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) Following details are related to M/s XYZ Limited:

Total Cost	*₹ 56,78,000*
Margin of Safety	*₹ 48,18,450*
Margin of safety (in units)	*6,500 units*
Break even sales	*3,500 units*

You are required to calculate:

(i) Profit

(ii) Profit volume ratio

(iii) Break even sales (in ₹)

(iv) Fixed costs

(b) ABC Limited is facing the problem of increasing labour turnover in the factory. The management is willing to analyse the causes and take remedial steps.

Last year sales of the company amounted to ₹ 12,18,49,320 and the P/V ratio was 25%. The total number of actual hours worked by the direct labour force was ₹ 5.75 lakhs. The company lost 1,25,000 potentially productive hours due to delay in filling vacancies caused by labour turnover. The actual direct labour hours included 60,000 hours attributable to training of new recruits, out of which 30% of the hours were unproductive.

The accounting records reveal the following costs incurred consequent to labour turnover:

Recruitment costs	-	*₹ 5,36,300*
Selection costs	-	*₹ 2,78,400*
Training costs	-	*₹ 4,25,000*
Settlement costs due to leaving	-	*₹ 7,18,800*

Assuming that the potential production lost as a consequences of labour turnover could have been sold at prevailing prices, find out the contribution and profit foregone by the company in the last year due to labour turnover.

(c) *Following information relates to a firm:*

Current ratio	*1.5 : 1*
Inventory Turnover Ratio (Based on COGS)	*8*
Sales	*₹ 40,00,000*
Working capital	*₹ 2,85,000*
Gross Profit Ratio	*20%*

You are required to find out:

(i) *The value of opening stock presuming that the closing stock is ₹ 40,000 more than the opening stock.*

(ii) *The value of Bank overdraft, presuming that the Bank overdraft and other current liabilities are in a ratio of 2 : 1.*

(d) *ABC Private Limited wishes to raise additional finance of ₹ 30 lakh for purchasing a machine. It has ₹ 16 lakh in the form of retained earnings which is available for investment purposes.*

The following details are provided by the company:

(1)	*Debt-equity mix*	*1 : 2*
(2)	*Earnings per share*	*₹ 10*
(3)	*Current Market Price per share*	*₹ 50*
(4)	*Tax rate*	*30%*
(5)	*Dividend pay-out*	*50% of earning*
(6)	*Expected growth rate in dividend*	*10%*
(7)	*Cost of debt:*	
	- upto ₹ 6 lakh,	*12% (before tax)*
	- beyond ₹ 6 lakh	*15% (before tax)*

You are required:

(i) *To determine the pattern for raising the additional finance, assuming that the firm intends to maintain existing debt-equity mix.*

(ii) *To determine the post-tax average cost of additional debt.*

(iii) *To determine the cost of retained earnings and cost of equity.*

(iv) To Compute the overall weighted average after tax cost of additional finance.

(4 x 5 = 20 Marks)

Answer

(a) Working:

$$\text{Margin of Safety (\%)} = \frac{6{,}500 \text{ units}}{6{,}500 \text{ units} + 3{,}500 \text{ units}}$$

$$= 0.65 \text{ or } 65\ \%$$

$$\text{Total Sales} = \frac{₹\ 48{,}18{,}450}{0.65}$$

$$= ₹\ 74{,}13{,}000$$

(i) Profit = Total Sales – Total Cost

= ₹ 74,13,000 – ₹ 56,78,000

= ₹ 17,35,000

(ii) Profit Volume (P/V) Ratio $= \frac{\text{Profit}}{\text{Margin of Safety in Rupee value}} \times 100$

$$= \frac{₹\ 17{,}35{,}000}{₹\ 48{,}18{,}450} \times 100 = 36\%$$

(iii) Break-even Sales (in ₹) = Total Sales × [100 – Margin of Safety %]

= ₹ 74,13,000 × 0.35

= ₹ 25,94,550

Or, = BEP units × Selling Price per unit

= 3,500 units × ₹ 741.30

= ₹ 25,94,550

(iv) Fixed Costs = Contribution – Profit

= Sales Value × P/V Ratio – Profit

= ₹ 74,13,000×36% - ₹ 17,35,000

= ₹ 26,68,680 - ₹ 17,35,000

= ₹ 9,33,680

Or, = Break even sales x P/V Ratio

= ₹ 25,94,550 X 36% = ₹ 9,34,038

(b) Workings:

Computation of productive hours

Actual hours worked (given)	5,75,000
Less: Unproductive training hours	18,000
Actual productive hours	**5,57,000**

(i) Computation of contribution foregone on account of labour turnover

The potentially productive hours lost are 1,25,000

Sales lost for 1,25,000 hours = $\frac{₹\,12,18,49,320}{5,57,000 \text{ hours}}$ × 1,25,000 hours = **₹ 2,73,45,000**

Contribution lost for 1,25,000 hours = $\frac{₹\,2,73,45,000}{100} \times 25$ = **₹ 68,36,250**

(ii) Computation of profit forgone on account of labour turnover

Particulars	(₹)
Contribution foregone (as calculated above)	68,36,250
Recruitment cost	5,36,300
Selection cost	2,78,400
Training costs	4,25,000
Settlement cost due to leaving	7,18,800
Profit foregone	**87,94,750**

Alternatively, the Productive hours lost can be calculated as 1,25,000 hours (delay in vacancy) + 18,000 hours (unproductive training hours) = 1,43,000 hours. So, Sales lost for 1,43,000 hours will be $\frac{₹\,12,18,49,320}{5,57,000 \text{ hours}}$ × 1,43,000 hours = ₹ 3,12,82,680. Therefore, contribution lost for 1,43,000 hours is $\frac{₹\,3,12,82,680}{100} \times 25$ = ₹ 78,20,670 (instead of ₹ 68,36,250). Accordingly, total profit forgone on account of labour turnover will be ₹ 97,79,170.

