



Ratio dekha hai

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# National Institute of Technology, Goa

Programme Name: B.Tech. (Civil & Mechanical)

End Semester Examination May - 2024

Course Name: Management

Date: 11-05-2024

Duration: 3 Hrs.

Course Code: HS 350

Time: 02:00 pm to 05:00 pm

Max. Marks: 100

ANSWER ALL QUESTIONS

## SECTION A (Short Answer) [10 x 1=10 Marks]

*Project crashing - Shortening timeline of project by using more resources.*

1. Describe the following terms in brief.

- a) Working Capital
- b) Accounting cycle
- c) Fund flow statement
- d) Perpetuity
- e) Journal
- f) PERT
- g) Project Crashing
- h) Accounting cycle
- i) Economic profit
- j) Payback period

*Total revenue  
- Total expenses  
(Explicit + Implicit)*

*Netsales - Sales - SP - discount*

## SECTION B (5 x 6 = 30 Marks)

*Ratio analysis*

2. From the following, calculate a) Net Profit Ratio and b) Operating Profit Ratio

*GPR = NS - COGS / GPR - DE / Admin selling*

$$NS = 2,00,000$$

$$GPR = 75,000$$

$$NPR = 75,000 - 26,000 \\ - 15,000$$

$$= 34,000$$

$$NPR = 34,000 + 5,000 \\ + 2,500 \\ + 2,000$$

$$NPR = 34,000 - 12,000$$

SNO	Item	Amount Rs.
1	Revenue from operation	2,00,000
2	Gross profit	75,000
3	Office expenses	15,000
4	Selling expenses	26,000
5	Interest on debentures	5,000
6	Accidental losses	12,000
7	Income from rent	2,500
8	Commission received	2,000

$$NPR = \frac{31,500}{2,00,000} = 0.1575$$

$$OPR = \frac{34,000}{2,00,000} = 0.17$$

3. Tara Singh has Rs. 12,500 that he can deposit in three savings accounts for three years. Bank A compounds interest annually, bank B compounds interest twice yearly, and Bank C compounds each quarter. All three banks have a stated annual interest rate of 6.5%.

TVM

(a) What amount would Mr Tara Singh have at the end of the third year, leaving all interest paid on deposit in each bank?

$$EAR = (1 + \frac{i}{m})^m - 1$$

(b) What effective annual rate (EAR) would he earn in each bank?

4. You are considering two investment options for your business. Both options require an initial investment of Rs. 50,000. Option A promises to pay Rs. 20,000 at the end of each year for the next five years. Option B promises to pay Rs. 15,000 at the end of each year for the next five years. However, you are uncertain about which option offers a better return given the time value of money.

(c) Calculate the Net Present Value (NPV) for both options using a discount rate of 8%. (4)

(d) Discuss which investment option would be preferable based on the NPV and IRR. (2)

$$NPV_A = \sum_{i=1}^5 \frac{20,000}{(1+0.08)^i} - 50,000 = 18,818.59, 17,146.8, 15,876.6, 14,700.5 \\ = 79,854 - 50,000 = 29,854$$

$$NPV_B = \sum_{i=1}^5 \frac{15,000}{(1+0.08)^i} - 50,000$$

$$= 13,888.8, 12,860, 11,967.4, 11,025.4, 10,208.7 \\ = 59,990.4 = 58,904$$

$$\begin{aligned} IRR \Rightarrow A \text{ NPV at } 32\% &= -3103 \\ \text{at } 8\% &= 29854 \\ &< 8\% + \frac{29854}{29854+3103} \times 24 \\ &= 8\% + 21.7 = 29.7 \end{aligned}$$

$$\begin{aligned} IRR \Rightarrow B \text{ NPV at } 32\% &= -5828 \\ \text{at } 8\% &= 9890.4 \\ &= 8\% + \frac{9890.4}{15828+9890} \times 24 \\ &= 8\% + 5.22 = 13.22 \end{aligned}$$

5 Managers' roles and functions keep changing according to organizational levels. Further, at each level, their required skills also vary. Comment on managers' roles, skills and functions based on their organizational level.

$$PV = \frac{210600}{0.1} = 2106000$$

$$A = \frac{20000}{0.1} = 200000$$

$$B = \frac{10000}{0.1} = 100000 + 25000 \times 10 = 125000$$

6. BHEL Corporation is evaluating two investment options for a project. Option A offers a perpetuity payment of Rs.20,000 annually, while Option B offers an annuity payment of Rs.25,000 for the first ten years, followed by \$10,000 annually indefinitely. The company's cost of capital is 10%.

TVM

- (a) Calculate the present value of each investment option. (4)  
 (b) Determine which investment option is preferable based on present value calculations. (2)

### SECTION C (5 x 8 = 40 Marks)

7. ABC Company is looking to invest in new machinery to replace the malfunctioning one. The new machine, which costs ₹560,000, would generate annual revenue of ₹ 150,000 and annual expenses of ₹ 60,000. The machine is estimated to have a useful life of 16 years and ₹60,000 as salvage value. However, the company's management requires a minimum ARR of 12% to undertake any project.

