



## Management Accounting

Final Examination  
Summer 2013  
Module F

4 June 2013  
100 marks – 3 hours  
Additional reading time – 15 minutes

- Q.1 ABC Limited deals in manufacturing of consumer goods. The management is concerned about the company's operating cash flows and is reviewing the working capital policies.

Key financial data for the year ended 31 March 2013 is as follows:

### PROFIT AND LOSS ACCOUNT

	Rs. in million
Sales	15,575
Cost of goods sold	(13,770)
Gross profit	1,805
Operating expenses	(978)
Financial charges	(453)
Other income	126
Net profit before tax	500
Income tax @ 35%	(175)
Net profit after tax	325

### BALANCE SHEET

Assets	Rs. in million	Equity and liabilities	Rs. in million
Non current assets	10,560	Share capital and reserves	2,370
Current assets		13.5% TFCs	7,630
Trade debtors	2,590	Current liabilities	
Stock in trade	1,530	Short term loans	3,510
Other current assets	615	Trade creditors	1,020
	4,735	Accrued & other liabilities	765
	15,295		5,295
			15,295

In respect of debtors, the management proposes to allow an early payment discount of 1% if payment is received within 30 days; however, any delay in payment beyond the credit period of 40 days will be subject to a surcharge of 45 paise per Rs. 1,000 per day of default. Credit sales are 80% of the total sales of the company. By introducing the above change, it is expected that:

- Credit sales will decrease by 8% and bad debts would reduce from 4% to 3% of credit sales.
- 40% of the customers will avail early payment discount whereas 35% would pay within the credit period of 40 days.
- Debtors overall turnover will reduce to 42 days of credit sale.

The credit period allowed by the suppliers is 60 days. However, in order to avail 1% discount, the payment is made within 40 days. It is now being proposed that full credit period of 60 days should be availed.

Other relevant information is as under:

- Cost of goods sold includes conversion costs which are approximately 50% of the cost of raw material. 20% of the conversion costs are fixed.
- Short term debt carries interest @ 15% per annum.
- Income tax rate applicable to the company is 35%.

### Required

Evaluate the above situations and give your recommendations about the suitability of the changes proposed by the management. (18)

- Q.2 Sophisticated Packaging Limited (SPL) has received an order for supply of 2 million packing wrappers. The wrapping material is in the form of a film. The manufacturing involves two processes: printing and lamination. One packing wrapper requires 0.04 running meter of film in each process.

### Printing

Ink and a chemical are applied to the first layer of film. One running meter of film consumes 2 grams of ink and 4 grams of chemical.

1 kg of film has 35 running meters. Normal wastage during the process of printing is estimated at 3%. In addition, it is estimated that approximately 1,200 meters of film would be wasted at the time of setting up the machine.

### Lamination

During the process of lamination, a second layer of the film is applied on the first layer using glue. 1 kg of glue is used to laminate 250 meters. There is a normal wastage of 2% during lamination.

The raw materials prices are as follows:

Raw materials	Price per kg (Rs.)
Printing and lamination film	260
Ink	180
Chemical	150
Glue	110

Both processes would require 1,000 productive labour hours in total (at 100% efficiency) comprising of 25% skilled and 75% unskilled workers who are paid @ Rs. 35,000 and Rs. 15,000 per month respectively. Both skilled and unskilled workers work an average of 200 hours per month at 90% and 85% efficiency respectively.

Printing and lamination overheads are estimated at Rs. 5 and Rs. 3 per running meter respectively.

### Required:

Compute the selling price of the order if SPL wishes to earn a 20% margin on sale price. (17)

- Q.3 XYZ Limited is planning to launch a new product with a capital investment of Rs. 300 million. The demand of the product is dependent on the state of economy. Hence, three different estimates of demand have been prepared by the company, i.e. under low, moderate and high growth scenarios. The annual expected demand along with their probabilities are as follows:

Demand growth	Low	Moderate	High
Demand (units)	7,000,000	8,000,000	9,000,000
Probability	0.50	0.30	0.20
Working capital required (Rs.)	50,000,000	56,500,000	62,000,000

Since all raw materials have to be imported, the contribution margin (CM) under two different exchange rates and their probabilities are shown below:

Exchange rate	US\$1 = Rs. 100	US\$1 = Rs. 105
CM per unit (Rs.)	12	11
Probability	0.35	0.65

Fixed operating expenses (other than depreciation) per annum are Rs.15 million. The fixed assets have a useful life of 15 years and a salvage value of 10% of the cost. According to the company's policy, the total investment would be financed through equity and bank borrowings in the ratio of 40:60.