(c) (i) Computation of Opening Stock

Gross Profit	= 20 % of sales	
	= 20% of ₹ 40,00,000	= ₹ 8,00,000
Cost of Goods Sold (COGS)	= Sales - Gross Profit	= ₹ 40,00,000 – ₹ 8,00,000

= ₹ 32,00,000

$$\text{Inventory Turnover Ratio} = \frac{\text{COGS}}{\text{Average Inventory}}$$

$$\text{Or,} \quad 8 = \frac{₹\ 32,00,000}{\text{Average Inventory}}$$

Average inventory **= ₹ 4,00,000**

Now, Closing Stock = Opening Stock + ₹ 40,000

$$\frac{\text{Opening Stock+Closing Stock}}{2} = ₹\ 4,00,000$$

Or, Opening Stock + Opening Stock + ₹ 40,000 = ₹ 8,00,000

Or, 2 Opening Stock = ₹ 7,60,000

Opening Stock = **₹ 3,80,000**

(ii) Computation of Bank Overdraft

$$\text{Current Ratio} = \frac{\text{Current Assets (CA)}}{\text{Current Liabilities (CL)}} = 1.5$$

CA = 1.5 CL

Or, CL = CA/1.5

Further, Working Capital = Current Assets – Current Liabilities

So, ₹ 2,85,000 = 1.5 CL – CL

Or, .5 CL = ₹ 2,85,000

CL = **₹ 5,70,000**

Bank Overdraft + Other CL = ₹ 5,70,000

Other CL = ₹ 5,70,000 - Bank Overdraft

$$\text{Now,} \quad \frac{\text{Bank Overdraft}}{\text{Other CL}} = \frac{2}{1}$$

$$\text{Or,} \quad \frac{\text{Bank Overdraft}}{₹\ 5,70,000 - \text{Bank Overdraft}} = \frac{2}{1}$$

Or, ₹ 11,40,000 – 2 Bank overdraft = Bank Overdraft

Bank Overdraft **= ₹ 3,80,000**

(d) (i) Pattern of raising additional finance

Equity	2/3 of ₹30,00,000	**= ₹ 20,00,000**
Debt	1/3 of ₹30,00,000	**= ₹ 10,00,**

The capital structure after raising additional finance:

Particulars		**(₹)**
Shareholders' Funds		
Equity Capital	(20,00,000–16,00,000)	4,00,000
Retained earnings		16,00,000
Debt (Interest at 12% p.a.)		6,00,000
(Interest at 15% p.a.)	(10,00,000–6,00,000)	4,00,000
Total Funds		30,00,000

(ii) Determination of post-tax average cost of additional debt

$K_d = I (1 – t)$

Where,

I = Interest Rate

t = Corporate tax-rate

On ₹ 6,00,000 = 12% (1 – 0.3) = 8.4% or 0.084

On ₹ 4,00,000 = 15% (1 – 0.3) = 10.5% or 0.105

Average Cost of Debt

$$= \frac{(₹\ 6,00,000 \times 0.084) + (₹\ 4,00,000 \times 0.105)}{₹\ 10,00,000} \times 100$$

$$= \frac{₹\ 50,400 + ₹\ 42,000}{₹\ 10,00,000} \times 100 = \mathbf{9.24\%}$$

(iii) Determination of cost of retained earnings and cost of equity (Applying Dividend growth model):

$$K_e = \frac{D_1}{P_0} + g$$

Where,

K_e = Cost of equity

$D_1 = D_O(1+ g)$

D_0 = Dividend paid (i.e., 50% of EPS = 50% × ₹10 = ₹5)

g = Growth rate

P_0 = Current market price per share

Then, $K_e = \frac{₹\ 5\ (1.1)}{₹\ 50} + 0.10 = \frac{₹\ 5.5}{₹\ 50} + 0.10 = 0.11 + 0.10 = 0.21 =$ **21%**

(iv) Computation of overall weighted average after tax cost of additional finance

Particular	(₹)	Weights	Cost of funds	Weighted Cost (%)
Equity (including retained earnings)	20,00,000	2/3	21%	14
Debt	10,00,000	1/3	9.24%	3.08
WACC	30,00,000			**17.08**

Note: If it is assumed that D1 = Dividend paid (i.e., 50% of EPS = 50% × ₹ 10 = ₹ 5),

Then, Ke and Kr will be equals to 20%. Accordingly, WACC will be 16.41% .

Question 2

(a) PQR Ltd. processes a range of product including a toy 'Alpha', which passes through three processes before completion and transfer to the finished goods warehouse. The information relating to the month of October 2019 are as follows:

Particulars	*Process-I*	*Process-II*	*Process-III*	*Total*
Raw materials (2,000 units)	*₹ 12,000*	-	-	*₹ 12,000*
Direct raw material added in process	*₹ 17,000*	*₹ 19,000*	*₹ 11,000*	*₹ 47,000*
Direct wages	*₹ 8,000*	*₹ 12,000*	*₹ 24,000*	*₹ 44,000*
Direct expenses	*₹ 2,400*	*₹ 1,860*	*₹ 2,680*	*₹ 6,940*
Production overhead	-	-	-	*₹ 33,000*
Outputs (Units)	*1,840*	*1,740*	*1,580*	
Normal loss in process of input (%)	*10*	*5*	*10*	
Scrap value per unit	*₹ 2*	*₹ 5*	*₹ 10*	

The production overhead is absorbed as a percentage of direct wages. There was no opening and closing stock.

Prepare the following accounts:

(i) Process-I

(ii) Process-II

(iii) Process-III

(iv) Abnormal Loss

(v) Abnormal Gain ***(8 Marks)***

(b) A firm is willing to purchase a new machine and is having two options. Information related to the options are as follows:

	Option-I	***Option-II***
Cost of Machine	*₹ 30,00,000*	*₹ 35,00,000*
Expected Life	*5 years*	*6 years*
Salvage value of Machine	*₹ 5,00,000*	*₹ 5,00,000*
Expected Earning (After tax)	*₹ 7,75,000*	*₹ 8,25,000*

The firm charges depreciation on the machine as per straight line method. The cost of capital is 14%.

The present value of ₹ 1 @ 14% is as under:

Year	*1*	*2*	*3*	*4*	*5*	*6*
P/V factor	*0.877*	*0.769*	*0.675*	*0.592*	*0.519*	*0.455*

You are required to evaluate both the options on the basis of:

(i) Discounted pay back period.

