PAPER – 3 : COST ACCOUNTING AND FINANCIAL MANAGEMENT

*Question No. **1** is compulsory.*

*Attempt any **five** questions out of the remaining **six** questions.*

In case, any candidate answers extra question(s)/ sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra question(s) answered shall be ignored.

Working notes should form part of the answer.

Question 1

Answer the following:

(a) Calculate the machine hour rate from the following:

	Amount ₹
Cost of machine	1,50,000
Cost of Installation	10,000
Scrap value after 10 years	16,000
Rates & rent for a quarter for the shop	1,200
General lighting	500 p.m.
Shop supervisor's salary	30,000 per quarter
Insurance premium for a machine	1,200 p.a.
Estimated repair	1,400 p.a.
Power: 2 units per hour @ 750 per 100 units	
Estimated working hours p.a. 2000 hours.	

The machine occupies 1/3rd of the total area of the shop. The supervisor is expected to devote 1/6th of his time for supervising the machine. General lighting expenses are to be apportioned on the basis of floor area.

(b) The following figures are related to KRB Limited for the year ended 31st March, 2020:

- *Sales 43,200 units @ ₹ 150 per unit*
- *P/V ratio is 20% and*
- *Break-even point is 25% of Sales*

Calculate:

(i) Fixed cost for the year

(ii) Profit earned for the year

(iii) Margin of safety (in units) for the year

(iv) No. of units to be sold to earn a profit of ₹12,00,000 for the year.

(c) XYZ Steel Ltd.'s transactions for the year ended March 31, 2020 include the following:

(1) Purchased real estate for ₹5,00,000 which was borrowed from a bank.

(2) Sold investment securities worth ₹6,00,000

(3) Paid dividends of ₹3,00,000

(4) Issued 500 equity shares for ₹3,50,000

(5) Purchased machinery and equipment for ₹1,75,000

(6) Paid ₹7,50,000 towards a bank loan

(7) Accounts Receivable outstanding of ₹1,00,000 were realised

(8) Accounts Payable were increased by ₹1,90,000

Calculate the 'Net Cash Flow' from:

(i) Investing activities and

(ii) Financing activities.

(d) The total credit sales of a company are ₹12,80,000. It has a gross profit margin of 15% and a current ratio of 1.75.

Other informations are as follows:

Current liabilities	*₹1,92,000*
Closing Inventories	*₹96,000*
Cash balance	*₹32,000*
Inventory turnover	*4 times*
Opening debtors	*₹4,32,000*

You are required to calculate:

(i) The average inventory to be carried by the company.

(ii) Average collection period.

(Assume a 360 day year) ***(4 x 5 = 20 Marks)***

Answer

(a) Calculation of Machine Hour Rate:

Particulars	Amount (₹)
Depreciation $\left(\frac{₹1,50,000 + ₹10,000 - ₹16,000}{10}\right)$	14,400

Rates and Rent {(₹ 1,200 x 4) x 1/3}	1,600
General Lighting {(₹ 500 x 12) x 1/3}	2,000
Shop supervisor salary {(₹ 30,000 x 4) x 1/6}	20,000
Insurance Premium	1,200
Repairs	1,400
Power {(2000 x 2) x ₹ 750/100}	30,000
Total (A)	70,600
Machine Hours (B)	2,000
Machine Hour Rate {(A)/(B)}	**35.30**

(b) (i) Fixed cost for the year

Total Sales(43,200 units x ₹ 150 per unit)= ₹ 64,80,000

Break Even Sales = ₹ 64,80,000 x 25% = ₹ 16,20,000

Fixed cost = Break Even Sales x P/V ratio

= ₹ 16,20,000 x 20% **= ₹ 3,24,000**

(ii) Profit earned for the year

Profit = (Total Sales x P/V ratio) - Fixed cost

= (₹ 64,80,000 x 20%) - ₹ 3,24,000

= **₹ 9,72,000**

(iii) Margin of Safety in units

$$\text{Margin of Safety (units)} = \frac{\text{Profit}}{\text{Cont. per unit}}$$

$$= \frac{₹\ 9,72,000}{₹\ 30} = \textbf{32,400 units}$$

(iv) No of units to be sold to earn a profit of ₹ 12,00,000

$$\text{Desired Sales} = \frac{\text{Fixed Cost + Desired Profit}}{\text{Cont. per unit}}$$

$$= \frac{₹\ 3,24,000 + ₹\ 12,00,000}{₹\ 30}$$

= **50,800 Units**

(c) (i) Net Cash Flow from Investing activity:

Particulars	Amount (₹)
Purchase of real estate	(5,00,000)
Sold investment securities	6,00,000
Purchase of Machinery and equipment	(1,75,000)
Net Cash Flow	**(75,000)**

(ii) Net Cash Flow from Financing activity:

Particulars	Amount (₹)
Loan taken for purchase of real estate	5,00,000
Dividend paid	(3,00,000)
Issue of shares	3,50,000
Loan repaid	(7,50,000)
Net Cash Flow	**(2,00,000)**

(d) (i) Calculation of average inventory to be carried by the company

$$\text{Inventory Turnover} = \frac{\text{Cost of goods sold}}{\text{Average Inventory}}$$

Since gross profit margin is 15 per cent, the cost of goods sold should be 85 per cent of the sales.

