Note: All questions are compulsory.

Question 1(6 Marks)

(i) Cost of Equity Capital(K_e): (2 marks)

$$K_e = \frac{\text{Expected dividend pershare}(D_1)}{\text{Marketprice per share }(P_0)} + \text{Growthrate(g)}$$

$$= \frac{Rs.\,2 \times 1.06}{Rs.\,25} + 0.06 = 0.1448 \; or \; 14.48\%$$

Note: The cost of equity can be calculated without taking the effect of growth on dividend.

(ii) Indicated market price per share when growth rate is 8%P.a: (2 marks)

$$K_e = \frac{\text{Expected dividend per share}(D_1)}{\text{Marketprice per share }(P_0)} + \text{Growthrate(g)}$$

Or

$$P_0 = \frac{\text{Expected dividend pershare}(D_1)}{\text{Cost of euity }(K_e) - \text{Growthrate(g)}}$$

$$P_0 = \frac{Rs.2 \times 1.08}{0.1448 - 0.08} \; Or \; P_0 = \frac{Rs.2 .16}{0.0648} \; Rs.33.33$$

(iii) Cost of Debenture(K_d): (Using approximation method) **(2 marks)**

$$K_d = \frac{\text{Interest }(1 - \text{tax rate}) + \left(\frac{RV - NP}{12 \text{years}}\right)}{\left(\frac{RV - NP}{2}\right)}$$

Where ,Tax rate = 50%

Net Proceeds (NP) =Rs.96

Redeemable Value(RV) =Rs.100(1.12)=Rs.112

$$K_d = \frac{10\% \text{ of } Rs100(1 - 0.5) + \left(\frac{Rs.112 - Rs.96}{12 \text{years}}\right)}{\left(\frac{Rs.112 + Rs.96}{2}\right)}$$

$$K_d = \frac{Rs.5 + 1.33}{Rs.104} = 0.0608 \text{ or } 6.08\%$$

OR

(Using Present Value method or YTM)

Identification or relevant cash flows

Year	Cash flows
0	Current market price (P_0)=Rs.96
1 to 12	Interest net of tax [I(1+t)]=10% of Rs.100(1-0.5)=Rs.5
12	Redemption value(RV)=Rs.100(1.12)Rs.112

Calculation of Net Present Values (NPV)at two discount rates

Year	Cash	Discount factor@5%(L)	Present value	Discount factor@10%(H)	Present value
0	96	1.000	(96.00)	1.000	(96.00)
1 to 12	5	8.863	44.32	6.814	34.07
12	112	0.557	62.38	0.319	35.73
NPV			+10.7		-26.2

Calculation of IRR

$$IRR = L + \frac{NPV_L}{NPV_L - NPV_H}(H - L)$$

$$= 5\% + \frac{10.7}{10.7-(-26.2)}(10\% - 5\%) = 5\% + \frac{53.5}{36.9} = 6.45\%$$

Therefore ,K_d=6.45%

[Any other low and high rate as discount factor may also be used.]

Question 2(6 Marks)

Computation of Profit after Tax(PAT) (2 Marks)

Particulars	Amount(Rs.)
Sales	84,00,000
Contribution (Sales x P/V ratio)	23,14,200
Less: Fixed cost (excluding Interest)	6,96,000
EBIT (Earning before interest and tax)	16,18,200
Less: Interest on debenture (12% x Rs. 37lakhs)	(4,44,000)
Less: Other fixed Interest (balancing figure)	(88,160)*
EBT (Earning before tax)	10,86,040
Less: Tax@40%	4,34,416
PAT (Profit after tax)	6,51,624

(i)   **Operating Leverage: (1 Mark)**

$$= \frac{Contribution}{EBIT} = \frac{Rs.23,14,200}{Rs.16,18,200} = 1.43$$

(ii)   **Combined Leverage: (2 marks)**

=Operating Leverage x Financial Leverage

=1.43 x 1.49=2.13

Or,

Combined Leverage= $\dfrac{\textbf{Contribution}}{\textbf{EBIT}}$ **X** $\dfrac{\textbf{EBIT}}{\textbf{EBT}}$

Combined Leverage= $\dfrac{\text{Contribution}}{\text{EBIT}} = \dfrac{\text{Rs.23,14,200}}{\text{Rs.10,86,040}}$ =2.13

