

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF INDUSTRIAL TECHNOLOGY**

DEPARTMENT OF INDUSTRIAL & MANUFACTURING ENGINEERING

1st SEMESTER EXAMINATIONS FEBRUARY 2010

BUSINESS STUDIES III – TIE 5105 - (Financial Analysis)

Instructions to Candidate

Time Allowed 3 hours

Answer any 4 questions

QUESTION 1

A four-week summary production budget for LB Ltd, on an organization which produces a single product, is as follows.

Production quantity 240,000 units

Production costs

Material	336,000 kg at \$4.10 per kg
Direct labour	216,000 hours at \$4.50 per hour
Overheads	\$1,920,000

Overheads are absorbed at a predetermined direct labour hour rate.

During the four-week period the actual production was 220,000 units which incurred the following costs.

Material 313,060 kg costing \$1,245,980

Direct labour 194,920 hours costing \$886,886

Overheads \$1,934,940

Required:

- (a) Calculate the cost variances for the period. **[15 Marks]**
- (b) Give reasons why the direct labour efficiency variance may have risen. **[10 Marks]**

QUESTION 2

Spirit Software Inc. is a computer software company that generated \$ 12 million in pre-tax operating income on \$ 100 million in revenues last year; the firm is stable and does not expect revenues or operating income to change over the next 10 years. Its inventory management is in shambles and inventory as a percent of revenues amounted to 12% last year. Spirit is considering investing in a new inventory management system, which will cost \$ 15 million. The inventory management system is expected to have a 10-year life, over which period it can be depreciated straight line down to a salvage value of zero. The new inventory management system is expected to have two benefits:- It will immediately reduce the inventory maintained of items that are least sold and lower the inventory/sales ratio to 8% (and stay at that percentage level for the life of the inventory management system)- By providing sales people with updated information on what is in stock, it is expected to increase revenues to \$ 115 million next year (and operating margins to remain unchanged). The revenues and operating income from year 2 to year 10 will remain unchanged at year 1 levels.

The reduction in inventory will also allow the company to sell off its existing storage facility (which has a book value of \$ 5 million) today for \$ 10 million and buy a new storage facility for \$ 5 million. Both the old and the new storage facilities will be depreciated straight line over the next 10 years to a salvage value of zero.

The firm has an income tax rate of 40%, a capital gains tax rate of 20% and a cost of capital of 10%.

(i) Calculate the cash flows at time 0 (today) from this investment. **[12 Marks]**

(ii) Calculate the NPV of investing in the new inventory management system.

[13 Marks]

QUESTION 3

Net Cash Flows (\$000) Years

Project	0	1	2	3	4	5	6	7	8	Internal Rate of Return%
A	-350	100	110	104	112	138	160	180	-	
B	-350	40	100	210	260	160	-	-	-	
C	-350	200	150	240	40	-	-	-	-	

The chairman of the company is accustomed to projects being appraised in terms of payback and accounting rate of return, and he is consequently suspicious of the use of internal rate of return as a method of project selection. Accordingly, the chairman has asked for an independent report on the choice of report. The company's cost of capital

is 20% and a straight-line depreciation is used to write off the cost of equipment in the financial statements.

Required:

- (a) Calculate the payback period for each project. **[5 Marks]**
- (b) Calculate the accounting rate of return for each project. **[5 Marks]**
- (c) Prepare a report for the chairmen with supporting calculations indicating which project should be preferred by the ordinary shareholders of Paradis Plc. **[15 Marks]**

QUESTION 4

‘Financial accounting looks behind whilst management accounting looks ahead’. To what extent does this quotation accurately reflect the role of the two branches of accounting? **[25 Marks]**

QUESTION 5

Standard Cost for Product RBT

	£
Materials (10kg x £8 per kg)	80
Labour (5hrs x £6 per hr) –	30
Variable O/Hds (5hrs x £8 per hr)	40
Fixed O/Hds (5hrs x £9 per hr)	<u>45</u>
	195

Budgeted Results

Production	10000 units
Sales	7500 units
Selling Price	£300 per unit

Actual Results

Production	8000 units
Sales	6000 units
Materials	85000 kg Cost £700000
Labour	36000 hrs Cost £330900
Variable O/Hds	£400000
Fixed O/Hds	£500000
Selling Price	£260 per unit

Required:

Calculate

- a. Material total variance [2 Marks]
- b. Material price variance [2 Marks]
- c. Material usage variance [2 Marks]
- d. Labour total variance [2 Marks]
- e. Labour rate variance [2 Marks]
- f. Labour efficiency variance [3 Marks]
- g. Variable overhead total variance and all sub- variances [3Marks]
- h. Fixed Production overhead total Variance and all sub-variances [3 Marks]
- i. Selling price variance [3 Marks]
- j. Sales volume variance [3 Marks]

END OF EXAM