Marks

Question No. 1

(a)

Skylight (Pvt.) Limited
Cash Budget
from February 2018 to April 2018

Rs. in million

	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	
Cash Receipts:							
Monthly sales	1,250.00	1,300.00	1,350.00	1,420.00	1,450.00	1,480.00	
Cash collections:							
50% cash sales in the month of sale	–	–	–	710.00	725.00	740.00	0.75
25% in subsequent month of sales	–	–	–	337.50	355.00	362.50	0.75
15% in second month after sale and	–	–	–	195.00	202.50	213.00	0.75
Remaining 10% in third month after sale	–	–	–	125.00	130.00	135.00	0.75
Total month-wise cash receipts	–	–	–	1,367.50	1,412.50	1,450.50	0.5
Cash Payments:							
Salaries and wages	–	–	–	250.00	250.00	280.00	0.75
Payments to creditors of raw materials	–	–	–	1,250.00	1,275.00	1,290.00	0.75
Other administrative expenses	–	–	–	35.00	35.00	35.00	0.75
Total month-wise cash payments	–	–	–	1,535.00	1,560.00	1,605.00	0.5
Cash surplus/ (deficit)	–	–	–	(167.50)	(147.50)	(154.50)	0.75

(b) Working of Additional Bank Borrowing:

Rs. in million

	Jan 2018	Feb 2018	Mar 2018	Apr 2018	
Opening balance of bank borrowing	–	320.00	487.50	635.00	0.75
Additional borrowings	–	167.50	147.50	154.50	0.75
Closing balance of bank borrowing	320.00	487.50	635.00	789.50	0.5

(c)

Skylight (Pvt.) Limited
Forecasted Statement of Financial Position
as at April 30, 2018

Rs. in million

	Actual (as at Jan 2018)	Change	Projected (as at April 2018)	
Assets				
Non-current assets	2,330.00	–	2,330.00	0.5
Current assets:				
Cash	200.00	–	200.00	0.5
Trade receivables	1,125.00	119.50	1,244.50 [W-1]	0.5
Inventories	1,250.00	65.00	1,315.00	0.5
Total current assets	2,575.00	184.50	2,759.50	
Total assets	4,905.00	184.50	5,089.50	

Marks

Rs. in million

	Actual (as at Jan 2018)	Change	Projected (as at April 2018)	Marks
Equity and Liabilities				
Equity:				
Common stock	2,500.00	–	2,500.00	0.5
Retained earnings	635.00	(350.00)	285.00	0.5
Total equity	3,135.00	(350.00)	2,785.00	
Current liabilities:				
Trade payables	1,250.00	65.00	1,315.00	0.5
Bank borrowings	320.00	469.50	789.50	0.5
Accrued expenses	200.00	–	200.00	0.5
Total current liabilities	1,770.00	534.50	2,304.50	
Total equity and liabilities	4,905.00	184.50	5,089.50	0.5

Rs. in million

W-1: Working of closing projected debtors:		
50% sales of April 2018	740.00	0.25
25% sales of March 2018	362.50	0.25
10% sales of February2018	142.00	0.25
	1,244.50	0.25

Question No. 2

Relevant Costs: In-House Management Alternative

	Rupees	
Cash discount (5 m x 0.02 x 0.40)	40,000	0.5
Cost of funds in receivables (W-1)	58,334	0.5
Bad debt losses (Rs.5 million x 0.02)	100,000	0.5
Lost contribution on foregone sales [1,000,000 x (0.20 – 0.02 Bad debts)]	180,000	0.5
Avoidable administrative overheads	100,000	0.5
	478,334	0.5

W-1:

Cost of Funds Invested in Receivables:

Average collection period	=	(10 days x 0.4) + (60 days x 0.60)	=	40 days	0.5
Cost of bank finance	=	Rs.5 million x 3/4 x 40/360 x 0.1	=	Rs.41,667	0.5
Cost of own funds	=	Rs.5 million x 1/4 x 40/360 x 0.12	=	Rs.16,667	0.5
Total	=	Rs.58,334			0.5

Marks

Relevant Costs: Recourse Factoring Alternative:

	Rupees	
Factoring commission (6 million x 0.03)	180,000	0.5
Discount charge (W-2)	46,560	0.5
Cost of long-term funds invested in receivables [(6,000,000 – 4,656,000) x 0.12 x 30/360)]	13,440	0.5
	240,000	0.5

W-2:

Eligible amount of advance	=	0.80 x (Rs.6 m – Rs.180,000)	=	Rs.4,656,000	0.5
Discount charge	=	Rs.4,656,000 x 0.12 x 30/360	=	Rs. 46,560	0.5

Relevant Costs: Non-recourse Factoring Alternative

	Rupees	
Factoring commission (Rs.6 m x 0.05)	300,000	0.5
Discount charge (W-3)	60,563	0.5
Cost of long-term funds invested in receivables [(6 m – 4,845,000) x 0.12 x 30/360)]	11,550	0.5
	372,113	0.5

W-3:

Eligible amount of advance	=	0.85 x 6,000,000 – 300,000)	=	Rs.4,845,000	0.5
Discount charge	=	Rs.4,845,000 x 0.15 x 30/360	=	Rs.60,563	0.5

Decision Analysis: Recourse Factoring

	Rupees	
Benefits (Rs.478,334 - 100,000 Bad debts yet to be met by Royal limited)	378,334	0.5
Cost	240,000	0.5
Net benefits	138,334	0.5

Decision Analysis: Non-Recourse Factoring

	Rupees	
Benefits (Rs.478,334+ 20,000 Bad debts loss to be borne by factor)	498,334	0.5
Cost	372,113	0.5
Net benefits	126,221	0.5

The company would choose recourse factoring due to higher net benefits. 1

Marks

Question No. 3

(a)

B_o = Rs.1,100

I = 0.1 × Rs. 1,000 = Rs.100 0.5

Current yield = $\frac{\text{Annual interest}}{\text{Current price}}$

= $\frac{\text{Rs.100}}{\text{Rs.1,100}}$ = 9.09% 1.5

(b)

Rs.1,100 = $\text{Rs.100}/r_d \times [1 - 1/1 + r_d)^{10} + \text{Rs.1,000} \times 1/(1+r_d)^{10}$ 0.5

Because if r_d = 10%, B_0 = Rs.1,000

M, try r_d = 9%. 0.5

B_0 = Rs. 100× [PVIFA $_{9\%,10}$)] + Rs.1,000 × (PVIF $_{9\%,10}$) 0.5

= (Rs. 100 × 6.418) + (Rs.1,000 × 0.422) 0.5

= Rs. 641.8 + Rs.422 0.5

= Rs.1,063.8 0.5

Because Rs. 1,063.8 < Rs.1,100, try r_d = 8%. 0.5

B_0 = Rs. 100x [PVIFA $_{8\%,10}$] + Rs.1,000 x(PVIF $_{8\%,10}$) 0.5

= (Rs.100 × 6.71) + (Rs.1,000 × 0.463) 0.5

= Rs.671 + Rs.463 0.5

= Rs.1,134 0.5

Because the Rs. 1,134 value at 8% is higher than Rs. 1,100 and the Rs. 1,063.8 value at the 9% rate is lower than Rs.1,100, the bond's yield to maturity must be between 8% and 9%. Because the Rs.1,134 value is closer to interpolation, the more precise YTM value is: 1

YTM = 0.08 + (.09-.08)(1134-1100)/(1134-1063.8) 0.5

= 0.08 + (0.01 x 0.48) 0.5

= 8.48% 0.5

(c) The YTM of 8.48% is below both the bond's 10% coupon interest rate and its current yield of 9.09% calculated in part **(a)** because the bonds market value of Rs. 1,100 is above its par value (it sells at a premium), its YTM and current yield will be below its coupon interest rate; when a bond sells at par, the YTM and current yield will equal its coupon interest rate; and when the bond sells for less than par (at a discount), its YTM and current yield will be greater than its coupon interest rate.

Observe also that the current yield measures the bond's coupon payment relative to its current price. When the bond sells at a premium, its YTM will be below its current yield because the YTM also takes into account that the bondholder will receive just Rs.1,000 back at maturity, which represents a loss relative to the bond's current market price. In other words, the YTM is measuring both the value of the coupon payment that the investor receives (just like the current yield does) and the "loss" that the bondholder endures when the bond matures. 05

Marks

Question No. 4

Present value of cash outflow under Buying Option:

Rupees

Year	Loan installment	Tax advantage on		Net Cash outflow 2-(3+4)	PVIF at 12%	Total Present Value	
		Interest x 31%	Depreciation x 31%				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1	80,476,900	13,392,000	15,066,000	52,018,900	0.893	46,452,878	0.5
2	80,476,900	12,467,533	15,066,000	52,943,367	0.797	42,195,864	0.5
3	80,476,900	11,469,108	15,066,000	53,941,792	0.712	38,406,556	0.5
4	80,476,900	10,390,810	15,066,000	55,020,090	0.636	34,992,777	0.5
5	80,476,900	9,226,248	15,066,000	56,184,652	0.567	31,856,698	0.5
6	80,476,900	7,968,520	15,066,000	57,442,380	0.507	29,123,287	0.5
7	80,476,900	6,610,175	15,066,000	58,800,725	0.452	26,577,928	0.5
8	80,476,900	5,143,162	15,066,000	60,267,738	0.404	24,348,166	0.5
9	80,476,900	3,558,787	15,066,000	61,852,113	0.361	22,328,613	0.5
10	80,476,900	1,847,663	15,066,000	63,563,237	0.322	20,467,362	0.5
						316,750,127	0.25
10	Present value of salvage value			54,000,000	0.322	17,388,000	0.5
					Total	299,362,127	0.25

Working Notes:

Rupees

Estimated cost of Tower	540,000,000	
Equivalent annual loan installment (540,000,000 ÷ 6.710)	80,476,900	0.5