Financial Leverage = $\dfrac{\text{EBIT}}{\text{EBT}} = \dfrac{\text{Rs.16,18,200}}{\text{EBT}}$ =1.49

So, EBT= $\dfrac{\text{Rs.16,18,200}}{1.49}$ =Rs.10,86,040

Accordingly , other fixed inertest

=Rs.16,18,200 - Rs.10,86,040 - Rs. 4,44,000=Rs.88,160

(iii)   Earnings per share(EPS): (1 mark)

$$= \dfrac{\text{PAT}}{\text{No. of shares outsatnding}} = \dfrac{\text{Rs. 6,51,624}}{5,00,000 \text{equity shares}} = \text{Rs. 1.30}$$

Question 3 (8 marks)
Working Notes:

(i) Cost of Goods Sold   =Sales - Gross Profit (28% of Sales)

=Rs.50,00,000 – Rs.14,00,000

=Rs.36,00,000 **(1/2 mark)**

(ii)Closing Stock   =Cost of Goods Sold/Stock Turnover

=Rs.36,00,000/6 =Rs.6,00,000**(1 /2mark)**

(iii) Fixed Assets   =Cost of Goods Sold/Fixed Assets Turnover

=Rs.36,00,000/1.5 =Rs.24,00,000**(1/2 mark)**

(iv) Current Assets :Current Ratio

=1.5 and Liquid Ratio =1

Stock   =1.5 – 1=0.5

Current Assets   =Amount of Stock x 1.5/0.5

=Rs.6,00,000 x 1.5/0.5 =Rs.18,00,000**(1/2 mark)**

(v) Liquid Assets (Debtors and Cash & Cash equivalents)

=Current Assets –Stock

=Rs.18,00,000-Rs.6,00,000

=Rs.12,00,000**(1/2 mark)**

(vi) Debtors   =Sales x Debtors Collection Period(days)/360days

=Rs.50,000 x $\dfrac{45}{360}$ =Rs.6,25,000**(1/2 mark)**

(vii) Cash & Cash equivalents

=Liquid Assets –Debtors

=Rs.12,00,000-Rs.6,25,000=Rs.5,75,000**(1/2 mark)**

(viii)Net worth = Fixed Assets / 1.2

=Rs.24,00,000/1.2=Rs.20,00,000**(1/2 mark)**

(ix) Reserves and Surplus

Reserves & Surplus and Share Capital =0.6+1=1.6

Reserves and Surplus =Rs.20,00,000 x 0.6/1.6=Rs.7,50,000**(1/2 mark)**

(x)Share Capital =Net worth –Reserves and Surplus

=Rs.20,00,000 – Rs.7,50,000

=Rs.12,50,000**(1 /2mark)**

(xi)Current Liabilities =Current Assets /Current Ratio

=Rs.18,00,000/1.5 =Rs. 12,00,000**(1/2 mark)**

(xii)Long term Debts

Capital Gearing Ratio =Long term Debts /Equity Shareholders 'Fund(Net worth)

Or, Long term Debts =Rs.20,00,000 x 0.5= Rs.10,00,000**(1/2 mark)**

Balance Sheet as at 31ˢᵗ March ,2016(2 marks)

Liabilities	Amount (Rs).	Assets		Amount(Rs.)
Equity Share Capital	12,50,000	Fixed Assets		24,00,000
Reserves and Surplus	7,50,000	Current Assets		
Long term Debts	10,00,000	Stock	6,00,000	
Current Liabilities	12,00,000	Debtors	6,25,000	
		Cash & Cash eq.	5,75,000	18,00,000
	42,00,000			42,00,000

Question 4 (8 Marks)
  Working Notes:

1. **Capital employed before expansion plan:**   (Rs.)
   Equity shares (Rs.10 x80,000 shares)   8,00,000
   Debenture {(Rs.1,20,000/12) x100}   10,00,000
   Retained earnings   18,00,000
   Total capital employed   36,00,000
    (1/2 mark)

   2.**Earnings before the payment of interest and tax(EBIT):**

                         (Rs.)
   Profit(EBT)   6,00,000
   Add: Interest   1,20,000
   EBIT   7,20,00
   (1/2 mark)

3.Return on Capital Employed (ROCE):

$$Roce = \frac{EBIT}{Capital\ employed} \times 100 = \frac{Rs.\ 7,20,000}{Rs.\ 36,00,000} \times 100 = 20\%$$

(1 mark)

