased for a special order last year @ £27 kg. There appears to be no other use for it. The company has been looking for an opportunity to recover the cost, since the current resale value of the material is only £20 per kg. The cost of purchasing Type B material at the present time is £35 per kg.

(c) The 10,000kg of type C material required was purchased two years ago at £15 kg. If sold now, it would realise £70,000. Alternatively it could be adapted and used on another job as a substitute for material costing £95,000. It would cost £7,000 to make the necessary adaptation.

(d) Skilled labour is normally in short supply in the area, so no lay-offs are contemplated, as Old Head Electronics wish to maintain the labour skill set. 18,000 hours of skilled labour of this type will be idle if not employed in the manufacture of the components. If the labour involved is used to manufacture these components, the trade union has insisted on an extra payment of £2.50 per hour in excess of the normal hourly rate of £13.50 because of the unfamiliar work.

(e) The two supervisors, who are each paid the same amount, will be employed whether or not the component is manufactured internally or bought in. However, if the older supervisor is to work on the job under consideration, the company will have to employ someone else at £500 per week to do the work she otherwise would have done.

(f) Semi-skilled labour can be hired as required.

(g) Production plans for the company's normal activities indicate that 12,000 hours of machine time (sufficient for 240,000 units) will be available during the six-month period. One hour of machine time is sufficient to manufacture 20 components. The depreciation charge included is based on the company's usual depreciation policy of £5 per machine hour. It is anticipated that the use of the machines to manufacture the components will have the effect of reducing their scrap value from £20,000 to £8,000, when they are replaced two years from now on the company's planned move to a new factory.

Cont'd..

Question 1 cont'd..

(h) The charge for other overheads is based on the company's usual costing system and includes £4 per machine hour for fixed costs and £10 per machine hour for variable costs. It is not anticipated that the manufacture of the components would involve the incurring of any additional fixed manufacturing overhead costs. It is expected that the amount of variable overheads will conform with the company's usual experience of £10 per machine hour.

(i) The cost of capital for Old Head Ltd. is 10%. The following are the present value interest factors (PVIF) for cost of capital of 10%:

1 year	.909
2 years	.826

(j) The cost of each component bought from the existing supplier is £5.67.

You are required to:

(a) examine the financial analysis presented by the production manager and prepare your own analysis detailing the correct relevant cost for each of the cost items in the production manager's statement.

(25 Marks)

(b) make a recommendation as to what policy (make or buy) should be pursued by Old Head Electronics, on financial grounds alone, stating any assumption(s) which you make.

(2 Marks)

(c) discuss any factors other than those quantified in your answer to (a) which you believe might be relevant in arriving at the final decision.

($6^1/_3$ Marks)

Total: $33^1/_3$ Marks

Question 2

Carlingford Lough Parts Limited manufactures one standard product and operates a system of variance accounting. As assistant management accountant you are responsible for preparing the monthly operating statements. Data from the budget, the standard product cost and for the month ended 31 October 2001 are given below.

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Question 2 cont'd..

Budgeted data:

Budgeted sales and production for the month 10,000 units

Standard cost data for each unit of product:

Direct material	6 kilograms @ £5 per kilogram
Direct wages	5 hours @ £4 per hour

Fixed production overhead is absorbed @ 200% of direct wages

Budgeted sales price has been calculated to give a profit of 20% of sales price.

Actual data for month ended 31st October 2001

Production, 9,500 units sold at £130.

Direct materials consumed:
68,000 kilograms @ £4.20 per kilogram

Direct wages incurred 45,000 hours @ £4.20 per hour.

Fixed production overhead incurred £390,000.

You are required to:

(a) calculate the standard product cost and standard selling price for one unit of product.

(4 Marks)

(b) prepare a statement for the month ended 31st October 2001. showing budgeted contribution and profit

(2 marks)

(c) calculate all variances for material (price and usage), labour (rate and efficiency), overhead (expenditure and volume) and sales (price and volume) for the month ended 31st October 2001.

(18 marks)

Question 2 cont'd. overleaf...

Question 2 cont'd..

(d) prepare a statement reconciling the budgeted and actual profit for month ended 31st October 2001.

(4 marks)

(e) discuss the possible causes of adverse materials price variances and adverse labour efficiency variances in a manufacturing firm such as the one above.

(5 1/3 marks)

Total: 33 1/3 marks

Question 3

North Irish Sea Products Ltd. manufactures two products, the production data for which for 2000 are shown in the table below. The company currently use a job costing system to charge overhead to products on a factory- wide basis using direct labour hours as the absorption base.

	Product A	**Product B**	**Total**
Volume produced (units)	35,000	10,000	-
Direct costs assigned directly to product:			
Direct material	£20,000	£15,000	£35,000
Direct labour	£20,000	£25,000	£45,000
Labour hours	3,000	2,000	5,000
Machine hours	10,000	15,000	25,000
Production runs	250	550	800
Materials usage (kg)	200,000	400,000	600,000

Cont'd..

Question 3 cont'd..

Manufacturing overheads have been allocated to activity-based cost pools. The amounts recorded for each activity and the level of the related cost driver identified by North Irish Sea Products' management accountant were as follows:

Activity	Amount	Cost driver
Servicing/maintenance	£139,000	Machine hours
Production scheduling	£140,000	Production runs
Material handling	£360,000	Quantity of material (kg)
Total	£639,000	

You are required to:

(a) calculate the unit product cost of product A and B according to the existing job costing system of charging manufacturing overhead to products

(8 Marks)

(b) calculate the unit product cost of A and B using the identified cost drivers to allocate overheads to the two products.

(15 Marks)

(c) discuss the difficulties a firm might encounter when considering and implementing an activity-based costing system.

(6 Marks)

(d) identify the characteristics of firms likely to benefit most from implementing an ABC system.

(4 1/3 Marks)

Total: 33 1/3 Marks