Cost of goods sold = 0.85 × ₹ 12,80,000 = ₹ 10,88,000

$$\text{Thus, } 4 = \frac{₹\,10,88,000}{\text{Average Inventory}}$$

$$\text{Average inventory} = \frac{₹\,10,88,000}{4} = ₹\ 2,72,000$$

(ii) Calculation of average collection period

$$\text{Average collection period} = \frac{\text{Average Receivables}}{\text{Credit Sales}} \times 360 \text{ days}$$

$$\text{Average Receivables} = \frac{(\text{Opening Receivables} + \text{Closing Receivables})}{2}$$

Closing balance of receivables is found as follows:

	(₹)	(₹)
Current assets (1.75 of current liabilities)		3,36,000

Less: Inventories	96,000	
Cash	32,000	(1,28,000)
Receivables		2,08,000

Average Receivables = $\frac{₹\ 2,08,000 + ₹\ 4,32,000}{2}$

= **₹ 3,20,000**

Average collection period = $\frac{₹\ 3,20,000}{₹\ 12,80,000}$ x 360 = **90 days**

Question 2

(a) A manufacturing company process a product which passes through three processes named as Process A, Process B and Process C. Following information relating to Process 'B' is available:

Opening Stock	*- Nil*
Units transferred from Process A	*- 75,000 Units valued at ₹ 3,09,000*
Cost incurred in Process B:	
Consumables	*₹ 2,43,600*
Labour	*₹ 1,38,000*
Overhead	*₹ 1,03,500*
Units transferred to Process C	*68,000 Units*
Closing work in progress 3,000 Units (Degree of completion):	
Consumables	*70%*
Labour	*50%*
Overhead	*50%*

Normal loss is 6% of units introduced. Units scrapped as normal loss were sold @ ₹ 6 per unit.

You are required to:

(i) Prepare a Statement of Equivalent Production

(ii) Calculate Cost per unit

(iii) Calculate the value of work in progress and value of units transferred to Process 'C'.

(8 Marks)

(b) KT Limited is considering to buy any one of the two mutually exclusive machines X and Y. The details are as under:

	Machine X	*Machine Y*
Cost of Machine	*₹ 7,00,000*	*₹ 10,50,000*
Expected life	*5 years*	*6 years*
Annual Income before tax and depreciation	*₹ 2,41,500*	*₹ 3,18,500*

The cost of capital is 13% and the corporate tax rate is 30%.

Depreciation is to be charged on straight line basis.

You are required to:

(i) Calculate the discounted pay-back period and internal rate of return for each machine.

(ii) Advise the management of KT Limited as to which machine it should buy.

The present value factors of Re. 1 are as under:

YEAR	*12%*	*13%*	*14%*	*15%*	*16%*
1	*0.893*	*0.885*	*0.877*	*0.870*	*0.862*
2	*0.797*	*0.783*	*0.769*	*0.756*	*0.743*
3	*0.712*	*0.693*	*0.675*	*0.658*	*0.641*
4	*0.636*	*0.613*	*0.592*	*0.572*	*0.552*
5	*0.567*	*0.543*	*0.519*	*0.497*	*0.476*
6	*0.507*	*0.480*	*0.456*	*0.432*	*0.410*

(8 Marks)

Answer

(a) (i) Statement of Equivalent Production

Input Details	**Units**	**Output Particulars**	**Units**	**Equivalent Production**					
				Material- A		**Consumables**		**Labour & Overheads**	
				%	**Units**	**%**	**Units**	**%**	**Units**
Units transferred from Process-A	75,000	Units transferred to Process-C	68,000	100	68,000	100	68,000	100	68,000
		Normal loss (6% of 75,000 units)	4,500	-	-	-	-	-	-

		Closing W-I-P	3,000	100	3,000	70	2,100	50	1,500
		Abnormal Gain	(500)	100	(500)	100	(500)	100	(500)
	75,000		**75,000**		**70,500**		**69,600**		**69,000**

(ii) Calculation of Cost per Unit

Particulars	**Amount (₹)**	**Units**	**Per Unit (₹)**
(i) Direct Material:			
Value of units transferred from Process-A	3,09,000		
Less: Value of normal loss (4,500 units × ₹ 6)	(27,000)		
	2,82,000	70,500	4.00
(ii) Consumables added in Process-B	2,43,600	69,600	3.50
(iii) Labour	1,38,000	69,000	2.00
(iii) Overhead	1,03,500	69,000	1.50
Total Cost per equivalent unit			**11.00**