4.Earnings before interest and tax (EBIT) after expansion scheme: (1 mark)

After expansion, capital employed =Rs.36,00,000+Rs.8,00,000

=Rs.44,00,000

Desired EBIT =20% x Rs.44,00,000=Rs.8,80,000

(i) **Computation or Earnings per Share (EPS) under the following options: (4 Marks)**

	Present	Expansion scheme Additional funds raised as	
		Debt	Equity
	(Rs.)	(Rs.)	(Rs.)
Earnings before Interest and Tax(EBIT)	7,20,000	8,80,000	8,80,000
Less: Interest –Old capital	1,20,000	1,20,000	1,20,000
-New capital	-	96,000 (Rs.8,00,000 x12%)	-
Earnings before Tax(EBT)	6,00,000	6,64,000	7,60,000
Less: Tax(50%of EBT)	3,00,000	3,32,000	3,80,000
PAT	3,00,000	3,32,000	3,80,000
No. of shares outstanding	80,000	80,000	1,60,000
Earnings per share(EPS)	3.75 $\left(\frac{Rs.\ 3,00,000}{80,000}\right)$	4.15 $\left(\frac{Rs.\ 3,32,000}{80,000}\right)$	2.38 $\left(\frac{Rs.\ 3,80,000}{160,000}\right)$

(ii) **Advise to the Company :**When the expansion scheme is financed by additional debt, the EPS is higher .Hence, the company should finance the expansion scheme by raising debt.**(1 Mark)**

Question 5 (6 Marks)

Working:

(i) Financial Leverage $:= \frac{EBIT}{EBIT-Interest}$ or, $2 = \frac{EBIT}{EBIT-5,000}$

Or, $EBIT = Rs.\ 10,000$ **(1 mark)**

(ii) Operating Leverage$:= \frac{Contribution}{EBIT}$ or, $3= \frac{Contribution}{Rs.10,000}$

Or, $Contribution = Rs.\ 30,000$**(1 mark)**

(iii)Sales $= \frac{Contribution}{P/V\ Ratio}=\frac{Rs.30,000}{25\%}=Rs.1,20,000$**(1 mark)**

(iv)Fixed Cost = Contribution-Fixed cost=EBIT

=Rs.30,000-Fixed cost =Rs.10,000

Or Fixed cost =Rs.20,000**(1 mark)**

Income Statement for the year ended 31ˢᵗ December 2016 (2 marks)

Particulars	Amount (Rs.)
Sales	1,20,000
Less :Variable Cost (75%of Rs.1,20,000)	(90,000)
Contribution	30,000
Less: Fixed Cost(Contribution - EBIT)	(20,000)
Earnings Before Interest and Tax (EBIT)	10,000
Less: Interest	(5,000)
Earnings Before Tax(EBT	5,000
Less Income Tax@30%	(1,500)
Earnings after Tax (EAT or PAT)	3,500

Question 6 (8 Marks)

	(Rs.in lakhs)
Equipment Cost	150
Working Capital	25
	175

Calculation of Cash Inflows: **(3 Marks)**

Years	1	2	3-5	6-8
Sales in units	80,000	1,20,00	3,00,000	2,00,000
	(Rs.)	(Rs.)	(Rs.)	(Rs.)
Contribution@Rs.60 p.u	48,00,000	72,00,000	1,80,00,000	1,20,00,00
Fixed cost	16,00,000	16,00,000	16,00,000	16,00,000
Advertisement	30,00,000	15,00,000	10,00,000	4,00,000
Depreciation	15,00,000	15,00,000	16,50,000	16,50,000
Profit/(loss)	13,00,000	26,00,000	1,37,50,000	83,50,000
Tax @50%	NIL	13,00,000	68,75,000	41,75,000
Profit/(loss)after tax	(13,00,000)	13,00,000	68,75,000	41,75,000
Add: Depreciation	15,00,000	15,00,000	16,50,000	16,50,000
Cash inflow	2,00,000	28,00,000	85,25,000	58,25,000

