



INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

Mid-Autumn Semester Examination 2024-25

Date of Examination: 19.9.2004 Session: AN Duration: 2 Hrs Full Marks: 60

Subject No. : EP 61203 Subject : Financial and Legal aspects of New Technology Ventures

Rajendra Mishra School of Engineering Entrepreneurship

Special Instructions: Make necessary assumptions, if required.

10 1. Answer the following questions:

- (a) Suppose that on December 30, 2023 Verizon acquired new patents on some communications equipment for 50 crores INR. Technology changes quickly. The equipment's useful life is expected to be 4 years rather than 17 years' life of patent. What will be the amortization for 2024? [1]
- (b) The American dance company sold for 180,000 Crores INR cash a "season's series" of tickets in advance on 31st December for four performances, each to be held in successive months beginning in January. (a) What is the effect on the balance sheet, on 31st December? (b) What is the effect on the balance sheet, 31st January? [2]
- (c) The following information is available for signal corporation, Net profit margin=0.05, Div. payout ratio=0.30, Equity Multiplier= 2.4, Asset Turnover = 1. What rate of growth can be sustained with internal equity? [2]
- (d) The following items were taken from the December 31 Balance Sheet of Regenesys Management Ltd.

	INR Crores	
Tangible Assets (net)	12, 14,000	✓
Accounts Payable	1,24,800	✓
Prepaid Insurance	46,800	✓
Mortgage payable	10,30,400	✓
Intangible Assets	6,36,800	✓
Equity Share Capital	6,60,000	✓
Cash and cash equivalent	2,08,400	✓
Retaining Earning	4,00,000	✓
Accounts Receivable	1,45,200	✓
Interest Payable	36,000	

Recreate the company's Balance sheet on 'Permanence basis'. Assume that INR 1,36,000 of the mortgage payable balance will be paid within three months of the balance sheet date. [5]

- 6
2. In 1938, mountain climbers L and M joined with 21 fellows Northeast climbers to found Recreational Equipment, inc. (REI). Today, REI is the nation's largest consumer cooperative with more than 2.8 million members and sales of more than 1 crores INR. The following items were in the company's statement of cash flows for the fiscal year ending December 31, 2023 (in thousands):

Increase in inventories	14584 INR
Net income	32726 INR
Depreciation and amortization	30652 INR
Other non-cash revenues and gains, net	7215 INR
Increase in payables and other accrued expenses	38497 INR
Increase in prepaids and other current assets	639 INR
Decrease in receivables	989 INR

Prepare cash flow statements from operating activities using the indirect method.

[6]

20 3. The annual report of S.B., a bookstore chain, included the following selected data (in millions):

Annual Amounts	2023	2022	2021
Net income	INR 95	INR 60	INR 25
Gross margin on sales	520	380	200
Cost of good sales	980	620	300
Operating expenses	380	295	165
Income tax expenses	45	25	10
Dividends declared and paid	35	15	5
End of year amounts			
Long term assets	INR 240	INR 220	INR 180
Long term debt	80	65	40
Current liabilities C.L	70	55	35
cash C.A	25	5	10
Accounts receivable C.A	85	70	40
Merchandise inventory C.A	120	85	60
Paid in capital	205	205	205
Retained income	115	55	10

During each of the three years, there were 10 million shares outstanding. Assume that all sales were on account and that the applicable market prices per share were INR 90 for 2022 and INR 120 for 2023.

(i) Compute each of the following for each of the last two years, 2022 and 2023:

- a. Current ratio
- b. Return on sales
- c. Return on equity
- d. Ratio of total debt to equity
- e. Ratio of current debt to equity
- f. Gross profit rate
- g. Average collection period for accounts receivable
- h. PE ratio
- i. Dividend payout percentage

(ii) Answer each of these questions and indicate which of the computations in number (i) support your answer.