- (a) Calculate the average annual profit for the project. (2)  
 (b) Determine the Accounting Rate of Return (ARR) for the project. (4)  
 (c) Discuss whether the project meets the company's minimum ARR requirement and provide recommendations to the management.

$$\begin{aligned} \text{Depreciation} &= 560,000 - 60,000 / 16 = 31250 \\ \text{Profit} &= 150000 - 60000 - 31250 = 58750 \Rightarrow \text{Annual Profit} \end{aligned}$$

8. Answer the following question with the help of given data.

[6+2=8]

Period	365
Average Period of Credit allowed by suppliers	20 days
The <u>average</u> Total of Debtors Outstanding	750
Raw Material Consumption	6200
Total Production Cost	13000
Total Cost of Sales	14500
Sales of the year	18000
Value of Average stock Maintained	
Raw Material	430
Work in progress	470
Finished goods	420

C = 20  
 D = 750  
 F = 18000  
 R = 6200  
 W = 13000  
 A = 14500  
 P = 365

Avg investment  
 =  $\frac{560,000}{2} = 280000$   
 =  $\frac{58750}{280000} = 0.209 \approx 21\%$   
 R = 24.7 ≈ 25  
 C = 13.19 ≈ 13  
 F = 10.57 ≈ 11  
 D = 15.21 ≈ 15  
 C(-) = 20

I. Calculate: a) Raw Material Conversion Period b) Work in Progress Conversion Period c) Finished goods conversion period d) Debtors conversion period e) Average credit period granted by suppliers f) Total operating cycle. II. What is the operating cycle and calculate the number of operating cycles based on results of a) to f)

$$\begin{aligned} \text{Total operating cycle} &= 25 + 13 + 11 + 15 - 20 = 46 \\ \text{Operating cycle in years} &= 365 / 46 = 7.9 \end{aligned}$$

$$WIC \text{ Required} = \frac{\text{Total operating cost}}{\text{OC in years}} = \frac{13000}{7.9} = 1645.56$$

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$$= \frac{13000}{7.9} = 1645.56$$

**9.** How do you describe the term Working Capital? What are the uses of it? State and explain its advantages and dangers [2+2+4=8]

**10. a)** What do you mean by capital budgeting? How important is capital budgeting for an organization? (2)

**(b)** A firm is planning to invest in developing a drug. The project's estimated cost is Rs. 2,00,000/- while the expected annual cash inflow is 20,000, with an estimated life of 12 years. Calculate the following: i) Payback period, ii) post-pay-back profitability (PPP), iii) PPP index. (6)

$$\begin{array}{r} 40000 \\ \hline 20000 \\ \hline 20000 \\ \hline -40000 \\ \hline 20000 \\ \hline \end{array}$$

**11.** Explain various activity and liquidity ratios and their relevant formulas. Elaborate on the usages of these ratios for different stakeholders

$$\begin{array}{r} 40000 \\ \hline 20000 \\ \hline 20000 \\ \hline -40000 \\ \hline 20000 \\ \hline \end{array}$$

#### SECTION D (2 x 10 = 20 Marks)

**12.**

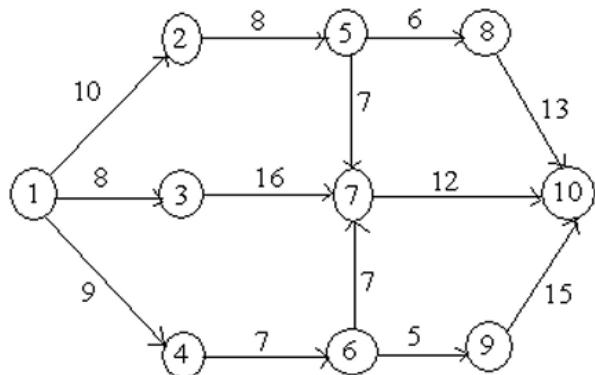


Figure 1. Network diagram

**(a)** Differentiate between PERT and CPM methods based on their features, applications, and limitations. (4)

**(b)** Determine the early start (ES) and late start (LS) for all node points and identify the critical path for the given network diagram (Figure 1). All the ES and LS need to depict along with the events (6)

**13.** Suppose you started a business with your fund on 10-05-2024 and assume five transactions happened on the same day. Based on the given situation, answer the following:

- a) State the name and nature of the business. (1)
- b) Make a proper journal entry for those five transactions. Each transaction should be particular to the nature of your business. (5)
- c) Post those journal entries into the ledger/s. (4)

10/5	Cash	1,00,000	
	Capital		1,00,000
11/5	Machinery	50,000	
	Cash		50,000
12/5	Rent Paid	5000	
	Cash		5000
13/5	Cash	40,000	
	Fee Earned		40,000
14/5	Wages Paid	6000	
	Cash		60,000

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