(ii) Net present value

(iii) Profitability index ***(8 Marks)***

Answer

(a) (i) **Process- I Account**

Particulars	**Units**	**Amount (₹)**	**Particulars**	**Units**	**Amount (₹)**
To Raw Materials	2,000	12,000	By Normal loss (200 units × ₹ 2)	**200**	**400**
To Direct raw material	-	17,000	By Process- II (1,840 units × ₹ 25)	**1,840**	**46,000**
To Direct wages	-	8,000			
To Direct Expenses	-	2,400			

To Production OH	-	**6,000**			
To Abnormal gain A/c (40 units × ₹ 25)	**40**	**1,000**			
	2,040	46,400		2,040	46,400

Working:

Cost per unit = $\frac{₹\ 45,400 - ₹\ 400}{2,000\ units - 200\ units}$ = ₹ 25 per unit

Normal loss = 2,000 units × 10% = 200 units

Abnormal gain = (200 units + 1,840 units) – 2,000 = 40 units

(ii) Process- II Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process - I	1,840	46,000	By Normal loss (92 units × ₹ 5)	92	460
To Direct raw material	-	19,000	By Process- III (1,740 units ×₹ 50)	1,740	87,000
To Direct wages	-	12,000	By Abnormal loss A/c (8 units ×₹ 50)	8	400
To Direct Expenses	-	1,860			
To Production OH	-	9,000			
	1,840	87,860		1,840	87,860

Working:

Cost per unit = $\frac{₹\ 87,860 - ₹\ 460}{1,840\ units - 92\ units}$ = ₹ 50 per unit

Normal loss = 1,840 units × 5% = 92 units

Abnormal loss = 1,840 - (92 units + 1,740 units) = 8 units

(iii) Process- III Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process- II	1,740	87,000	By Normal loss (174 units × ₹ 10)	174	1,740

To Direct raw material	-	11,000	By Finished goods stock (1,580 units ×₹ 90)	1,580	1,42,200
To Direct wages	-	24,000			
To Direct Expenses	-	2,680			
To Production OH	-	18,000			
To Abnormal gain A/c (14 units ×₹90)	14	1,260			
	1,754	1,43,940		1,754	1,43,940

Working:

Cost per unit = $\frac{₹1,42,680 - ₹1,740}{1,740 \text{ units} - 174 \text{ units}}$ = ₹ 90 per unit

Normal loss = 1,740 units × 10% = 174 units

Abnormal gain = (174 units + 1,580 units) – 1,740 = 14 units

(iv) Abnormal Loss Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To Process- II	8	400	By sale proceeds of scrap @ ₹ 5 per unit	**8**	**40**
			By Costing Profit & Loss A/c (loss transferred)		**360**
Total	8	400	Total	8	400

(v) Abnormal Gain Account

Particulars	Units	Amount (₹)	Particulars	Units	Amount (₹)
To normal loss			By Process- I	40	1,000
Process I	40	80	By Process- III	14	1,260
Process II	14	140			
To Costing Profit & Loss A/c (profit transferred)		2,040			
Total	54	2,260	Total	54	2,260

(b) Working Notes:

1. **Annual Depreciation of Machines**

Option I-Depreciation of Machine = $\frac{₹\ 30,00,000 - ₹\ 5,00,000}{5}$ = ₹ 5,00,000

Option-II-Depreciation of Machine = $\frac{₹\ 35,00,000 - ₹\ 5,00,000}{6}$ = ₹ 5,00,000

2. **Calculation of Cash Inflows**

	Option – I (₹)	**Option – II (₹)**
Expected Earnings After Tax	7,75,000	8,25,000
Add: Depreciation	5,00,000	5,00,000
Annual Cash Inflows	**12,75,000**	**13,25,000**

3. **Calculation of Present value of Cash Inflows**

	Option – I (₹)				**Option – II (₹)**		
Year	*P.V. of ₹1 @14%*	*Cash flow*	*P.V.*	*Cumulative P.V.*	*Cash flow*	*P.V.*	*Cumulative P.V.*
1	0.877	12,75,000	11,18,175	11,18,175	13,25,000	11,62,025	11,62,025
2	0.769	12,75,000	9,80,475	20,98,650	13,25,000	10,18,925	21,80,950
3	0.675	12,75,000	8,60,625	29,59,275	13,25,000	8,94,375	30,75,325
4	0.592	12,75,000	7,54,800	37,14,075	13,25,000	7,84,400	38,59,725
5	0.519	12,75,000	6,61,725	43,75,800	13,25,000	6,87,675	45,47,400
5	0.519	5,00,000*	2,59,500	46,35,300			
6	0.455				13,25,000	6,02,875	51,50,275
6	0.455				5,00,000*	2,27,500	53,77,775

*Salvage value of machine

(i) **Computation of Discounted Payback Period**

Option– I

Discounted Payback Period $= 3 + \frac{(30,00,000 - 29,59,275)}{7,54,800}$

$= 3 + \frac{40,725}{7,54,800}$

= 3.054 years = 3 years 20 days

Option– II

$$\text{Discounted Payback Period} = 3 + \frac{(35,00,000 - 30,75,325)}{7,84,400}$$

$$= 3 + \frac{4,24,675}{7,84,400}$$

= 3.54 years = 3 years 6 months 15 days (approx.)

(ii) **Computation of Net Present Value (NPV)**

Option– I

NPV = ₹46,35,300 – 30,00,000 **= ₹16,35,300**

Option– II

NPV = ₹53,77,775 – 35,00,000 **= ₹18,77,775**

(iii) **Computation of Profitability Index (PI)**

Option– I

$$\text{Profitability index} = \frac{\text{Sum of Discounted Cash inflows}}{\text{Cost of the Project}}$$

$$= \frac{₹\,46,35,300}{₹\,30,00,000} = 1.545$$

Option– II

$$\text{Profitability index} = \frac{\text{Sum of Discounted Cash inflows}}{\text{Cost of the Project}}$$

$$= \frac{₹\,53,77,775}{₹\,35,00,000} = 1.536$$

Ranking of Machines in terms of Three Method

Method	Option – I	Option – II
Discounted Pay-back period	I	II
Net Present Value (NPV)	II	I
Profitability Index (PI)	I	II

Question 3

(a) M/s XYZ Traders is a distributor of an electronic calculator. A periodic inventory of electronic calculator on hand is taken when books are closed at the end of each quarter. The following summary of information is available for the quarter ended on 30th September, 2019:

Sales	*₹ 1,46,20,000*
Opening Stock	*25,000 calculator @ ₹ 200 per calculator*
Administrative Expenses	*₹ 3,75,000*
Purchases (including freight inward):	
- July 1, 2019	*50,000 calculator @ ₹ 191 per calculator*
- September 30, 2019	*25,000 calculator @ ₹ 210 per calculator*
Closing stock- September 30, 2019	*32,000 calculator*

You are required to compute the following by WAM (Weighted Average Method), FIFO method and LIFO method.