(iii) Calculation of value of Work-in-Process and units transferred to Process-C

Particulars	**Units**	**Rate (₹)**	**Amount (₹)**
Value of Closing W-I-P:			
Material from Process-A	3,000	4.00	12,000
Consumables	2,100	3.50	7,350
Labour	1,500	2.00	3,000
Overhead	1,500	1.50	2,250
			24,600
Value of units transferred to Process-C	68,000	11.00	**7,48,000**

(b) Workings:

1. Depreciation per annum:

$$\text{Machine-X} = \frac{₹\,7,00,000}{5\,\text{years}} = ₹\ 1,40,000$$

$$\text{Machine-Y} = \frac{₹\,10,50,000}{6\,\text{years}} = ₹\ 1,75,000$$

2. Annual cash inflow:

Particulars	Machine-X (₹)	Machine-Y (₹)
Earnings before Depreciation and Tax	2,41,500	3,18,500
Less: Depreciation	(1,40,000)	(1,75,000)
Earnings before Tax	1,01,500	1,43,500
Less: Tax @ 30%	(30,450)	(43,050)
Earnings after Tax	71,050	1,00,450
Add: Depreciation	1,40,000	1,75,000
Cash Inflow	**2,11,050**	**2,75,450**

3. Calculation of PV of cash flows

		Machine-X (₹)			Machine-Y (₹)		
Year	PV factor at 13%	Cash flow	PV of Cash flow	Cumulative PV of Cash flow	Cash flow	PV of Cash flow	Cumulative PV of Cash flow
1	0.885	2,11,050	1,86,779	1,86,779	2,75,450	2,43,773	2,43,773
2	0.783	2,11,050	1,65,252	3,52,031	2,75,450	2,15,677	4,59,450
3	0.693	2,11,050	1,46,258	4,98,289	2,75,450	1,90,887	6,50,337
4	0.613	2,11,050	1,29,374	6,27,663	2,75,450	1,68,851	8,19,188
5	0.543	2,11,050	1,14,600	7,42,263	2,75,450	1,49,569	9,68,757
6	0.480	--	--	--	2,75,450	1,32,216	11,00,973

(i) Calculation of discounted Pay-back period:

$$\text{Machine-X} = 4 \text{ years} + \frac{₹\,7,00,000 - ₹\,6,27,663}{₹\,1,14,600} = \textbf{4.63 years}$$

$$\text{Machine-Y} = 5 \text{ years} + \frac{₹\,10,50,000 - ₹\,9,68,757}{₹\,1,32,216} = \textbf{5.61 years}$$

Calculation of Internal Rate of Return (IRR):

Machine-X:

At 13% discount rate, PV of cash inflows:

= ₹ 2,11,050 × PVIAF (13%, 5 years)

= ₹ 2,11,050 × 3.517 = ₹ 7,42,263

At 16% discount rate, PV of cash inflows:

= ₹ 2,11,050 × PVIAF (16%, 5 years)

= ₹ 2,11,050 × 3.274 = ₹ 6,90,978

$$IRR = LR + \frac{PV\,at\,LR - Capital\,Investment}{PV\,at\,LR - PV\,at\,HR} \times (HR - LR)$$

$$IRR\ of\ Machine\ X = 13 + \frac{₹\,7,42,263 - ₹\,7,00,000}{₹\,7,42,263 - ₹\,6,90,978} \times (16 - 13)$$

$$= 13 + \frac{₹\,42,263}{₹\,51,285} \times 3$$

IRR of Machine X = 15.47% (approx.)

Machine-Y:

At 13% discount rate, PV of cash inflows:

= ₹ 2,75,450 × PVIAF (13%, 6 years)

= ₹ 2,75,450 × 3.997 = ₹ 11,00,974

At 16% discount rate, PV of cash inflows:

= ₹ 2,75,450 × PVIAF (16%, 6 years)

= ₹ 2,75,450 × 3.684 = ₹ 10,14,758

$$IRR\ of\ Machine\ Y = 13 + \frac{₹\,11,00,974 - ₹\,10,50,000}{₹\,11,00,974 - ₹\,10,14,758} \times (16 - 13)$$

$$= 13 + \frac{₹\,50,974}{₹\,86,216} \times 3$$

IRR of Machine Y = 14.77% (approx.)

(ii) The Management should consider to buy Machine X for the following reasons:

(a) The Payback period is 4.63 years as compared to 5.61 years for Machine-Y.

(b) The IRR is 15.47% as compared to 14.77% for Machine-Y.

