

UNIT 4:

Question 1:

Foods Limited is presently operating at 60% level producing 36,000 packets of snack food and proposes to increase capacity utilization in the coming year by 33.3% over the existing level of production. The following data has been supplied:

a) Unit cost structure of the product at current level

Rs. Raw material	4	
Wages (Variable)	2	
Overheads (variable)	2	
Fixed overheads	1	
Profit	1	
	<hr/>	
Selling price		12

Raw materials will remain in stores for 1 month before being issued for production. Material will remain in process for further 1 month. Suppliers grant 3 months credit to the company.

- b) Finished goods remain in godown for 2 months.
- c) Debtors are allowed credit for 2 months
- d) Lag in wages and overhead payment is 1 month and these expenses accrue evenly throughout the production cycle.
- e) No increase either in cost of inputs or selling price is envisaged.

Prepare a projected profitability statement and the working capital requirement at the new level, assuming that a minimum cash balance of Rs. 19,500 has to be maintained.

Solution:

Units at 80% capacity = $36,000 \times 80/60 = 48,000$ units

Projected Profitability Statement at 80% capacity (48,000 units)

Particulars	Per annum
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Sales (@12)	(a)	5,76,000
Cost		
Raw materials (@ Rs. 4)		1,92,000
Wages (@ Rs. 2)		96,000
Overheads (variable) (@ Rs.2)		96,000
Overheads (fixed) (36,000x Re.1)		36,000
	(b)	4,20,000
Profit (a-b)		1,56,000

Computation of Working Capital requirement (at 80% capacity)

(A) Current asset		Rs.	Rs.
Raw material stock	Rs. 1,92,000 x 1/12		16,000
WIP Stock			
Raw material	Rs. 1,92,000 x 1/12	16,000	
Wages	Rs. 96,000 x 0.5/12	4,000	
Variable overheads	Rs. 96,000 x 0.5/12	4,000	
Fixed overheads	Rs. 36,000 x 0.5/12	1,500	25,500
Finished goods stock			35,000
Sundry Debtors			96,000
Cash balance			19,500
Total (A)			1,92,000
(B)Current Liabilities			
Creditors for goods	Rs. 1,92,000 x 3/12		48,000
Creditors for wages	Rs. 96,000 x 1/12		8,000
Creditors for expenses			
Variable overhead	Rs. 96,000 x 1/12	8,000	
Fixed overhead	Rs. 36,000 x 1/12	3,000	11,000
Total (B)			67,000

Working capital requirement (A-B)	1,25,000
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Question 2: You are required to construct a statement showing the working capital required to finance the level of activity of 18,000 units per year from the following information:-

Particulars	Rs.
Raw material Per Unit	12
Direct labor Per Unit	3
Overheads per Unit	9
Total cost Per Unit	24
Profit per Unit	6
Selling price Per Unit	30

Additional Information:

1. Raw material is in stock on an average for 2 months.
2. Materials are in process on an average for half-a- month.
3. Finished goods are in stock on an average for two months.
4. Credit allowed by creditors is two months in respect of raw materials supplied.
5. Credit allowed to debtors is three months.
6. Lag in payment of wages is half month.
7. Cash on hand and at bank is expected to be Rs. 7,000.
8. You are informed that all activities are evenly spread out during the year.

Solution:

Particulars	Amount	Amount
A: Current Assets		
1. Stock in Trade		
a) Raw Materials	$18,000 \times 12 \times 2/12$	36,000
b) Work in Progress	$18,000 \times 18 \times 1/2/12$	13,500
c) Finished Goods	$18,000 \times 24 \times 2/12$	72,000
2. Sundry Debtors	$18,000 \times 30 \times 3/12$	1,35,000
3. Cash in Hand and at Bank		7,000
Total Current Assets		2,63,500
B: Current Liabilities		
1. Sundry Creditors	$18,000 \times 12 \times 3/12$	36,000
2. Wages	$18,000 \times 3 \times 1/2/12$	2,250

Total Current Liabilities	38,250
Estimated Net Working Capital Requirement (A-B)	2,25,250

Question 3: The management of Royal industries has called for a statement showing the working capital needs to finance a level of activity of 1,80,000 units of output for the year. The cost structure for the company's product for the above-mentioned activity level is detailed below.