(i) Value of Inventory on 30th September, 2019.

(ii) Profit or loss for the quarter ended 30th September, 2019. ***(8 Marks)***

(b) XYZ Ltd. is making a turnover of ₹ 70 lakhs out of which 60% is made on credit. The company allows credit for 30 days. The company is considering proposals to liberalize the credit policy. Information regarding options available are as under:

	Proposal-A	*Proposal-B*
Credit period	*45 days*	*60 days*
Anticipated credit sales	*₹ 65 lakh*	*₹ 80 lakh*

The product yield an average contribution of 20% on sales. Fixed costs are ₹ 6 lakh per annum. The company expects a pre-tax return of 18% on capital employed. At present company makes a provision for bad debts@ 0.5% which is expected to go up to 1% for Proposal-A and to 2% for Proposal-B. Assume 360 days in a year.

Evaluate the proposals and give your recommendations. ***(8 Marks)***

Answer

(a) (i) Computation of Value of Inventory as on 30th September 2019:

Date	Particulars	Units	WAM (₹)	FIFO (₹)	LIFO (₹)
01-07-19	Opening Stock	25,000	50,00,000 (₹200×25,000)	50,00,000 (₹200×25,000)	50,00,000 (₹200×25,000)
01-07-19	Purchases	50,000	95,50,000	95,50,000	95,50,000

			(₹191×50,000)	(₹191×50,000)	(₹191×50,000)
30-09-19	Purchases	25,000	52,50,000 (₹210×25,000)	52,50,000 (₹210×25,000)	52,50,000 (₹210×25,000)
01-07-19 to 30-09-19	Issues/ Consumption (Balancing figure)	68,000	**1,34,64,000***	**1,32,13,000****	**1,34,63,000*****
30-09-19	Closing Stock	32,000	**63,36,000**	**65,87,000**	**63,37,000**

Weighted average rate = ₹ 50,00,000+₹ 95,50,000+₹ 52,50,000 / (25,000 + 50,000 + 25,000) units = ₹ 198

* ₹ 198 x 68,000

** ₹ 200×25,000 + ₹ 191×43,000 = ₹ 50,00,000 + ₹ 82,13,000

*** ₹ 210×25,000 + ₹ 191×43,000 = ₹ 52,50,000 + ₹ 82,13,000

(ii) Computation of Profit or Loss for the Quarter ended 30th September 2019

Particulars	WAM (₹)	FIFO (₹)	LIFO (₹)
Sales	1,46,20,000	1,46,20,000	1,46,20,000
Less: Consumption	1,34,64,000	1,32,13,000	1,34,63,000
Less: Administrative Exp.	3,75,000	3,75,000	3,75,000
Profit or Loss	**7,81,000**	**10,32,000**	**7,82,000**

[Assumption: Issue/ consumption pattern was even throughout the quarter]

(b) Statement showing the Evaluation of Credit Policies

	Particulars	*Present Policy (30 days)*	*Proposal A (45 days)*	*Proposal B (60 days)*
		₹	₹	₹
A	**Expected Profit:**			
	(a) Credit Sales	42,00,000	65,00,000	80,00,000
	(b) Variable Costs[(a)-(c)] or 80% of Credit Sales	33,60,000	52,00,000	64,00,000
	(c) Contribution (20% on credit sales)	8,40,000	13,00,000	16,00,000
	(d) Fixed Cost	6,00,000	6,00,000	6,00,000

	(e) Expected profit [(c)-(d)] before bad debt	2,40,000	7,00,000	10,00,000
	(f) Bad Debts	21,000	65,000	1,60,000
	(d) Expected Profit after bad debt[(e) – (f)]	2,19,000	6,35,000	8,40,000
B	**Opportunity Cost of Investments in Receivables (Working note)**	59,400	1,30,500	2,10,000
C	**Net Benefits (A – B)**	1,59,600	5,04,500	6,30,000

Recommendation: The Proposal - B should be adopted since the net benefits under this policy are higher as compared to other policies.

Working Note:

Calculation of Opportunity Cost of Average Investments

$$\text{Opportunity Cost} = \text{Total Cost} \times \frac{\text{Collection period}}{360} \times \frac{\text{Rate of Return}}{100}$$

S. No.	***Particulars***	***Present Policy***	***Proposal A***	***Proposal B***
		₹	₹	₹
1	Variable Costs	33,60,000	52,00,000	64,00,000
2	Fixed Cost	6,00,000	6,00,000	6,00,000
3	Total Cost	39,60,000	58,00,000	70,00,000
4	Collection period	30/360	45/360	60/360
5	Required Rate of Return	18%	18%	18%
6	**Opportunity Cost (3 x4 x 5)**	59,400	1,30,500	2,10,000

(Note: This question may be solved either in Total Approach or in Incremental Approach)

Question 4

(a) ABC Construction Limited commenced a contract on 1st April, 2018. The contract price was ₹ 40,68,750. It was decided to estimate the total profit and to take to the credit of costing P/L accounts that proportion of estimated profit on cash basis, which work completed bear to the total contract.

Actual expenditure of the contract for the year ending 31-3-2019 and estimated expenditure for the year 2019-20 (up-to completion of contract) are given below:

	2018-2019	*2019-2020*
	Actual (₹)	*Estimated (₹)*
Material issued to site	*6,84,000*	*12,21,000*
Labour Charges: Paid	*4,57,500*	*6,04,500*

	Outstanding at the end	*34,500*	*52,500*
Machinery Purchased		*3,37,500*	*-*
Expenses:	*Paid*	*1,50,000*	*2,62,500*
	Prepaid at the end	*33,750*	*-*
Machine returned to stores (Original Cost)		*1,12,500*	*2,25,000*
		(31st March, 19)	***(31st Dec.,19)***
Material at Site		*45,000*	*1,12,500*
Work in progress certified		*19,12,500*	*Full*
WIP Uncertified		*60,000*	*-*
Cash Received		*15,00,000*	*Full*

The Depreciation on machinery is charged @ 25% on Written down Value (WDV). It is estimated that contract will be completed on 31-12-2019.

You are required to:

(i) Prepare Contract Account for the year 2018-19.