Question 3

(a) (i) The following information is furnished by ABC Ltd.:

Re-order quantity	*6,750 units*
Minimum stock level to allow for emergencies	*5 weeks*
Average Delivery time from suppliers	*4 weeks*

Maximum stock level allowed by Management	*20 weeks*
Average rate of consumption per week	*625 units*
Minimum consumption in 4 weeks	*1,250 units*

Calculate:

(a) Re-order Level

(b) Maximum Stock Level

(c) Minimum Stock Level ***(4 Marks)***

(ii)

	Material A (₹)	*Material B (₹)*
Standard price per unit	*12*	*15*
Actual price per unit	*15*	*20*
Standard Input (kg)	*50*	*??*
Actual Input (kg)	*40*	*70*
Material usage variance	*??*	*300(A)*

Calculate:

(a) Material cost variance

(b) Material price variance

(c) Material usage variance of material A ***(4 Marks)***

(b) The data of SM Limited for the year ended 31st March 2020 is given below:

Fixed Cost (Excluding Interest)	*₹ 2.25 Lakhs*
Sales	*₹ 45 Lakhs*
Equity Share Capital of ₹ 10 each	*₹ 38.50 Lakhs*
12% Debentures of ₹ 500 each	*₹ 20 Lakhs*
Operating Leverage	*1.2*
Combined Leverage	*4.8*
Income tax rate	*30%*

Required:

(i) Calculate P/V ratio, Earning per share, Financial leverage and Assets turnover.

(ii) If asset turnover of an industry is 1.1, then comment on adequacy of assets turnover of SM Limited.

(iii) At what level of sales the Earning before tax (EBT) of SM Limited will be equal to zero? ***(8 Marks)***

Answer

(a) (i) (a) Re-order level

= Minimum stock + (Average consumption × Average delivery time)

= 1,250 units + [625 units × 4 weeks] = 3,750 units

(b) Maximum Stock Level

= Re-order level + Re-order quantity – (Min. consumption × Min. re order period)

= 3,750 units + 6,750 units – 1250 units

= 9,250 units

(c) Minimum Stock Level

= Re-order level – (Average consumption × Average delivery time)

= 3,750 units – (625 units × 4 weeks) = 1,250 units

(Note: It has been assumed that average delivery time and minimum delivery time is same i.e. 4 weeks)

(ii) Workings:

Calculation of standard input of Material B

Material Usage Variance (B)	= 300 (A)	
Material Usage Variance	= (SQ – AQ) × SP	
Therefore:		
	= (SQ – 70) x ₹ 15 = 300 (A)	
	= SQ (B) = 50 kg	

(a) Material Cost Variance

Material Cost Variance	= (SQ x SP) – (AQ x AP)	
Material A	= (50 x ₹ 12) – (40 x ₹ 15)	= 0
Material B	= (50 x ₹ 15) – (70 x ₹ 20)	= ₹ 650 (A)
		= ₹ 650 (A)

(b) Material Price Variance

Material Price Variance	= (SP – AP) × AQ	
Material A	= (₹ 12 – ₹ 15) × 40	= ₹ 120 (A)

Material B = (₹ 15 – ₹ 20) × 70 = ₹ 350 (A)

= ₹ 470 (A)

(c) Material Usage Variance Material A

Material Usage Variance (A) = (SQ – AQ) x SP

= (50 – 40) × ₹ 12

= ₹ 120 (F)

(b) (i) Calculation of P/V ratio, EPS, Financial Leverage and Asset Turnover

$$\text{Operating leverage} = \frac{\text{Contribution (C)}}{\text{C - Fixed Cost (FC)}} \times 100$$

$$1.2 = \frac{C}{C - 2,25,000}$$

Or, 1.2 (C – 2,25,000) = C

Or, 1.2 C – 2,70,000 = C

$$\text{Or, } C = \frac{₹\ 2,70,000}{0.2} = ₹\ 13,50,000$$

$$\text{Now, } \textbf{P/V ratio} = \frac{\text{Contribution (C)}}{\text{Sales (S)}} \times 100 = \frac{₹\ 13,50,000}{₹\ 45,00,000} \times 100 = 30\,\%$$

Therefore, P/V Ratio = 30 %

$$\text{EPS} = \frac{\text{Profit after tax}}{\text{No. of equity shares}}$$

EBT = Contribution – FC – Interest

= ₹13,50,000 – ₹ 2,25.000 – ₹ 2,40,000

= ₹ 8,85,000

PAT = EBT – Tax

= ₹ 8,85,000 – ₹ 2,65,500 = ₹ **6,19,500**

$$\textbf{EPS} = \frac{₹\ 6,19,500}{₹\ 3,85,000} = ₹\ 1.61$$

Combined Leverage = Operating Leverage (OL) × Financial Leverage (FL)

4.8 = 1.2 × FL

Or, FL = 4

Financial Leverage = 4

Assets turnover $= \frac{\text{Sales}}{\text{Total Assets}} = \frac{₹\ 45,00,000}{₹\ 58,50,000} = 0.769$

(ii) 0.769 < 1.1. It means lower than industry turnover.