- a. Has gross profit rate improved?
- b. Has the return on sales deteriorated?
- c. Has the return on owner's investment increased?
- d. Are dividends relatively more generous?
- e. Have the risks of insolvency changed insignificantly?
- f. Has the market price of the stock becomes cheaper relative to earnings?
- g. Have business operations improved?
- h. Has there been a worsening of the company's ability to pay current debts on time?
- i. Did the collectability of the receivables improve?

(iii) Basing your observations on only the available data and the ratios you computed, prepare some brief comments on the company's operations and financial changes during the three years.

[9+9+2= 20]

4 4. Distinguish between Condition and Warranty.

[4]

10 5. Answer the following questions.

[10]

- (a) A engages B to assault C. B does so. To pay B, A borrows Rs. 5000 from D who is aware of the purpose of the loan. Can B recover the amount from A? What is the nature of agreement between A and D?
- (b) A hires B's car for personal use. Instead, A starts using the car as a taxi. Can B avoid the contract?
- (c) X directs Y, who is a solicitor, to sell his estate by auction and to employ an auctioneer for the purpose. Y names Z, an auctioneer, to conduct the sale. Is Z a sub-agent?
- (d) A purchased a sports car from B, who deals in sports cars and bikes, but later refused to accept the delivery of it. B's profit on the sale would have been Rs. 500, but A argued that he was not liable for this amount, since the profit would still be made when the car was sold to another customer. Is A liable to pay damages?
- (e) A guarantees to B the payment of a bill of exchange by C, the acceptor. C dishonours the bill. Is A liable for the interest on the bill due?

10 6. In how many categories can company be classified? Describe each category.

[10]



INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

End-Autumn Semester Examination 2024-25

Date of Examination: 20.11.2024 Session: AN Duration: 3 Hrs Full Marks: 70

Subject No. : EP61203

Subject : Financial And Legal Aspects of New Technology Venture

Rajendra Mishra School of Engineering Entrepreneurship

Special Instructions: Answer all the questions. Make necessary assumptions (if any)

15. Prepare cost sheet from the following particulars.

[15]

Opening Stock: Raw material •	=	Rs 5,000 ✓
Finished goods	=	Rs 4,000 ✓
Closing Stock: Raw material •	=	Rs 4,000 ✓
Finished goods	=	Rs 5,000 ✓
Raw material purchased •	=	Rs 50,000
Wages paid to labourers •	=	Rs 20,000 ✓
Direct expenses •	=	Rs 2,000 ✓
Rent and Taxes •	=	Rs 7,400
Power •	=	Rs 3,000
Experimental expenses •	=	Rs 600
Sale of wastage of material	=	Rs 200
Office management salary •	=	Rs 4,000 ✓
Office printing & stationery •	=	Rs 200 ✓
Salaries to salesman	=	Rs 2,000 ✓
Commission to traveling agents	=	Rs 1,000 ✓
Sales	=	Rs 1,00,000

10. MCLntyre Manufacturing produces a single product. Last year, the company produced 20,000 units out of which 18,000 were sold. There were no units in beginning inventory. The company had the following costs: [10]

Variable costs per unit:	
Production	500 INR
S&A	200 INR
Fixed costs (total):	
Production	20,00,000 INR
S&A	10,00,000 INR

- Calculate MCLntyre's product cost per unit, assuming that the company uses variable costing.
- Calculate MCLntyre's product cost per unit assuming that the company uses absorption costing.
- Calculate MCLntyre's total period cost assuming that the company uses variable costing.
- Calculate MCLntyre's total period cost assuming that the company uses absorption costing.
- Explain the differences in product cost and period cost between the two costing methods.

