



# **STAMFORD COLLEGE**

**SCHOOL OF HUMAN RESOURCE MANAGEMENT**

**DIPLOMA IN HUMAN RESOURCE MANAGEMENT**

**SEMESTER 5**

**DHRM 502: BUSINESS MATHEMATICS**

**Date : 30 April 2007 (Monday)**

**Time : 9.30 am –12.30 pm**

**Duration: 3 hours**

## **Instructions to Candidates**

Answer FOUR out of SIX questions.

Please ensure that this examination paper contains SIX questions on THREE printed pages before you start the examination.

Books, papers and other written materials are not allowed to be brought into the examination hall. A candidate who violates the examination rules of Stamford College or commits a malpractice will be disqualified from the examination.

Candidates may use calculators provided the calculators give no printout, have no work display facilities, are silent and cordless.

Write your Examination Index Number on each page of your answer booklet.

Answer any FOUR out of SIX questions.

### Question 1

- (a) A man applies for a loan of RM 5,000 from a bank, which charges simple interest at 12% per annum. Find the exact simple interest charged if the man borrows the money for;
- i. 3 years (3 marks)
  - ii. 9 months (4 marks)
  - iii. 150 days (4 marks)
- (b) A man invested RM 20,000 in a business project that earned simple interest at a rate of 15% p.a. Find the amount of investment at the end of 3 years. (5 marks)
- (c) A sum of money invested today will amount to RM2,500 in 10 months at simple interest rate of  $10\frac{1}{4}\%$  p.a. Find the sum of money invested. (5 marks)
- (d) Calculate the rate of simple interest that will give RM8,000 interest on a principal of RM20,000 at the end of  $4\frac{1}{2}$  years. (4 marks)
- (Total = 25 marks)

### Question 2

- (a) A man who needs a sum of RM5,000 to buy a machine in 5 years decides to invest a sum of money in a business project, which will earn interest at a rate of 8% compounded annually. Find the amount of money invested. (5 marks)
- (b) A sum of money RM5,200 accumulates to RM8,000 at a rate of  $i\%$  per year compounded annually, in 5 years. Calculate the rate of compound interest. (5 marks)
- (c) After how many years will it take a sum of RM2,400, invested at 10% p.a. compounded annually to grow to RM90,000? Give your answer to the nearest year. (5 marks)
- (d) A sum of RM6,000 is invested for two years at 15% p.a. compounded
- i. Semi-annually,
  - ii Quarterly,
  - iii Monthly,
  - iv Daily.

Find the respective accumulated amounts.

(10 marks)  
(Total = 25 marks)

**Question 3**

- (a) Find the true discount of a sum of RM 2,000 at 15% simple interest per annum due in 10 months. (5 marks)
- (b) Find the bank discount of RM5,000 at a discount rate of  $12\frac{3}{4}\%$  for 8 months. (6 marks)
- (c) Find the face value of a 6 month Bill of Exchange if the present value of the bill is RM6,000 with simple interest at 12% per annum. (6 marks)
- (d) A merchant wishes to buy goods worth RM 50,000 on 5<sup>th</sup> July. He is entitled to a cash discount of 5%. He signed a 60-day note with his bank at a discount rate of 12% per annum. What is the face value of the note so that he is able to take advantage at the 5% cash discount offer? (8 marks)
- (Total = 25 marks)

**Question 4**

- (a) A company produces and sells television sets at RM 350 each. The company's fixed costs per annum are as follows:

	RM
Rent	3,040
Heating and lighting	2,760
Salaries	14,000
Advertising	900

The variable costs are RM 120 per television set. Using graphical method, find;

- (i) the break-even point, (7 marks)
- (ii) the loss when output is 70, (5 marks)
- (iii) the profit when output is 300. (5 marks)
- (b) The annual fixed costs of a small manufacturing company are RM 40,000. The variable cost of each unit produced is RM 2. The estimated annual sales of the company are RM100,000 and each unit produced sells at RM 10. Find by calculation the break-even point, when the income and the total costs are equal. (8 marks)
- (Total = 25 marks)

**Question 5**

(a) A manufacturer's product is sold to retailers at RM180 each. Costs of production are:

Fixed costs	RM36,000
Variable costs	RM60 per product

Using a graphical method, find:

- (i) the break-even point, (7 marks)
- (ii) the level of output to provide a profit of RM6,000. (7 marks)

(b) A manufacturer of wooden barrels estimates fixed costs are RM9,000 and variable costs per barrel are RM100. A barrel is sold for RM250. Calculate:

- (i) the break-even output, (5 marks)
- (ii) the output level which produces a profit of RM3,000. (6 marks)

(Total = 25 marks)

**Question 6**

(a) A business owner must choose between two investment programmes, each costing RM75,000. The estimated returns for each programme is given below:

	<b>Programme 1</b>	<b>Programme 2</b>
	<b>RM</b>	<b>RM</b>
Year 1	18,750	36,250
Year 2	18,750	23,750
Year 3	18,750	15,000
Year 4	18,750	7,500
Year 5	18,750	2,500

- (i) Use the payback period method of investment appraisal to advise the business owner on the advantages of each programme. (8 marks)

(b) A company's directors are given the following information about 2 investment projects:

	<b>Project A</b>	<b>Project B</b>
Initial cash outflow	RM 80,000	RM100, 000
Cash inflow accruing	RM180, 000	RM240, 000
Cost of finance	10%	10%
Duration	4 years	6 years

Find for both projects, the cash outflows occur at the beginning of the period while the cash inflows occur at the end of the period.

- (i) Calculate for the directors the estimated net present values. (17 marks)
- (ii) Advise which the more profitable option is. (Total = 25 marks)

**-END OF PAPER-**