Particulars	Cost per unit (Rs.)
Raw Materials	20
Direct labour	5
Overheads (including depreciation of Rs. 5 per unit)	15
	40
Profit	10
Selling Price	50

Additional information:-

- Minimum desired cash balance is Rs. 20,000.
- Raw materials are held in stock, on an average, for 2 months.
- Finished goods remain in warehouse, on an average, for a month.
- Suppliers of materials extend a month's credit and debtors are provided two months credit; cash sales are 25% of total sales.
- There is a time lag in payment of wages of a month and half-a-month in case of overheads. From the above data, you are required to prepare a statement showing working capital needs. **Answer:**

Production and sale per month = $1,80,000 / 12 = 15000$ units

Statement of Working Capital

Particulars	Rs.	Rs.
Current Assets		
Raw material stock (15000 x 2 x Rs. 20)		6,00,000
Finished goods (15000 x 1 x Rs. 40)		6,00,000
Debtors (75% credit sale) (15000 x 75% x 2 x Rs. 50)		11,25,000
Cash		20,000
		23,45,000
Less Current Liabilities		
Creditors for raw material (15000 x 1 x Rs. 20)	3,00,000	
Creditors for wages (15000 x 1 x Rs. 5)	75,000	
Creditors for overhead (excluding depreciation) (15000 x $\frac{1}{2}$ x 10)	75,000	4,50,000
Working Capital		18,95,000

Note: Depreciation is excluded while calculating overhead payable because you don't have to pay depreciation like other expenses.

Question 4: On 1st January, the Managing Director of Golden Pvt. Ltd. wishes to know the amount of working capital that will be required during the year. From the following information PREPARE the working capital requirements forecast.

Production during the previous year was 60,000 units. It is planned that this level of activity would be maintained during the present year.

The expected ratios of the cost to selling prices are Raw materials 60%, Direct wages 10% and Overheads 20%.

Raw materials are expected to remain in store for an average of 2 months before issue to production.

Each unit is expected to be in process for one month, the raw materials being fed into the pipeline immediately and the labour and overhead costs accruing evenly during the month.

Finished goods will stay in the warehouse awaiting dispatch to customers for approximately 3 months.

Credit allowed by creditors is 2 months from the date of delivery of raw material. Credit allowed to debtors is 3 months from the date of dispatch.

Selling price is Rs. 5 per unit. There is a regular production and sales cycle. Wages and overheads are paid on the 1st of each month for the previous month. The company normally keeps cash in hand to the extent of Rs. 20,000.

Answer:

Statement of Working Capital Required:

Particulars	Working	(Rs.)	(Rs.)
Current Assets:			
Raw materials inventory	60,000 units × Rs. 5 × 60% =Rs. 1,80,000 (Per month) : 1,80,000/12 = Rs. 15,000 (Two months) : Rs. 15,000 X 2 = Rs. 30,000		30,000
Working-in-process :			
Raw materials	60,000 units × Rs. 5 × 60% =Rs. 1,80,000	15,000	

	(Per month): $1,80,000/12 = \text{Rs. } 15,000$		
Labour costs	$60,000 \times \text{Rs. } 5 \times 0.5/12 \times 10\%$	1,250	

Overheads	$60,000 \times \text{Rs. } 5 \times 0.5/12 \times 20\%$	2,500	
	Total work-in-process		18,750
Finished goods inventory :			
Raw materials	$60,000 \times \text{Rs. } 5 \times 3/12 \times 60\%$	45,000	
Labour	$60,000 \times \text{Rs. } 5 \times 3/12 \times 10\%$	7,500	
Overheads	$60,000 \times \text{Rs. } 5 \times 3/12 \times 20\%$	15,000	
			67,500
Debtors	$\text{Rs. } 2,70,000 \times 3/12$		67,500
Cash			20,000
	Total Current Assets		2,03,750
Current Liabilities:			
Creditors	$60,000 \times \text{Rs. } 5 \times 2/12 \times 60\%$		30,000
Direct wages payable	$60,000 \times \text{Rs. } 5 \times 1/12 \times 10\%$		2,500
Overheads payable	$60,000 \times \text{Rs. } 5 \times 1/12 \times 20\%$		5,000
	Total Current Liabilities		37,500
Estimated working capital requirements	Total Current Assets - Total Current Liabilities		1,66,250

Working Notes:

Total Cost of Sales = RM + Wages + Overheads + Opening Finished goods inventory – Closing finished goods inventory.

$$= \text{Rs. } 1,80,000 + \text{Rs. } 30,000 + \text{Rs. } 60,000 + \text{Rs. } 67,500 - \text{Rs. } 67,500$$

$$= \text{Rs. } 2,70,000.$$

Here it has been assumed that inventory level is uniform throughout the year, therefore opening inventory equals closing inventory.