5. The following overhead cost information is available for the Herbert Corporation for the previous year:

Activity	Allocation base	Overhead cost (Rs.)
Purchasing	Number of purchase orders	2,00,00,000
Receiving	Number of shipments received	50,00,000
Machine setups	Number of setups	2,00,00,000
Quality control	Number of inspections	75,00,000

During the year, 8000 purchase orders were issued; 25000 shipments were received; 4000 machine setups occurred; and 7500 inspections were conducted. Employees worked a total of 10,000 hours on production. The corporate managers are trying to decide whether they should use a traditional overhead allocation method based on direct labour hours or switch to an activity based costing system. Assume that a batch of products has the following specifications:

Direct labour hours	7
Purchase orders	7
Shipments received	10
Machine setups	3
Inspections	3

- Determine the overhead allocation for the batch under the traditional overhead allocation based on direct labour hours.
- Determine the overhead allocation for the batch under activity based costing.
- Which costing method do you think better for the company? Why? [5]

10. (i) Hacker Aggregates mines and distributes various types of rocks. Most of the company's rock is sold to contractors who use the product in highway construction projects. Treva Hacker, company president, believes that the company needs to advertise to increase sales. She has proposed a plan to other managers that Hacker Aggregates spend ₹50,00,000 on a targeted advertising campaign. The company currently sells 25,000 tons of aggregate for total revenue of ₹25,00,00,000. Other data related to the company's production and operational costs follow:

Direct labour	₹7,50,00,000
Variable production overhead	1,00,00,000
Fixed production overhead	1,75,00,000
Selling and administrative expenses:	
Variable	25,00,000
Fixed	1,50,00,000

- Compute the break-even point in units (i.e., tons) for Hacker Aggregates.
- Compute the contribution margin ratio for Hacker Aggregates.
- If Treva decides to spend ₹50,00,000 on advertising and the company expects the advertising to increase sales by ₹1,00,00,000, should the company increase the advertising? Why or why not? [8]

Finlay Grace Sullivan & Company has two sales offices: one located in Portland, Maine, and one in Portsmouth, New Hampshire. Management is considering dropping the Portland office. The company's records report the following information:

	Portland	Portsmouth
Sales	₹20,00,000	₹25,00,000
Direct costs:		
Variable	7,50,000	12,50,000
Fixed	5,00,000	5,00,000

What will be the effect on income if the Portland office is eliminated and half of its fixed costs are avoided? [2]

8. Last year, Vera Corporation budgeted for production and sales of 20,000 cloth handbags. Vera produced and sold 19,250 handbags. Each handbag has a standard requiring 4 feet of material at a budgeted cost of ₹125 per foot and 45 minutes of sewing time at a cost of ₹14 per minute. The handbags sell for ₹2,250. Actual costs for the production of 18,000 handbags were ₹1,00,80,000 for materials (80,000 feet at ₹126 per foot) and ₹1,30,20,000 for labour (8,68,000 minutes at ₹15 per minute).

- What is the handbag's direct material price variance?
- What is the handbag's direct material usage variance?
- What is the handbag's direct labor rate variance?
- What is the handbag's direct labor efficiency variance?

[8]

4. Company T is considering an investment in a high-quality blueprint printer with the following cash flows:

Year	Investment (Rs.)	Cash Inflow (Rs.)
1	(38,000)	2,000
2	(6,000)	4,000
3		8,000
4		9,000
5		12,000
6		10,000
7		8,000
8		6,000
9		5,000

- Determine the payback period of the investment.
- Would the payback period be affected if the cash inflow in year 8 was Rs. 18,000?

[4]

8. Service Corporation is investigating four different opportunities. Information on the four projects under study is as follow:

	Project 1	Project 2	Project 3	Project 4
Investment required	Rs. 480,000	Rs. 360,000	Rs. 270,000	Rs. 450,000
Present value of cash inflows	567,270	433,400	336,140	522,970
Net present value	Rs. 87,270	Rs. 73,400	Rs. 66,140	Rs. 72,970
Life of project	6 years	12 years	6 years	3 years

The company's required rate of return is 10%; therefore a 10% discount rate has been used in the present value computations above. Limited funds are available for investments, so the company cannot accept all of the available projects.

- a. Compute the profitability index for each investment project.
 - b. Rank the four projects according to preference, in terms of:
Net present value
Profitability index
 - c. Out of the above two methods, which one to follow here to choose the final project/s and why? [8]
8. What are the different forms of IPR? Explain how IPR is relevant for entrepreneurs. Explain with examples. [10]