(iii) EBT zero means Contribution = Fixed cost + Interest

Hence Contribution = ₹ 2,25,000 + ₹ 2,40,000 = ₹ 4,65,000

Sales = Contribution/P/V ratio = ₹ 4,65,000/30% = **₹ 15,50,000**

Therefore, at **₹ 15,50,000** level of sales, the Earnings before Tax of the company will be equal to zero.

(Note: Question may also be solved in alternative ways.)

Question 4

(a) TK Ltd. has estimated the following figures for its two products 'X' and 'Y' for the coming year :

	Product X (₹)	*Product Y (₹)*
Sales Units	*2,000*	*2,500*
Raw material cost per unit	*30*	*40*
Direct Labour Cost per unit	*20*	*14*
Variable overhead per unit	*15*	*10*
Fixed overhead	*50,000*	*60,000*
Selling price per unit	*140*	*200*

Company has received a proposal that if an additional fixed expenditure of ₹ 16,000 on Product X and ₹ 17,000 on Product Y is incurred, the sales for both the products can be increased by 10% but for this purpose, variable overheads shall also be increased by 20% for Product X and 10% for Product Y.

(i) You are required to prepare 'flexible budget' for both the products :

(a) Before new proposal and

(b) After new proposal

(ii) Advise the company whether the proposal should be accepted or not:

(a) if both the products are independent and

(b) if both the products are not independent. ***(8 Marks)***

(b) *ABC Ltd., a profit-making company, is engaged in the business of car manufacturing. In order to be independent in terms of its electricity needs, the company's management has proposed to put up a Solar Power Plant to generate the electricity. The details of the proposal are as follows:*

(1) *Cost of the power plant* ₹ *280 lakhs*

(2) *Cost of land* ₹ *30 lakhs*

(3) *Subsidy of* ₹ *25 lakhs from state government to be received at the end of first year of installation.*

(4) *Sale of electricity to State Electricity Board will be at* ₹ *2.25 per unit in year 1. This will increase by* ₹ *0.25 per unit every year till year 7. After that it will increase by* ₹ *0.50 per unit every year.*

(5) *Maintenance cost will be* ₹ *4 lakhs in year 1 and the same will increase by* ₹ *2 lakhs every year.*

(6) *Estimated life is 10 years.*

(7) *Cost of capital 15%.*

(8) *Residual value of power plant is nil. However, land value will go up to* ₹ *90 lakhs at the end of year 10.*

(9) *Depreciation will be 100% of the cost of the power plant in year 1 (entire* ₹ *280 lakhs is to be depreciated in year 1 without considering subsidy) and the same will be allowed for tax purposes.*

(10) *Gross electricity generated will be 25 lakhs units per annum. 4% of this electricity generated will be committed free to the State Electricity Board as per the agreement.*

(11) *Tax rate is 50%.*

You are required to suggest the viability of the proposal by calculating the 'Net Present Value' while ignoring the tax on capital profit. Assume that the tax savings, if any, are utilized in the year of their occurrence.

Present value (PV) factor @ 15% for the year 1 to year 10 are as given below and should be used for calculating present value of various cash flows.

Year	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
PV Factor	*0.870*	*0.756*	*0.658*	*0.572*	*0.497*	*0.432*	*0.376*	*0.327*	*0.284*	*0.247*

(8 Marks)

Answer

(a) (i) Statement of Flexible Budget for the both the products:

Particulars	Product-X (₹)		Product-Y (₹)	
	Before new proposal	After new proposal	Before new proposal	After new proposal
Sales unit	2,000	2,200 (110% of 2,000)	2,500	2,750 (110% of 2,500)
Sales price per unit	140	140	200	200
Sales value (A)	2,80,000	3,08,000	5,00,000	5,50,000
Variable cost:				
- Raw Material	60,000 (30×2,000)	66,000 (30×2,200)	1,00,000 (40×2,500)	1,10,000 (40×2,750)
- Direct labour	40,000 (20×2,000)	44,000 (20×2,200)	35,000 (14×2,500)	38,500 (14×2,750)
- Variable overhead	30,000 (15×2,000)	39,600 (15×120%×2,200)	25,000 (10×2,500)	30,250 (10×110%×2,750)
Total Variable cost (B)	1,30,000	1,49,600	1,60,000	1,78,750
Fixed cost (C)	50,000	66,000	60,000	77,000
Profit {A – (B+C)}	**1,00,000**	**92,400**	**2,80,000**	**2,94,250**

(ii) Advise:

(a) If both the products are independent then **proposal for Product-Y is accepted** as the profit for the Product-Y is increased to ₹ 2,94,250 from ₹ 2,80,000.

(b) If both the products are not independent then **proposal for both the products is accepted** as profit for both the products will increase to ₹ 3,86,650 from ₹ 3,80,000.

