

CVL775		CONSTRUCTION ECONOMICS AND FINANCE	MAJOR EXAMINATION	
Time allowed 2 hour	2:00 - 4:00 PM		Maximum Marks	100
Venue	LH 512		Date	01.05.2023

Name:

Entry No.

WISH YOU THE VERY BEST

ANSWER ALL QUESTIONS. EVALUATION WOULD BE DONE ON THE BASIS OF STEPS USED IN THE SOLUTION. ASSUME MISSING DATA SUITABLY IF REQUIRED.

Q1 20 marks

A sewage treatment plant has three possible schemes of sewage carriage and treatment systems. If the life of the scheme is 20 years, which scheme should be recommended as the most economic?

Scheme	Installation cost (\$)	Annual running cost (\$)
A	\$365,000	\$145,000
B	\$404,000	\$92,000
C	\$484,000	\$80,000

Use 15% to represent the cost of capital. If the cost of capital were 10%, would the recommendation alter?

Q 2 (1 x 10= 10 marks)

- (i) **Net working capital means**
- Current assets – Current liabilities
  - Fixed assets – Fixed liabilities
  - Current assets – Non tangible assets
- (ii) **An aggressive approach to current asset financing leads to**
- Greater profitability
  - Lower profitability
  - No impact on profitability
- (iii) **The longer the operating cycle**
- The larger the size of current assets
  - The smaller the size of current assets
  - The size of current assets remains unchanged
- \* (iv) **Mortgage involves**
- Moveables as collateral
  - Immovables as collateral
  - No collateral

- (v) Commercial paper is issued by  
 a Any company  
 b Only blue chip companies  
 c Only Government companies
- (vi) Retained earnings is liability. **True or False**
- (vii) Goodwill is tangible asset. **True or False**
- (viii) Factoring and Forfaiting are sources of long term finance. **True or False**
- (ix) T-account is also called Ledger. **True or False**
- (x) Outstanding is part of current liability. **True or False**

**Q3 20 marks**

Relevant data for the two projects A and B are provided in the following Table. For each of the two projects calculate the revenue that would be recognized using (a) the cash method, (b) the straight accrual methods, (c) the percentage-of-completion method, (d) the gross profit to date using the percentage-of-completion method and (e) amount of over/under billing.

Project data	Project A (Amount in \$.)	Project B (Amount in \$.)
Contract amount	5,000,000	5,000,000
Original estimated cost	4,700,000	4,800,000
Billed to date	1,700,000	1,700,000
Payments received to date	1,530,000	1,530,000
Cost incurred to date	1,450,000	1,350,000
Forecasted cost to complete	3,500,000	3,400,000
Costs paid to date	1,400,000	1,400,000

*Outstanding = Invoice Payment due - Payment Received.*

**Q.4 15 marks**

The following are the income statement and balance sheet of The Building Co. Income Statement of XYZ Co. for the Year Ending 31 March, 2023.

	Amount (Rs)	Amount (Rs)
Net sales		30,00,000
Less: Cost of goods sold		21,00,000
Gross margin		9,00,000
Less: Administrative expenses	1,00,000	
Selling expenses	95,000	
Lease payments	15,000	2,10,000
Operating Income (EBIT)		6,90,000
Add: Revenues on account of interest and royalty		1,500
Operating Income plus other incomes...		6,91,500
Less: Interest payment		27,500
Net Income before taxes(NIBT)		6,64,000
Less: Taxes @ 30%		1,99,000
Net income (NIAT)		4,65,000
Dividends		46,500
Increase in retained earnings		4,18,500

Balance Sheet of The Building Co. as on 31 March, 2023

Liabilities	Amount (Rs)	Assets	Amount (Rs)
Accounts payable	50,000	Cash	30,000
Bank loans (15%)	1,25,000	Marketable securities	15,000
Accruals	10,000	Bills Receivables	2,20,000
Tax payable	40,000	Inventory	1,70,000
Total current liabilities	2,25,000	Total current assets	4,35,000
Mortgage bonds (10%)	50,000	Gross plant and equipment	9,50,000
Debentures (10%)	2,25,000	Allowance for depreciation	2,00,000
Equity shares of Rs 10 each	2,50,000	Net plant and equipment	8,50,000
Retained earnings	5,35,000		
Total	12,85,000		12,85,000

Note: The amount to sinking fund contribution is Rs 10,700.

Calculate:

- (a) dividend yield; (b) quick ratio; (c) receivable turnover ratio; (d) inventory turnover ratio; (e) debt-equity ratio; (f) return on equity.

**Q.5 10 marks**

Set up an amortization schedule for a Rs. 20 lac loan to be repaid in equal instalments at the end of each of the next 5 years. The interest rate is 10% compounded annually. What percentage of the payment represents interest and what percentage represents principal for each of the 5 years? Do these percentages change over time? Why or why not?

S, 10, 20, 25

**Q.6 10 marks**

Instead of paying Rs. 10 lakh in annual rent for office space at the beginning of each year for the next 10 years, an engineering firm has decided to take out a 10-year, Rs. 100 lakh loan for a new building at 8% interest. The firm will invest Rs. 10 lakh of the rent saved in the business and earn 18% annually on that amount. What will be the difference between the firm's annual revenue and expenses?

**Q.7 15 marks**

A big brand is planning to enter in the soda beverages market with a new product. The first cost for this new product project is Rs. 10 Cr. At the end of first year, the brand estimates that there is 30% of low volume sales giving net revenue of Rs 1 Cr; 60% chances of medium sales for net revenue of Rs 2 Cr; and 10% chances of high volume sales for net revenue of Rs 4 Cr.

In case of low volume sales, the brand can choose to terminate the project with salvage value of Rs. 5.5 Cr. If the project continues, the net revenue will be Rs 1 Cr for the next 7 years.

In case of medium volume sales, the brand will choose to continue with the forecast net revenue of Rs 2 Cr. for the next 7 years.

In case of high volume sales, the brand can choose to continue with the product earning net revenue of Rs. 4 Cr for next 7 years. Alternatively, the brand can expand with the first cost of Rs. 8 Cr at the end of first year. This expansion will give net revenue of Rs. 6 Cr. for next 7 years.

The salvage value at the end of 8 years useful life is 0 and the brand uses 10% interest rate to evaluate the project. Prepare the decision tree and analyse it using the product's present worth.