(ii) Estimate the Profit on the contract for the year·2018-19 on prudent basis which has to be credited to costing Profit and Loss Account. ***(8 Marks)***

(b) M/s X Limited has furnished the following information relating to the financial year ended 31st March, 2019:

Particulars	*(₹)*
Net Profit	*2,50,000*
Dividend	*1,00,000*
Provision for income tax	*80,000*
Income tax paid during the year	*65,000*
Loss on sale of Plant & Machinery	*1,000*
Book value of plant & machinery (sold)	*4,500*
Depreciation debited to profit & loss account	*12,000*
Purchases of furniture & fixtures	*1,11,000*
Investment in joint venture	*40,000*
Proceeds from issue of 12% debentures	*20,000*
Increase in working capital (Excluding cash and bank balance)	*15,000*
Closing cash and cash equivalent	*50,000*

Prepare the cash flow statement in accordance with AS-3 for the year ended 31st March, 2019. ***(8 Marks)***

Answer

(a)

Contract A/c

(April 1, 2018 to March 31, 2019)

Particulars	Amount (₹)	Particulars	Amount (₹)
To Materials Issued	6,84,000	By Machine returned to Stores (Working Note 1)	84,375
To Labour ₹ 4,57,500		By Materials at Site	45,000
Add: Outstanding ₹ 34,500	4,92,000	By W.I.P.:	
To Machinery Purchased	3,37,500	Certified ₹19,12,500	
To Expenses ₹ 1,50,000		Uncertified ₹60,000	19,72,500
Less: Prepaid ₹ (33,750)	1,16,250	By Machine at Site (Working Note 2)	1,68,750
To Notional Profit c/d	6,40,875		
	22,70,625		22,70,625
To Costing Profit & Loss A/c (Refer to Working Note 4)	2,33,450	By Notional Profit b/d	6,40,875
To Work-in-Progress A/c (Profit-in-reserve)	4,07,425		
	6,40,875		6,40,875

Contract A/c

(April 1, 2018 to December 31, 2019)

(For Computing estimated profit)

Particulars	Amount (₹)	Particulars	Amount (₹)
To Materials Issued (₹ 6,84,000 + ₹ 12,21,000)	19,05,000	By Material at Site	1,12,500
To Labour Cost (₹ 4,57,500 + ₹ 34,500 + ₹ 5,70,000* + ₹ 52,500)	11,14,500	By Machinery returned to Stores on 31.03.2019	84,375

To Machinery purchased	3,37,500	By Machinery returned to Stores on 31.12.2019 (Working Note 3)	1,37,109
To Expenses (₹ 1,50,000 + ₹ 2,62,500)	4,12,500	By Contractee A/c	40,68,750
To Estimated profit	6,33,234		
	44,02,734		44,02,734

Labour paid in 2019-20: ₹ 6,04,500 – ₹ 34,500 = **₹ 5,70,000**

Working Notes

		(₹)
1.	**Value of the Machinery returned to Stores on 31.03.2019**	
	Historical Cost of the Machine returned	1,12,500
	Less: Depreciation @ 25% of WDV for one year	(28,125)
		84,375
2.	**Value of Machinery at Site 31.03.2019**	
	Historical Cost of Plant at Site (₹ 3,37,500 – ₹ 1,12,500)	2,25,000
	Less: Depreciation @ 25% on WDV for one year	(56,250)
		1,68,750
3.	**Value of Machinery returned to Stores on 31.12.2019**	
	Value of Plant (WDV) on 31.3.2019	1,68,750
	Less: Depreciation @ 25% of WDV for a period of 9 months	(31,641)
		1,37,109
4.	**Profit to be credited to Costing Profit & Loss A/c** on March 31, 2019 for the Contract likely to be completed on December 31, 2019. $\text{Estimated Profit} \times \frac{\text{Work Certified}}{\text{Total Contract Price}} \times \frac{\text{Cash received}}{\text{Work Certified}}$ $= ₹\ 6,33,235 \times \frac{19,12,500}{40,68,750} \times \frac{15,00,000}{19,12,500}$	**2,33,450**

(b) **M/s X Limited**

Cash Flow Statement for the year ended 31st March, 2019

(a)	Cash Flows from Operating Activities	(₹)
	Net profit before taxation* (₹ 2,50,000 + ₹ 80,000)	3,30,000

	Adjustment for:	
	Depreciation debited to Profit & Loss A/c	12,000
	Loss on sale of Plant and Machinery	1,000
	Operating Profit before working capital changes	3,43,000
	Increase in working capital (excluding cash and bank balance)	(15,000)
	Cash generated from operations	3,28,000
	Income tax paid	(65,000)
	Net cash from operating activities (A)	2,63,000
(b)	**Cash Flow from Investing Activities**	
	Sale of Plant & Machinery (₹ 4,500 – ₹ 1,000)	3,500
	Purchases of Furniture and Fixtures	(1,11,000)
	Investments in Joint Venture	(40,000)
	Net Cash used in Investing Activities (B)	(1,47,500)
(c)	**Cash Flow from Financing Activities**	
	Proceeds from issue of 12% Debentures*	20,000
	Dividend paid*	(1,00,000)
	Net cash used in Financing Activities (C)	(80,000)
	Net increase in cash and cash equivalents (A) + (B) + (C)	35,500
	Cash and cash equivalents at the beginning of the year (balancing figure)	14,500
	Cash and cash equivalents at the end of the year	50,000

[*Note: Question may also be solved assuming Net Profit as Net Profit before/ after tax; and/ or Dividend as Dividend paid/ received; and/ or Debentures as Debentures issued at the end/ beginning of the year (interest adjustment needed).**]**

Question 5

(a) Explain the meaning of 'Waste' and 'Spoilage' and give the accounting treatment for each one.

(b) State the objectives of Budgetary Control System.

(c) State various types of packing credit.