(b) Gross electricity generated = 25 lakhs unit p.a.

Free commitment (4%) = 1 lakh unit p.a.

Net chargeable electricity generated = 24 lakhs unit p.a.

Computation of Annual Cash Flow

Period	Rate Per Unit (₹)	Revenue (₹) (A)	Maintenance Cost (₹) (B)	Profit Before Tax (₹) (C)= (A) – (B)	Tax @ 50% (₹) (D)	Profit after Tax (₹) (C) – (D)
1	2.25	54,00,000	4,00,000	50,00,000	25,00,000	25,00,000
2	2.50	60,00,000	6,00,000	54,00,000	27,00,000	27,00,000
3	2.75	66,00,000	8,00,000	58,00,000	29,00,000	29,00,000
4	3.00	72,00,000	10,00,000	62,00,000	31,00,000	31,00,000
5	3.25	78,00,000	12,00,000	66,00,000	33,00,000	33,00,000
6	3.50	84,00,000	14,00,000	70,00,000	35,00,000	35,00,000
7	3.75	90,00,000	16,00,000	74,00,000	37,00,000	37,00,000
8	4.25	102,00,000	18,00,000	84,00,000	42,00,000	42,00,000
9	4.75	114,00,000	20,00,000	94,00,000	47,00,000	47,00,000
10	5.25	126,00,000	22,00,000	104,00,000	52,00,000	52,00,000

Computation of Net Present Value

Period	Annual Cash Flow (₹)	Subsidy (₹)	Tax Benefit on Machine Depreciation (₹)	Sale of Land (₹)	Total Cash Inflow (₹)	PVF @15%	PV (₹)
1	25,00,000	25,00,000	140,00,000	-	1,90,00,000	0.87	165,30,000
2	27,00,000	-	-	-	27,00,000	0.756	20,41,200
3	29,00,000	-	-	-	29,00,000	0.658	19,08,200
4	31,00,000	-	-	-	31,00,000	0.572	17,73,200
5	33,00,000	-	-	-	33,00,000	0.497	16,40,100
6	35,00,000	-	-	-	35,00,000	0.432	15,12,000
7	37,00,000	-	-	-	37,00,000	0.376	13,91,200
8	42,00,000	-	-	-	42,00,000	0.327	13,73,400
9	47,00,000	-	-	-	47,00,000	0.284	13,34,800
10	52,00,000	-	-	90,00,000	142,00,000	0.247	35,07,400
Total Present Value of Cash Inflows							**3,30,11,500**
Less: Initial Outlay							3,10,00,000
Net Present Value							**20,11,500**

The proposed project has NPV of ₹ 20,11,500 and is viable to undertake.

Question 5

(a) What is a Cost Driver? Give two examples of cost drivers for each of the following business functions :

(i) Procurement

(ii) Research and Development

(iii) Customer Service

(b) Explain the following :

(i) Notional profit in Contract Costing.

(ii) Retention Money in Contract Costing.

(c) Differentiate between Deep Discount Bonds and Zero Coupon Bonds.

(d) Write short notes on the following:

(i) Cash Credit

(ii) Bills Discounting ***(4 x 4 =16 Marks)***

Answer

(a) Cost Driver: A cost driver is a factor or variable which effect the level of cost. In other words, it is an activity which is responsible for cost incurrence. In the context of Activity Based Costing (ABC) a cost driver denotes the factor which links activity resource consumption to the product output.

Examples of cost drivers in the business functions in the value chain are:

(i) Procurement: Number of Purchase Order, Number of Suppliers, Number of items procured and volume of purchases (in quantitative terms)

(ii) Research and development: Number of research projects, personnel hours on a project, technical complexities of the projects.

(iii) Customer service: Number of service calls, number of products serviced, hours spent in servicing of products.

(b) (i) Notional profit in Contract costing: It represents the difference between the value of work certified and cost of work certified.

Notional Profit = Value of work certified – (Cost of works to date – Cost of work not yet certified)

(ii) Retention Money in Contract Costing: A contractor does not receive the full payment of the work certified by the surveyor. Contractee retains some amount to be paid after some time, when it is ensured that there is no default in the work done by the contractor. If any deficiency or defect is noticed, it is to be rectified by the

contractor before the release of the retention money. Thus, the retention money provides a safeguard against the default risk in the contracts.

(c) Deep Discount Bonds vs. Zero Coupon Bonds: Deep Discount Bonds (DDBs) are in the form of zero interest bonds. These bonds are sold at a discounted value and on maturity face value is paid to the investors. In such bonds, there is no interest pay-out during lock-in period.

IDBI was first to issue a Deep Discount Bonds (DDBs) in India in January 1992. The bond of a face value of ₹ 1 lakh was sold for ₹ 2,700 with a maturity period of 25 years.