Cost of bank borrowings is 12% per annum while the company's required rate of return on equity is 20%.

**Required:**

- (a) Calculate the probability that the project would yield the required return on equity.  
 (b) Determine the expected rate of return on equity based on all the possible scenarios. (12)

Q.4 Ahmed (Private) Limited (APL) produces and sells 2 products. It started business 5 years ago with a single product 'A'. 3 years ago it introduced product B which is a low-end version of product 'A' but is produced and sold through an entirely different infrastructure.

Initially, product 'B' started well but due to uncertain market condition, its sale declined by 85% in 2013. The results of previous two years are as follows:

	Amount in Rs.		
	A	B	
Year ended	31 March 2013	31 March 2013	31 March 2012
Sales	20,000,000	1,500,000	10,000,000
Raw material consumption	5,000,000	600,000	3,000,000
Direct wages	3,750,000	400,000	2,000,000
Variable and fixed overheads	3,000,000	1,800,000	2,500,000
Units sold	10,000	2,000	10,000

In respect of product 'B', the management does not foresee any improvement in 2014; however, it is quite hopeful that the sale would revive in 2015. Management is therefore contemplating the option of shutting down the plant of product 'B' for the year ending 31 March 2014 which would reduce fixed costs by 90%.

Following estimates pertain to the year ending 31 March 2014:

	Rupees
Total variable and fixed overhead expenses for product A	3,400,000
Increase in fixed cost of product A	250,000
Plant shut down costs for product B	450,000
Sale of A (units)	13,000
Increase in raw material prices (both for A and B)	15%

**Required:**

- (a) Determine the minimum number of units of product B that should be sold in order to justify the continuation of the sale of product B during the year ending 31 March 2014.  
 (b) Assuming that the sale of product B is discontinued, calculate the unit price of A that should be charged to increase the profit by 20% over the total net profit for the year ended 31 March 2013. (18)

Q.5 MNC Limited is a manufacturer of textile machinery. The company has received an order for manufacturing a machine which would involve various processes. Each process has been assigned a code number. The estimated time for each process is given below:

Process	1 - 2	1 - 3	1 - 4	2 - 4	2 - 5	3 - 6	4 - 6	5 - 7	6 - 8	7 - 8
Duration (in days)	5	9	8	6	5	9	10	10	7	11

**Required:**

- (a) Draw a network diagram representing above processes of work.  
 (b) Calculate total float for each process.  
 (c) Find the critical path and its duration. (10)

- Q.6 (a) Mehmood (Private) Limited operates two divisions. Division "South" was established five years ago whereas Division "East" was established two years ago with substantial expenditure on automated production lines. The company's management uses Return on Investment (ROI) and Residual Income (RI) to compare the results of the divisions in order to evaluate the managerial performance. The required rate of return for both divisions is 15%. Following data is available for the year ended 31 May 2013:

	South	East
Sales (units)	24,000	26,400
-----Rupees-----		
Average operating assets	11,100,000	25,800,000
Selling price per unit	900	1,100
Cost per unit		
Material	300	375
Labour	250	225
Variable overheads	150	175
Fixed overheads	100	150

**Required:**

- (i) Calculate ROI and RI and comment on the performance of the two divisions under each of the two methods. Also give possible reasons for the different results produced under the two methods and your suggestions in this regard.
  - (ii) Calculate the number of units which should be sold by the underperforming division in order to be able to achieve the ROI of the other division. (13)
- (b) Division East has an opportunity to invest in new machinery at a cost of Rs. 4 million. The machinery is expected to have useful economic life of five years, after which it could be sold for Rs. 400,000. Depreciation is charged on machinery under the straight line method. The machinery is expected to expand division East's production capacity by 12.5%.

**Required:**

Under each of the two methods mentioned in (a) above, determine whether the manager in-charge would make a decision that is in the best interest of the company as a whole. (05)

- Q.7 A company manufactures a single product Y. During May 2013, it processed 120 batches of the product. Further relevant information for the month of May 2013 is as follows:

Actual materials used:

Materials	Kg	Price per kg (Rs.)	Rupees
P	1,680	42.50	71,400
Q	1,650	28.00	46,200
R	870	64.00	55,680
	4,200		173,280
Loss	552		
Yield	3,648		

Standard costs/yield per batch:

Materials	Kg	Price per kg (Rs.)	Rupees
P	15	40	600
Q	12	30	360
R	8	60	480
	35		1,440
Less: Standard loss	3		
Standard yield	32		

**Required:**

Calculate the following material variances:

- (i) price
- (ii) usage
- (iii) mix
- (iv) yield (07)