Computation of PV of Cash Inflow**(4 Marks)**

Year	Cash inflow(Rs.)	PV Factor@12%	(Rs.)
1	2,00,000	0.893	1,78,600
2	28,00,000	0.797	22,31,600
3	85,25,000	0.712	60,69,800
4	85,25,000	0.636	54,21,900
5	85,25,000	0.567	48,33,675
6	58,25,000	0.507	29,53,275
7	58,25,000	0.452	26,32,900
8	58,25,000	0.404	23,53,300
Working Capital	15,00,000	0.404	40,400
(A)			2,73,21,450
Cash Outflow:			
Initial Cash Outlay	1,75,00,000	1.000	1,75,00,000
Additional Investment	10,00,000	0.797	7,97,000
(B)			1,82,97,000
Net Present Value(NPV) (A-B)			90,24,450

Recommendation :Accept the project in view of positive NPV.**(1 mark)**

Question 7 (8 Marks)

(i) Computation of EPS under three –financial plans. (1 ½ Marks)

Plan I :Equity Financing

	Rs.	Rs.	Rs.	Rs.	Rs.
EBIT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Interest	0	0	0	0	0
EBT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less: Taxes 40%	(25,000)	(50,000)	(1,00,000)	(1,50,000)	(2,50,000)
PAT	37,500	75,000	1,50,000	2,25,000	3,75,000
No .of equity shares	3,12,500	3,12,500	3,12,500	3,12,500	3,12,500
EPS	0.12	0.24	0.48	0.72	1.20

Plan II :Debit-Equity Mix (1 ½ marks)

	Rs.	Rs.	Rs.	Rs.	Rs.
EBIT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less : Interest	(1,25,000)	(1,25,000)	(1,25,000)	(1,25,000)	(1,25,000)
EBT	(62,500)	0	1,25,000	2,50,000	5,00,000
Less: Taxes 40%	25,000*	0	(50,000)	(1,00,000)	(2,00,000)
PAT	(37,500)	0	75,000	1,50,000	3,00,000
No. of equity shares	1,56,250	1,56,250	1,56,250	1,56,250	1,56,250
EPS	(0.24)	0	0.48	0.96	1.92

*The company will be able to set off losses against other profits. If the Company has no profit from operations ,losses will be carried forward.

Plan III :Preference Shares -Equity Mix (1 ½ Marks)

	Rs.	Rs.	Rs.	Rs.	Rs.
EBIT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less : Interest	0	0	0	0	0
EBT	62,500	1,25,000	2,50,000	3,75,000	6,25,000
Less: Taxes 40%	(25,000)	(50,000)	(1,00,000)	(1,50,000)	(2,50,000)
PAT	37,500	75,000	1,50,000	2,25,000	3,75,000
Less: Pref. dividend	(1,25,000)*	(1,25,000)*	(1,25,000)	(1,25,000)	(1,25,000)*
PAT for equity shareholders	(87,500)	(50,000)	25,000	1,00,000	2,50,000
No. of Equity Shares	1,56,250	1,56,250	1,56,250	1,56,250	1,56,250
EPS	(0.56)	(0.32)	0.16	0.64	1.60

*In case of cumulative preference shares, the dividend gets accumulated if there is insufficient profit to pay dividend .If we assume it as non-cumulative preference shares , then in this case dividend amount will be lower of PAT and amount of preference dividend.

(ii)The choice of the financing plan will depend on the state of economic conditions .If the company's sales are increasing .the EPS will be maximum under Plan II: Debit –Equity Mix.Under favouable economic

conditions, debt financing gives more benefit due to tax shield availability than equity or preference financing .**(1 ½ Mark)**

(iii)EBIT-EPS Indifference Point –Plan I and Plan II: (1 Mark)

$$\frac{(EBIT) \times (1 - T_c)}{N_1} = \frac{(EBIT - Interest)(1 - T_c)}{N_2}$$

$$\frac{EBIT(1 - 0.40)}{3,12,500} = \frac{(EBIT - 1,25,00) \times (1 - 0.40)}{1,56,250}$$

$$EBIT \qquad = \frac{3,12,500}{3,12,500 - 1,56,250} \times 1,25000$$

$$= Rs.2,50,000$$

EBIT-EPS Indifference Point –Plan I and Plan III (1 Mark)

$$\frac{(EBIT)(1 - T_c)}{N_1} = \frac{(EBIT(1 - T_c) - Pref. Div.)}{N_2}$$

$$EBIT = \frac{N_1}{N_1 - N_2} = \frac{Pref. Div.}{1 - T_2}$$

$$= \frac{3,12,500}{3,12,500 - 1,56,250} \times \frac{1,25,000}{1 - 0.4} = Rs. 4,16,666.67$$

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