A **zero-coupon bond (ZCB)** does not carry any interest, but it is sold by the issuing company at a discount. The difference between discounted value and maturing or face value represents the interest to be earned by the investor on such bonds.

(d) (i) Cash Credit: Cash Credit is an arrangement under which a customer is allowed an advance up to certain limit against credit granted by bank. Under this arrangement, a customer need not borrow the entire amount of advance at one time; he can only draw to the extent of his requirements and deposit his surplus funds in his account. Interest is not charged on the full amount of the advance but on the amount actually availed of by him.

(ii) Bills Discounting: These advances are allowed against the security of bills which may be clean or documentary. Bills are sometimes purchased from approved customers in whose favour limits are sanctioned. Before granting a limit, the banker satisfies himself as to the credit worthiness of the drawer. Although the term 'bills purchased' gives the impression that the bank becomes the owner or purchaser of such bills, in actual practice the bank holds the bills only as security for the advance. The bank, in addition to the rights against the parties liable on the bills, can also exercise a pledge's rights over the goods covered by the documents.

Question 6

(a) The standard time allowed for a certain piece of work is 300 hours. Normal wages is ₹ 60 per hour.

The bonus system applicable to the work is as follows:

Percentage of time saved to time allowed (slab rate)	*Bonus*
(i) Up to the first 20% of time allowed	*25% of the corresponding saving in time.*
(ii) For and within the next 30% of time allowed	*40% of the corresponding saving in time.*
(iii) For and within the next 30% of time allowed	*30% of the corresponding saving in time.*
(iv) For and within the next 20% of time allowed	*10% of the corresponding saving in time.*

Calculate the total earnings of a worker over the piece of work and his earnings per hour when he takes.

(a) 320 hours,

(b) 150 hours, and

(c) 30 hours respectively. ***(8 Marks)***

(b) RB Limited is working as market leader and there is no competitor of the company in the market. The following information is provided by the RB Limited for the year ended on 31st March, 2020 :

Raw Material storage period	*30 days*
Work in progress conversion period	*15 days*
Finished goods storage period	*18 days*
Debt Collection period	*30 days*
Creditor's payment period	*45 days*
Annual operating cost	*₹ 20,00,000*
(Including depreciation ₹ 2,00,000)	

You are required to calculate:

(i) Operating cycle period

(ii) Number of operating cycle period

(iii) Amount of working capital required for the company on a cash cost basis.

(iv) Amount of reduction/addition in working capital requirement if:

(a) All purchases are made on cash basis only.

(b) All sales are made on a cash basis only.

(Assume 360 days in a year) ***(8 Marks)***

Answer

(a) Calculation of total earnings and earnings per hour:

	Particulars	(a) Time taken is 320 hours	(b) Time taken is 150 hours	(c) Time taken is 30 hours
A.	Time Allowed	300 hours	300 hours	300 hours
B.	Time taken	320 hours	150 hours	30 hours
C.	Time Saved (A-B)	Nil	150 hours	270 hours

D.	Bonus hours (Refer the workings)	Nil	51 hours	81 hours
E.	Hours to be paid (B+D)	320 hours	201 hours	111 hours
F.	Wages rate per hour	₹ 60	₹ 60	₹ 60
G.	**Total earnings (E×F)**	**₹ 19,200**	**₹ 12,060**	**₹ 6,660**
H.	**Earnings per hour (G÷B)**	**₹ 60**	**₹ 80.40**	**₹ 222**

Workings:

Calculation of bonus hours:

	Time saved 150 hours	**Time saved 270 hours**
For first 20% of time allowed i.e. 60 hours	15 (25% of 60 hours)	15 (25% of 60 hours)
For next 30% of time allowed i..e. 90 hours	36 (40% of 90 hours)	36 (40% of 90 hours)
For next 30% of time allowed i..e. 90 hours	-	27 (30% of 90 hours)
For next 20% of time allowed i..e. 60 hours	-	3 (10% of 30 hours)
Bonus hours	**51**	**81**

(b) (i) Calculation of Operating Cycle Period:

Operating Cycle Period = R + W + F + D – C

= 30 + 15 + 18 + 30 – 45 = 48 days

(ii) Number of Operating Cycle in a Year

$$= \frac{360}{\text{Operating Cycle Period}} = \frac{360}{48} = 7.5 \text{ times}$$

(iii) Amount of Working Capital Required

$$= \frac{\text{Annual Operating Cost}}{\text{Number of Operating Cycle}} = \frac{₹\,20,00,000 - ₹\,2,00,000}{7.5}$$

$$= \frac{₹\,18,00,000}{7.5} = ₹\,2,40,000$$

(iv) (a) Addition in Working Capital requirement (when all purchases are made on cash basis only)

Operating Cycle Period = R + W + F + D

= 30 + 15 + 18 + 30 = 93 days

Amount of Working Capital Required = $\frac{₹\,18,00,000}{360} \times 93 = ₹\,4,65,000$

Addition in Working Capital requirement = ₹ 4,65,000 – ₹ 2,40,000 = **₹ 2,25,000**

(b) Reduction in Working Capital requirement (when all sales are made on cash basis only)

Operating Cycle Period = R + W + F – C

= 30 + 15 + 18 – 45 = 18 days

Amount of Working Capital Required = $\frac{₹\,18,00,000}{360} \times 18 = ₹\,90,000$

Reduction in Working Capital requirement = ₹ 2,40,000 – ₹ 90,000 = **₹ 1,50,000**

Question 7

Answer any four of the following :

(a) State the four causes due to which "differences arise in the profits computed as per cost and financial accounts".

