ENGINEERING TRIPOS PART IIB
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Monday 8 May 2006 9 to 10.30

Module 3E9/4E6

ACCOUNTING AND FINANCE

*Answer not more than **two** questions.*

All questions carry the same number of marks.

Submit all workings.

Calculations are to be made to the nearest £, unless told otherwise.

*The **approximate** percentage of marks allocated to each part of a question is indicated in the right margin.*

Attachments: Special Data Sheet (2 pages)

STATIONERY REQUIREMENTS
Single-sided script paper

SPECIAL REQUIREMENTS
CUED approved calculator allowed

You may not start to read the questions printed on the subsequent pages of this question paper until instructed that you may do so by the Invigilator

1 Howard started business on 1 January 2006 printing and selling astrology books. He put up £10,000 capital and was given a long term loan of £10,000 by Oswald. The following is a list of his transactions for the three months to 31 March 2006:

(a) Purchased printing equipment for £7,000 cash.

(b) Purchased a delivery van for £400 on credit from Arnold (must be repaid within one year) on 1 February 2006. Arnold tells Howard that he believes the van should easily keep going for a further four years. However, the garage where Howard has the van serviced immediately after purchase advise that the likely lifespan of the van is two years from the date of purchase.

(c) Bought paper (for printing books) for £100, on account from Butcher.

(d) Bought an additional part for the printing equipment to enhance its performance for £180 cash.

(e) Paid £25 (cash) on 1 January 2006 for three months' rent.

(f) Paid £40 (cash) on 1 January 2006 for one year's insurance premium.

(g) Sold £200 of books for cash and £100 on account to Mike. All these books sold used up all the paper which Howard had purchased in transaction (c).

(h) Paid Oswald £450 representing

(i) part repayment of principal

and

(ii) interest calculated at an annual rate of 2% per annum for three months.

(i) Received £60 cash from Mike.

(j) Paid £200 towards the delivery van and £50 towards the paper.

(k) Having forgotten his part payment for the paper, he then paid Butcher a further £100.

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(l) Mike flees the country without trace. Howard considers it extremely unlikely that he will receive any money from Mike.

(m) At the end of his first three months, there were amounts which Howard estimated he owed, although no bills had yet been received. These included £20 for telephone expenses, £30 for advertising and electricity charges of £15.

Requirement

Chart the above transactions in turn to see their impact upon the Balance Sheet (BS), Profit and Loss Account (P&L) and Cash Flow Statement (CFS) and draw up the BS, P&L and CFS for the 3 month period. [100%]

2 (a) What are the four 'fundamental accounting concepts', and why are they so important? [50%]

(b) (i) Why do firms budget?

(ii) What do you understand by the terms 'fixed budgets', 'flexed budgets' and 'rolling budgets'?

(iii) What are the advantages and disadvantages of a 'bottom-up' approach to budget preparation? [50%]

3 Bickerstaffe Ltd manufactures walking boots and is considering diversifying into the production of rucksacks. The Managing Director has just received a report from the market researchers he employed, indicating that the demand for rucksacks will vary depending on market conditions. Their best estimate is that there is a 60% chance of selling 6,000 rucksacks per annum, a 20% chance of selling 4,000 per annum and a 20% chance of selling 3,000 per annum. The selling price would be £18 each irrespective of the number sold.

Having paid the researchers £5,000 for their work, the Managing Director now wants an appraisal of the project before visiting his bank to discuss raising the finance required.

The following information is available:

(a) Rucksacks would be made on a new machine, which costs £50,000 payable in two equal instalments, now and in one year's time.

(b) Space for the packaging and storage of the finished rucksacks will be available in a warehouse currently owned by Bickerstaffe. There is no other use for the warehouse which could be sold for £30,000.

(c) The cost of materials will be £5.00 per rucksack. Material for the production of the first 2,000 rucksacks, however, was purchased recently at the reduced price of £9,000. This could be sold for £9,500.

(d) Each rucksack takes 2 hours of labour to produce at a cost of £3.00 per hour. Other variable costs amount to £4.00 per rucksack.

(e) Fixed overheads will be apportioned at the standard rate of £2.00 per labour hour.

(f) The market rate of interest is currently 11% and the Managing Director hopes to be able to borrow at this rate (i.e. the discount rate is 11%).

(g) The market for rucksacks is expected to last for 12 years after which the machine will have a scrap value of £500 and the warehouse will be sold for £10,000.

(h) All cashflows accruing over a year are deemed to arise at the end of the year.

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Requirements:

Write a report to the Managing Director on the production of rucksacks including:

(i) A non-technical explanation of net present value; [22%]

(ii) The net present value of the project and an explanation of the figures used in the calculations, and any reservations you may have about the annual sales figure. [78%]

END OF PAPER

Discounting

(1) Present value of £1

$$1/(1+r)^n$$

(2) Present value of an annuity of £1

$$(1/r)(1-(1/(1+r)^n))$$

where r = interest rate
n = number of years

Interest Rate Pa	*Number of years n*	*Present value of £1 receivable at the end of n years*	*Present value of £1 receivable at the end of each of n years*
1%	1	0.990	0.990
	2	0.980	1.970
	3	0.971	2.941
	4	0.961	3.902
	5	0.951	4.853
	6	0.942	5.795
	7	0.933	6.728
	8	0.923	7.652
	9	0.914	8.566
	10	0.905	9.471
5%	1	0.952	0.952
	2	0.907	1.859
	3	0.864	2.723
	4	0.823	3.546
	5	0.784	4.329
	6	0.746	5.076
	7	0.711	5.786
	8	0.677	6.463
	9	0.645	7.108
	10	0.614	7.722
10%	1	0.909	0.909
	2	0.826	1.736
	3	0.751	2.487
	4	0.683	3.170
	5	0.621	3.791
	6	0.564	4.355
	7	0.513	4.868
	8	0.467	5.335
	9	0.424	5.759
	10	0.386	6.145
15%	1	0.870	0.870
	2	0.756	1.626
	3	0.658	2.283
	4	0.572	2.855
	5	0.497	3.352
	6	0.432	3.784
	7	0.376	4.160
	8	0.327	4.487
	9	0.284	4.772
	10	0.247	5.019
20%	1	0.833	0.833
	2	0.694	1.528
	3	0.579	2.106
	4	0.482	2.589
	5	0.402	2.991
	6	0.335	3.326
	7	0.279	3.605
	8	0.233	3.837
	9	0.194	4.031
	10	0.162	4.192