(d) Explain 'Net Income (NI) Approach' and 'Net Operating Income (NOI) Approach' of capital structure. ***(4 x 4 = 16 Marks)***

Answer

(a)

Waste	
Meaning	**Accounting Treatment**
The portion of basic raw materials lost in processing having no recoverable value. Waste may be visible - remnants of basic raw materials - or invisible, *e.g.,* disappearance of basic raw materials through evaporation, smoke etc. Shrinkage of material due to natural causes may also be a form of a material wastage.	***In Case of Normal Wastage*** Normal waste is absorbed in the cost of net output. ***In Case of Abnormal Wastage*** The abnormal waste is transferred to the Costing Profit and Loss Account.
Spoilage	
Meaning	**Accounting Treatment**
It is the term used for materials which are badly damaged in manufacturing operations, and they cannot be rectified economically and hence taken out of process to be disposed of in some manner without further processing.	***In case of normal spoilage*** Normal spoilage (i.e., which is inherent in the operation) costs are included in costs either charging the loss due to spoilage to the production order or by charging it to production overhead so that it is spread over all products. Any value realised from spoilage is credited to production order or production overhead account, as the case may be. ***In case of abnormal spoilage*** The cost of abnormal spoilage (i.e., arising out of causes not inherent in manufacturing process) is charged to the Costing Profit and Loss Account. When spoiled work is the result of rigid specification, the cost of spoiled work is absorbed by good production while the cost of disposal is charged to production overhead.

(b) Objectives of Budgetary Control System:

(i) Portraying with precision the overall aims of the business and determining targets of performance for each section or department of the business.

(ii) Laying down the responsibilities of each of the executives and other personnel so that everyone knows what is expected of him and how he will be judged. Budgetary control is one of the few ways in which an objective assessment of executives or department is possible.

(iii) Providing a basis for the comparison of actual performance with the predetermined targets and investigation of deviation, if any, of actual performance and expenses from the budgeted figures. This naturally helps in adopting corrective measures.

(iv) Ensuring the best use of all available resources to maximise profit or production, subject to the limiting factors. Since budgets cannot be properly drawn up without considering all aspects usually there is good co-ordination when a system of budgetary control operates.

(v) Co-ordinating the various activities of the business, and centralising control and yet enabling management to decentralise responsibility and delegate authority in the overall interest of the business.

(vi) Engendering a spirit of careful forethought, assessment of what is possible and an attempt at it. It leads to dynamism without recklessness. Of course, much depends on the objectives of the firm and the vigour of its management.

(vii) Providing a basis for revision of current and future policies.

(viii) Drawing up long range plans with a fair measure of accuracy.

(ix) Providing a yardstick against which actual results can be compared**.**

(c) Types of Packing Credit:

(i) Clean packing credit: This is an advance made available to an exporter only on production of a firm export order or a letter of credit without exercising any charge or control over raw material or finished goods. It is a clean type of export advance. Each proposal is weighed according to particular requirements of the trade and credit worthiness of the exporter. A suitable margin has to be maintained. Also, Export Credit Guarantee Corporation (ECGC) cover should be obtained by the bank.

(ii) Packing credit against hypothecation of goods: Export finance is made available on certain terms and conditions where the exporter has pledge able interest and the goods are hypothecated to the bank as security with stipulated margin. At the time of utilising the advance, the exporter is required to submit, along with the firm export order or letter of credit relative stock statements and thereafter continue submitting them every fortnight and/or whenever there is any movement in stocks.

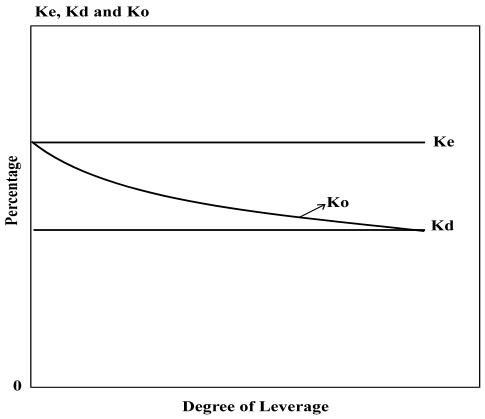
(iii) Packing credit against pledge of goods: Export finance is made available on certain terms and conditions where the exportable finished goods are pledged to the

banks with approved clearing agents who will ship the same from time to time as required by the exporter. The possession of the goods so pledged lies with the bank and is kept under its lock and key.

(iv) E.C.G.C. guarantee: Any loan given to an exporter for the manufacture, processing, purchasing, or packing of goods meant for export against a firm order qualifies for the packing credit guarantee issued by Export Credit Guarantee Corporation.

(v) Forward exchange contract: Another requirement of packing credit facility is that if the export bill is to be drawn in a foreign currency, the exporter should enter into a forward exchange contact with the bank, thereby avoiding risk involved in a possible change in the rate of exchange.

(d) (i) Net Income (NI) Approach: According to this approach, capital structure decision is relevant to the value of the firm. An increase in financial leverage will lead to decline in the weighted average cost of capital (WACC), while the value of the firm as well as market price of ordinary share will increase. Conversely, a decrease in the leverage will cause an increase in the overall cost of capital and a consequent decline in the value as well as market price of equity shares.



From the above diagram, K_e and K_d are assumed not to change with leverage. As debt increases, it causes weighted average cost of capital (WACC) to decrease.

The value of the firm on the basis of Net Income Approach can be ascertained as follows:

V = S + D

Where,

V = Value of the firm

S = Market value of equity

D = Market value of debt

$$\text{Market value of equity (S)} = \frac{NI}{K_e}$$

Where,

NI = Earnings available for equity shareholders

K_e = Equity Capitalisation rate

Under, NI approach, the value of the firm will be maximum at a point where weighted average cost of capital (WACC) is minimum. Thus, the theory suggests total or maximum possible debt financing for minimising the cost of capital. The overall cost of capital under this approach is :

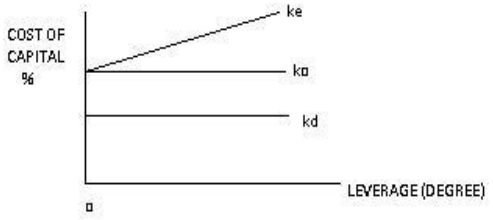
$$\text{Overall cost of capital} = \frac{EBIT}{\text{Value of the firm}}$$

Thus according to this approach, the firm can increase its total value by decreasing its overall cost of capital through increasing the degree of leverage. The significant conclusion of this approach is that it pleads for the firm to employ as much debt as possible to maximise its value.

(ii) Net Operating Income (NOI) Approach: NOI means earnings before interest and tax (EBIT). According to this approach, capital structure decisions of the firm are irrelevant.