Question 5: A proforma cost sheet of a company provides the following particulars:

Particulars	Amount per unit
Elements of cost:	
Raw materials	80
Direct labour	30
Overhead	60
Total cost	170
Profit	30
Selling price	200

The following further particulars are available:

Raw materials in stock, on average, one month; Materials in process (completion stage, 50 per cent), on average, half a month; Finished goods in stock, on average, one month.

Credit allowed by suppliers is one month; Credit allowed to debtors is two months; Average time-lag in payment of wages is 1.5 weeks and one month in overhead expenses; one-fourth of the output is sold against cash; cash in hand and at bank is desired to be maintained at Rs 3,65,000.

You are required to prepare a statement showing the working capital needed to finance a level of activity of 1,04,000 units of production. You may assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. For calculation purposes, 4 weeks may be taken as equivalent to a month.

Answer:

Statement showing determination of net working capital

(A) Current assets:	
(i) Stock of materials for 1 month: $(1,04,000 \times \text{Rs } 80 \times \frac{4}{52})$	Rs 6,40,000
(ii) Work-in-progress for 0.5 month:	
(a) Material $(1,04,000 \times \text{Rs } 80 \times \frac{2}{52}) \times 0.50$	1,60,000
(b) Labour $(1,04,000 \times \text{Rs } 30 \times \frac{2}{52}) \times 0.50$	60,000
(c) Overheads $(1,04,000 \times \text{Rs } 60 \times$	1,20,000

$2/52) \times 0.50$	
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(iii) Finished goods for 1 month: (1,04,000 x Rs 170 x4/52)	13,60,000
(iv) Debtors for 2 months (78,000 x Rs 170 x8/52)	20,40,000
(v) Cash in hand and at bank	3,65,000
Total investments in current assets	47,45,000
(B) Current liabilities:	
(i) Creditors, 1 month's purchase of raw materials, (i.e. 1,04,000 x Rs.80 x 4/52)	6,40,000
(ii) Average time-lag in payment of expenses	
(a) Overheads (1,04,000 x Rs 60 x 4/52)	4,80,000
(b) Labour (1,04,000 x Rs 30 x 3/104)	90,000
Total estimate of current liabilities	12,10,000
(C) Net working capital = Current assets – Current liabilities (A – B)	35,35,000

Working Notes and Assumptions

26,000 units have been sold for cash. Therefore, credit sales pertain to 78,000 units only.

Unit 5

Question 1:

b) The Cement Industry has been through a very trying period in the last five years and the constraints on operations have been removed in the early part of the year. The company hopes to improve the position in the years to come and has plans to put up an additional plant in the neighbourhood of the present factory. Increased profits due to expansion in capacity are expected to be 25% of the additional capital investment after meeting interest charges but before depreciation on the additional plant installed. Shares of this cement company are widely distributed and there is large majority of holdings in the hands of middle-class investors whose average holding do not exceed 500 shares. The following data is made available to you.

Last five years:

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
EPS (Rs.)	6.00	5.00	4.50	4.50	4.00	17.50
Cash availability per share (Rs.)	7.50	6.00	5.00	4.00	4.00	20.00

Dividend per share (Rs.)	3.00	3.00	3.00	2.00	NIL	?
Payout ratio %	50.00	60.00	67.00	45.00	NIL	?
Average market price (face value Rs. 100)	80.00	70.00	70.00	70.00	60.00	140
P/E ratio	13.33:1	14:1	15.6:1	15.6:1	15	

Cement Company requires you to advise them w.r.t the dividend policy they have to follow for the current year 2019-20. What recommendations would you make? Give reasons for your answer.