(b) Discuss two ways for the treatment of by-product cost in cost accounting

(c) Explain :

(i) Time value of money

(ii) Sinking Fund

(d) Explain the limitations of profit maximization objective of Financial Management.

(e) (i) Give the 'Cost unit' and 'Costing method' for each of the following industries :

(a) Construction contract

(b) Automobiles

(ii) Explain the term - Retained Earnings. ***(4 x 4 =16 Marks)***

Answer

(a) Reasons/ Causes for disagreement of profits as per cost and financial accounts: The various reasons for disagreement of profits shown by the two sets of books viz., cost and financial may be listed as below:

1. ***Items appearing only in financial accounts:*** The following items of income and expenditure are normally included in financial accounts and not in cost accounts. Their inclusion in cost accounts might lead to unwise managerial decisions. These items are:

(i) Income:

(a) Profit on sale of assets

(b) Interest received

(c) Dividend received

(d) Rent receivable

(e) Share Transfer fees

(ii) Expenditure

(a) Loss on sale of assets

(b) Uninsured destruction of assets

(c) Loss due to scrapping of plan and machinery

(d) Preliminary expenses written off

(e) Goodwill written off

(f) Underwriting commission and debenture discount written off

(g) Interest on mortgage and loans

(h) Fines and penalties

(iii) Appropriation

(a) Dividends

(b) Reserves

(c) Dividend equalization fund, Sinking fund etc.

2. ***Items appearing only in cost accounts:*** There are some items which are included in cost accounts but not in financial account. These are:

   (a) Notional interest on capital;

   (b) Notional rent on premises owned.

3. ***Under or over-absorption of overhead:*** In cost accounts overheads are charged to production at pre-determined rates where in financial accounts actual amount of overhead is charged, the difference gives rise under or over-absorption; causing a difference in profits.

4. ***Different bases of stock valuation:*** In financial books, stocks are valued at cost or market price, whichever is lower. In cost books, however, stock of materials may be valued on FIFO or LIFO basis and work-in-progress may be valued at prime cost or works cost. Differences in store valuation may thus cause a difference between the two profits.

5. ***Depreciation:*** The amount of depreciation charge may be different in the two sets of books either because of the different methods of calculating depreciation or the rates adopted. In company accounts, for instance, the straight line method may be adopted whereas in financial accounts it may be the diminishing balance method.

(b) Treatment of by-product cost in Cost Accounting:

(i) When they are of small total value, the amount realized from their sale may be dealt as follows:

- Sales value of the by-product may be credited to Costing Profit & Loss Account and no credit be given in Cost Accounting. The credit to Costing Profit & Loss Account here is treated either as a miscellaneous income or as additional sales revenue.
- The sale proceeds of the by-product may be treated as deduction from the total costs. The sales proceeds should be deducted either from production cost or cost of sales.

(ii) When they require further processing:

In this case, the net realizable value of the by-product at the split-off point may be arrived at by subtracting the further processing cost from realizable value of by-products. If the value is small, it may be treated as discussed in (i) above.

(c) (i) Time Value of Money: It means money has time value. A rupee today is more valuable than a rupee a year hence. We use rate of interest to express the time value of money.

(ii) Sinking Fund: It is the fund created for a specified purpose by way of sequence of periodic payments over a time period at a specified interest rate.

(d) Limitations of Profit Maximisation objective of financial management:

(i) Time factor is ignored.

(ii) It is vague because it is not cleared whether the term relates to economics profit, accounting profit, profit after tax or before tax.

(iii) The term maximisation is also ambiguous

(iv) It ignores the risk factor.

(e) (i)

S. No.	Industry	Cost Unit	Costing Method
(a)	Construction contract	For each contract	Contract Costing
(b)	Automobiles	Number	Multiple Costing

(ii) Retained Earnings: Long-term funds may also be provided by accumulating the profits (retained earnings) of the company and by ploughing them back into business. Such funds belong to the ordinary shareholders and increase the net worth of the company. A public limited company must plough back a reasonable amount of profit every year keeping in view the legal requirements in this regard and its own expansion plans. Such funds also entail almost no risk. Further, control of present owners is also not diluted by retaining profits.