Any change in the leverage will not lead to any change in the total value of the firm and the market price of shares, as the overall cost of capital is independent of the degree of leverage. As a result, the division between debt and equity is irrelevant.

As per this approach, an increase in the use of debt which is apparently cheaper is offset by an increase in the equity capitalisation rate. This happens because equity investors seek higher compensation as they are opposed to greater risk due to the existence of fixed return securities in the capital structure.



The above diagram shows that K_o (Overall capitalisation rate) and (debt – capitalisation rate) are constant and K_e (Cost of equity) increases with leverage.

Question 6

(a) A manufacturing firm produces a specific product and adopts standard costing system. The product is produced within a single cost centre.

Following information related to the product are available from the standard cost sheet of the product:

	Unit Cost (₹)
Direct material 5 kg @ ₹ 15 per kg	*75.00*
Direct wages 4 hours @ ₹ 20 per hour	*80.00*

During the month of October 2019, the firm purchased 3,50,000 kg of material at the rate of ₹ 14 per kg. Production records for the month exhibits the following actual results:

Material used	*3,20,000 kg*
Direct wages - 2,20,000 hours	*₹ 46,20,000*

The production schedule requires completion of 60,000 units in a month. However, the firm produced 62,000 units in the month of October, 2019. There are no opening and closing work-in-progress.

You are required to:

(i) Calculate material cost, price and usage variance.

(ii) Calculate labour cost, Rate and efficiency variance and

(iii) Calculate the amount of bonus, as an incentive scheme is in operation in the company whereby employees are paid a bonus of 50% of direct labour hour saved at standard direct labour hour rate. ***(8 Marks)***

(b) Following information has been provided by ABC Private Limited:

	(`)
Sales	*80,00,000*
Variable Cost	*46,00,000*
Fixed Costs	*6,50,000*
11% Borrowed Capital	*50,00,000*
Equity Capital	*45,00,000*
Retained earnings	*15,00,000*

Required:

(i) What is the firm's Return on Investment (ROI)?

(ii) Does it have favourable financial leverage?

(iii) *If the firm belongs to an industry whose asset turnover is 3, does it have a high or low asset leverage?*

(iv) *If the sales drop to ` 60,00,000, what will be the new EBIT?*

(v) *At what level of sales, will the EBT of the firm be equal to zero?* ***(8 Marks)***

Answer

(a) (i) Material Cost, price and usage variance

Material Cost Variance (on the basis of consumed quantity)

= SQ × SP – $AQ_{Consumed}$ × AP

= (5 kg. × 62,000 units × ₹ 15) – (3,20,000 kg. × ₹ 14)

= ₹ 46,50,000 – ₹44,80,000

= ₹ 1,70,000 (F)

***Alternatively*,**

Material Cost Variance (on the basis of purchased quantity)

= SQ × SP – $AQ_{Purchase}$× AP

= 3,10,000 × ₹ 15 – 3,50,000 × ₹ 14

= ₹ 2,50,000 (A)

Material Price Variance (on the basis of consumed quantity)

= $AQ_{Consumed}$ × SP - $AQ_{Consumed}$ × AP

= (3,20,000 kg. × ₹ 15) - (3,20,000 kg. × ₹ 14)

= ₹ 3,20,000 (F)

Alternatively,

Material Price Variance (on the basis of purchased quantity)

= (SP – AP) × $AQ_{Purchase}$

= (₹ 15 -₹ 14) × 3,50,000 = ₹ 3,50,000 (F)

Material Usage Variance = SP × SQ – SP × $AQ_{Consumed}$

= (₹ 15 × 5 kg. × 62,000 units) – (₹ 15 × 3,20,000 kg.)

= ₹ 46,50,000 – ₹ 48,00,000

= ₹ 1,50,000 (A)

(ii) Labour cost Variance = SH × SR – AH × AR

= 2,48,000 hours × ₹ 20 – 2,20,000 hours × ₹ 21

= ₹ 49,60,000 – ₹ 46,20,000

= ₹ 3,40,000 (F)

Rate Variance = (SR – AR) × AH

= (₹ 20 – ₹ 21) × 2,20,000 = 2,20,000 (A)

Efficiency Variance = (SH – AH) × SR

= (2,48,000 – 2,20,000) × ₹ 20

= 5,60,000 (F)

(iii) Hours Saved = 2,48,000 – 2,20,000 = 28000 hrs.

Bonus Rate = ₹ 20 × 50% = ₹ 10

Bonus = 28,000 × ₹ 10 **=** ₹ 2,80,000

(b) Income Statement

Particulars	**Amount (₹)**
Sales	80,00,000
Less: Variable cost	46,00,000
Contribution	34,00,000
Less: Fixed costs	6,50,000
Earnings before interest and tax (EBIT)	27,50,000
Less: Interest on debt (@ 11% on ₹ 50 lakhs)	5,50,000
Earnings before tax (EBT)	22,00,000

(i) $ROI = \frac{EBIT}{Capital\ employed} \times 100$

$= \frac{EBIT}{Equity + Debt + Retained\ Earnings} \times 100$

$= \frac{₹\ 27,50,000}{₹\ 45,00,000 + ₹\ 50,00,000 + ₹\ 15,00,000)} \times 100 = 25\%$

(ROI is calculated on Capital Employed)

(ii) ROI = 25% and Interest on borrowed capital is 11%, hence, it has a favourable financial leverage.

(iii) $Asset\ Turnover = \frac{Total\ Sales}{Assets\ *}$

(* Note: Assets taken as Capital employed)

$$\text{Or} = \frac{\text{Total Sales}}{\text{Assets}} = \frac{₹\ 80,00,000}{₹\ 1,10,00,000} = 0.727$$

which is very low as compared to industry average of 3.

(iv)

Particular	₹
EBIT at Sales level of ₹ 60 Lakhs	
Sales Revenue	60,00,000
Less: Variable Cost (₹ 60 lakhs × 57.50%)	34,50,000
(Variable Cost % = 46 lakhs/₹ 80 lakhs = 57.50%	
Less: Fixed Costs	6,50,000
EBIT	19,00,000

(v)

Zero EBIT implies break even sales (BESR) = Fixed Costs/PV Ratio

$$\text{P/V Ratio} = \frac{\text{Sales - variable costs}}{\text{Sales}} \times 100$$

$$= \frac{₹\ 80\ \text{lakhs} - ₹\ 46\ \text{lakhs}}{₹\ 80\ \text{lakhs}} \times 100$$

$$= 42.50\%$$

Fixed Costs = ₹ 6,50,000 + ₹ 5,50,000 (Interest on Debt)

Or, = ₹ 12,00,000

$$= \frac{\text{Fixed Costs}}{\text{Profit Volume Ratio}}$$

$$= \frac{₹\ 12\ \text{lakhs}}{42.50} \times 100 \text{ or } ₹\ 28,23,529$$

Question 7

*Answer any **four** of the following:*

(a) Explain the advantages of Integrated accounting system.