Solution

The company has a consistent track record of earnings and having a stable dividend policy. The additional investments would fetch an expected return of 25%. The current year's EPS is Rs.

17.50 and cash EPS is Rs. 20. The average current market price is Rs.140. The dividend pay-out of 2017-18 is 45% and in 2018-19 is Nil. This would be due to use of retained earnings for additional capital investment without use of external financing. This has reflected in the increase of EPS to Rs. 17.50. The growth in earnings is likely to continue, since the company is also planning for setting up of an additional plant in the neighbor hood of the present factory. The savings in costs will further improve the future earning of the company. In view of the above, the company is suggested to have a dividend pay-out ratio of 60% which requires the cash outgo of Rs. 10.50. The cash EPS will also enable the pay-out of 60%.

Since the market price of share is increased to Rs. 140, the dividend yield works out to only 7.5% ($10.50/140 \times 100$). The company has widely distributed shareholding with a dividend clientele of middle-class investors whose shareholding does not exceed 500 shares in the company. The dividend payable to them many no to be tax deductible. The small investors prefer to receive dividends periodically. The price earnings ratio of the current year is 8 ($140/17.50$). It is expected that the market price of share would further increase due to its current low PE ratio. The setting up of additional plant would require raising funds from external sources by issue of new shares. To attract the potential investors for company's shares, it is required to have a dividend pay-out of 60%. But a higher dividend pay-out is not suggested, since retained earnings can be used in further expansion and growth schemes.

b) The following information is available in respect of

XYZ Ltd. Earnings per share – Rs.10

Cost of capital K_e – 0.10

Rate of return of company - 10%

Find out the market price of share as per Gordon's model for pay-out ratios of 10%, 40%, 80% and 100%. Comment on the results of your calculations.

Answer: As per

$$P = [E(1-b)]/[K_e-br]$$

$$P=[10(1-0.90)]/[0.10-0.09] = 100$$

$$P=[10(1-0.60)]/[0.10-0.06] = 100$$

$$P=[10(1-0.20)]/[0.10-0.02] = 100$$

$$P=[10(1-0)]/[0.10-0.00] = 100$$

Comment: If $r=K_e$, the dividend is irrelevant.

Question 2: Rose Ltd. has a capital of Rs. 10,00,000 in equity shares of Rs. 100 each. The shares are currently quoted at par. The company proposes to declare a dividend of Rs. 10 per share at the end of the current financial year. The capitalization rate for the risk class of which the company belongs is 12%. Compute market price of the share at the end of the year, if:

1. Dividend is not declared?
2. Dividend is declared?
3. Assuming that the company pays a dividend and has net profits of Rs. 5,00,000 and makes new investments of Rs.10,00,000 during the period, how many new shares must be issued? Use the MM model.
4. Show that the total market value of the shares at the end of the accounting year will remain the same whether dividends are either distributed or not distributed. Also find out the current market value of the firm under both situations.

Answer:

Given:

Cost of Equity (Ke)	12%
Number of shares in the beginning (n)	10,000
Current Market Price (P ₀)	Rs. 100
Net Profit (E)	Rs. 5,00,000
Expected Dividend	Rs. 10 per share
Investment (I)	Rs. 10,00,000

Computation of market price per share, when:

1. No dividend is

declared: $P_0 = \frac{P_1}{1 + Ke}$

$+ \frac{D_1}{1 + Ke}$

$100 = \frac{P_1 + 0}{1 + 0.12}$

$100 = \frac{P_1 + 0}{1 + 0.12}$

$100 = \frac{P_1 + 0}{1 + 0.12}$

$P_1 = 112 - 0$

$= \text{Rs. } 112$

2. Dividend is declared:

$$100 = \frac{P_1 + 10}{1 + 0.12}$$

$$1 + 0.12$$

$$P_1 = 112 - 10$$

$$= \text{Rs. } 102$$

3. Calculation of funds required for investment:

Earning	5,00,000
Dividend distributed	1,00,000
Fund available for investment	4,00,000
Total Investment	10,00,000
Balance Funds required	10,00,000 - 4,00,000 = Rs. 6,00,000

No. of shares = Funds required / Price of the share

$$= 6,00,000 / 102$$

$$= 5882.35 \text{ or } 5883 \text{ Shares}$$

Value of the firm in both cases = $V = [(N+n)P_1 + E - I] / (1 + K_e) = \text{Rs. } 1000000$

Question 3: Bajaj Ltd. has 1,20,000 shares outstanding and selling at Rs. 20 each in the market. The company hopes to make a net income of Rs. 3,50,000 during the year ended 31st March, 2009. The company is considering to pay a dividend of Rs. 2 per share at the end of the current year. The capitalization rate for class of this company has been estimated to be 15% using MM Dividend Valuation Model.