(b) (i) Explain limitations of cost accounting.

(ii) Explain 'Flexible Budget'.

(c) Explain:

(i) Compounding and discounting

(ii) Perpetuity

(iii) Inflation

(iv) Compound Interest

(d) Describe the principles which guide the selection of marketable securities.

(e) Describe operating/working capital cycle. ***(4 x 4 = 16 Marks)***

Answer

(a) Advantages of Integrated Accounting System: Integrated Accounting is the name given to a system of accounting whereby cost and financial accounts are kept in the same set of books. Such a system will have to afford full information required for Costing as well as for Financial Accounts. In other words, information and data should be recorded in such a way so as to enable the firm to ascertain the cost (together with the necessary analysis) of each product, job, process, operation or any other identifiable activity. For instance, purchases are analysed by nature of material and its end-use. Purchases account is eliminated and direct postings are made to Stores Control Account, Work-in-Progress account, or Overhead Account. Payroll is straightway analysed into direct labour and overheads. It also ensures the ascertainment of marginal cost, variances, abnormal losses and gains. Infact all information that management requires from a system of Costing for doing its work properly is made available. The integrated accounts give full information in such a manner so that the profit and loss account and the balance sheet can be prepared according to the requirements of law and the management maintains full control over the liabilities and assets of its business.

The main advantages of Integrated Accounting are as follows:

(i) Since there is one set of accounts, thus there is one figure of profit. Hence the question of reconciliation of costing profit and financial profit does not arise.

(ii) There is no duplication of recording of entries and efforts to maintain separate set of books.

(iii) Costing data are available from books of original entry and hence no delay is caused in obtaining information.

(iv) The operation of the system is facilitated with the use of mechanized accounting.

(v) Centralization of accounting function results in economy.

(b) (i) Limitations of Cost Accounting: Like other branches of accounting, cost accounting is also having certain limitations. The limitations of cost accounting are as follows-

(I) **Expensive:** It is expensive because analysis, allocation and absorption of overheads require considerable amount of additional work, and hence additional money.

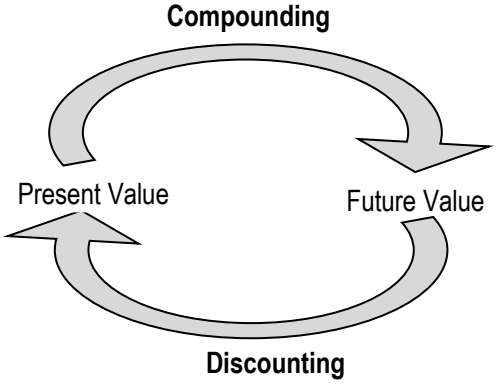
(II) **Requirement of Reconciliation:** The results shown by cost accounts differ from those shown by financial accounts. Thus, preparation of reconciliation statements is necessary to verify their accuracy.

(III) **Duplication Work**: It involves duplication of work as organization has to maintain two sets of accounts i.e. Financial Account and Cost Account.

(IV) **Inefficiency:** Costing system itself does not control costs but its usage does.

(ii) **Flexible Budget:** A flexible budget is defined as "a budget which, by recognizing the difference between fixed, semi-variable and variable cost is designed to change in relation to the level of activity attained". In flexibility budgetary control system, a series of budgets are prepared one for the each of a number of alternative production levels or volumes. Flexible budgets represent the amount of expense that is reasonably necessary to achieve each level of output specified. In other words, the allowances given under flexibility budgetary control system serve as standards of what costs should be at each level of output.

(c) (i) **Compounding and discounting:** Compounding is the process of calculating future values of cash flows where discounting means finding present value of cash flows.



(ii) **Perpetuity:** Perpetuity is an annuity in which the periodic payments or receipts begin on a fixed date and continue indefinitely or perpetually. Fixed coupon payments on permanently invested (irredeemable) sums of money are prime examples of perpetuities.

The formula for evaluating perpetuity is relatively straight forward. Two points which are important to understand in this regard are:

(a) The value of the perpetuity is finite because receipts that are anticipated far in the future have extremely low present value (today's value of the future cash flows).

(b) Additionally, because the principal is never repaid, there is no present value for the principal.

Therefore, the price of perpetuity is simply the coupon amount over the appropriate discount rate or yield.

(iii) Inflation: Inflation means when prices of things rise faster than they actually should. When there is inflation, the value of currency decreases over time. If the inflation is more, then the gap between the value of money today to the value of money in future is more. So, greater the inflation, greater is the gap and vice versa.

(iv) Compound Interest: If interest is calculated on original principal amount it is simple interest. When interest is calculated on total of previously earned interest and the original principal it compound interest. Naturally, the amount calculated on the basis of compound interest rate is higher than when calculated with the simple rate.

(d) Three Principles which guide the Selection of Marketable Securities

The three principles relating to selection of marketable securities are:

(i) **Safety:** Return and risk go hand-in-hand. As the objective in this investment is ensuring liquidity, minimum risk is the criterion of selection.

(ii) **Maturity:** Matching of maturity and forecasted cash needs is essential. Prices of long-term securities fluctuate more with changes in interest rates and are, therefore, riskier.

(iii) **Marketability:** It refers to the convenience, speed and cost at which a security can be converted into cash. If the security can be sold quickly without loss of time and price, it is highly liquid or marketable.

(e) Operating/ Working Capital Cycle: Working Capital cycle indicates the length of time between a company's paying for materials, entering into stock and receiving the cash from sales of finished goods. It can be determined by adding the number of days required for each stage in the cycle. For example, a company holds raw materials on an average for 60 days, it gets credit from the supplier for 15 days, production process needs 15 days, finished goods are held for 30 days and 30 days credit is extended to debtors. The total of all these, 120 days, i.e., 60 – 15 + 15 + 30 + 30 days is the total working capital cycle.