- What will be the price of a share at the end of the year: (i) if dividend is paid and (ii) if dividend is not paid?
- How many new shares must the company issue if the dividend is paid and the company needs Rs. 7,40,000 for an approved investment expenditure during the year?
- Show that the total market value of the shares at the end of the accounting year will remain the same whether dividends are either distributed or not distributed. Also find out the current market value of the firm under both situations.

Answer:

a) Calculation of market price per share under MM Dividend Valuation Model:

$$P_1 = P_0 (1 + K_e) - D_1$$

i. If dividend is declared:

$$P_1 = P_0 (1 + K_e) - D_1$$

$$= 20 (1 + 0.15) - 2$$

$$= 20 (1.15) - 2$$

$$= \text{Rs. } 21$$

ii. If dividend is not declared:

$$P_1 = P_0 (1 + K_e) - D_1$$

$$= 20 (1 + 0.15) - 0$$

$$= 20 (1.15)$$

$$= \text{Rs. } 23$$

b) Calculation of number of shares of new shares to be issued:

Particulars	Dividend Declared	Dividend Not Declared
Net income (Rs.)	3,50,000	3,50,000
<i>Less:</i> Dividend paid	2,40,000	—
Retained earnings	1,10,000	3,50,000
New investments	7,40,000	7,40,000
Amount to be raised by issue of new shares	6,30,000	3,90,000
Market price per shares	21	23
Number of new shares to be issued	30,000	16,957

c) Calculation of value of firm:

$$\text{Value of the firm in both cases} = V = [(N+n)P_1 + E - I] / (1 + K_e) = \text{Rs. } 2400000$$

Question 4: A company belongs to a risk-class for which the appropriate capitalization rate is 10%. It currently has outstanding 25,000 shares selling at Rs.

100 each. The firm is contemplating the declaration of dividend of Rs. 5 per share at the end of the current financial

year. The company expects to have a net income of Rs.2.5 lakhs and a proposal for making new investments of Rs. 5 Lakhs. Show that under the MM assumptions, the payment of dividend does not affect the value of the firm.

Answer:

Existing Market Price per share (P₀) =

Rs.100 Contemplated DPS (D₁) = Rs. 5

Rate of Capitalization (K_e) = 10% or

0.10 Market price as per MM approach is,

$$P_0 = \frac{D_1 + P_1}{1 + k_e}$$

i. If contemplated dividends are declared, then

$$100 = \frac{5 + P_1}{1 + 0.10}$$

$$\text{or, } P_1 = 105$$

ii. If dividends are not declared, then

$$100 = \frac{0 + P_1}{1 + 0.10}$$

$$\text{or, } P_1 = 110$$

Calculation of number of shares to be issued

	Dividends Distributed	Dividends not Distributed
Net Income	Rs. 2,50,000	Rs. 2,50,000
Less: Total Dividends	1,25,000	--
Retained Earnings (A)	1,25,000	2,50,000
Investment Budget (B)	5,00,000	5,00,000

Amount to be raised by new issues (B-A)	3,75,000	2,50,000
Relevant Market Price per share	105	110
No. of new shares to be issued	3,571.4	2,272.7

Calculation of Value of the Firm

	Dividends Distributed	Dividends not Distributed
Existing No. of Shares	25,000.0	25,000.0
Add: New shares issued	3,571.4	2,272.7
Total No. of shares at the end of the year	28,571.4	27,272.7
Market Price Per Share (Rs.)	105	110
Value of the Firm (Total No. of shares X MPS)	Rs. 30,00,000	Rs. 30,00,000

Thus, the total market value of shares remains unaffected whether dividends are distributed or not distributed at all.