Schedule of debt payment

Rupees

Year	Loan installment	Loan at the beginning of the year	Payments		Loan at the end of the year	
			Interest	Principal		
(1)	(2)	(3)	(4)	(5)	(6)	
1	80,476,900	540,000,000	43,200,000	37,276,900	502,723,100	0.5
2	80,476,900	502,723,100	40,217,848	40,259,052	462,464,048	0.5
3	80,476,900	462,464,048	36,997,124	43,479,776	418,984,272	0.5
4	80,476,900	418,984,272	33,518,742	46,958,158	372,026,114	0.5
5	80,476,900	372,026,114	29,762,089	50,714,811	321,311,303	0.5
6	80,476,900	321,311,303	25,704,904	54,771,996	266,539,307	0.5
7	80,476,900	266,539,307	21,323,145	59,153,755	207,385,551	0.5
8	80,476,900	207,385,551	16,590,844	63,886,056	143,499,496	0.5
9	80,476,900	143,499,496	11,479,960	68,996,940	74,502,555	0.5
10	80,476,900	74,502,555	5,960,204	74,516,696	(14,140)	0.5

Marks

Schedule of Depreciation

	Rupees	
Cost of tower	540,000,000	0.25
Less: Salvage value (10%)	54,000,000	0.25
	486,000,000	0.25
Annual depreciation	48,600,000	0.25

Present value of cash outflow under Lease Option:

Year	Annual lease rentals	Tax @ 31%	Annual lease rentals after tax	PVIF at 12%	Rupees Total Present Value	
1-10	75,500,000	23,405,000	52,095,000	5.650	294,336,750	2

Decision:

	Rupees	
Total present value under buying option	299,362,127	
Total present value under lease option	294,336,750	0.25

Al-Jasim Telecom should opt lease option in acquiring tower for 4G service. 0.25

Question No. 5

Cost of Preference Share Capital (K_p):

$K_p = D_p \div P_o$

$K_p = 1.8 \div 12.5 = 14.40\%$ 1

Cost of Equity Share Capital (Ke) – Using Capital Asset Pricing Model:

$K_e = R_f + (R_m - R_f)\beta$

$Ke = 5.50\% + (9.5\%) \times 0.8 = 13.10\%$ 1

Cost of Long-Term Loan (K_t):

$K_t = I (1 - t)$

$K_t = 18\% (1\text{-}0.31) = 12.42\%$ 1

Cost of Debenture (K_d):

	Years	Rupees	DF at 11%	PV	DF at 12%	PV	
Current ex-interest debenture market value	0	(110)	1.000	(110)	1.000	(110)	0.25
15% debentures	1	15	0.901	13.515	0.893	13.395	0.25
	2	15	0.812	12.18	0.797	11.955	0.25
	3	15	0.731	10.965	0.712	10.68	0.25
Redeemed value	4	115	0.659	75.785	0.636	73.14	0.25
				2.445		(0.83)	0.25
K_d (using IRR) before tax						11.70%	0.25
K_d (using IRR) after tax						8.07%	0.25

		Marks
	Rs. in million	
18% preference shares (face value Rs. 10 per share) [(Rs. 125 million / Rs. 10) x 12.5]	156.25	0.5
Equity share capital (face value Rs. 10 per share) [(Rs. 385 million/ Rs. 10) x 28]	1,078	0.5
18% long-term loans	325	0.5
15% debentures [(Rs. 230 million/ Rs. 100) x 110]	253	0.5
	1,812.25	0.5

				Rs. in million	
	Market Values	Weights	Post Tax Cost %	Weighted Cost (%)	
18% preference shares	156.25	8.62%	14.40%	1.24%	0.5
Equity share capital (face value Rs. 10 per share)	1,078	59.48%	13.10%	7.79%	0.5
18% long-term loans	325	17.93%	12.42%	2.20%	0.5
15% debentures	253	13.96%	8.07%	1.13%	0.5
	1,812.25	100%		12.36%	0.5

Question No. 6

No. of shares	22,000,000	0.25
Saim Company earning (Rupees)	247,500,000	0.25
EPS (Rupees)	11.25	0.25
P/E ratio (225 ÷ 11.25)	20	0.5
Danish Company P/E ratio (20 x 1.1)	22	0.5
No. of shares	2,500,000	0.25
EPS (Rupees)	12.5	0.25
Estimated value of shares (Rupees)	275	0.25
Gain in cash offer (308 – 275)	33	0.5
% gain (33 ÷ 275)	12%	0.5
Gain Under Share-for-Share:		
Equity value of Saim Company (22,000,000 x 225) (Rupees)	4,950,000,000	0.5
Equity value of Danish Company (2,500,000 x 275) (Rupees)	687,500,000	0.5
Synergy savings (Rupees)	141,250,000	0.25
Total equity value (Rupees)	5,778,750,000	0.25
Total no. of shares (22,000,000 + 3,125,000)	25,125,000	0.5
Expected share price (Rupees)	230	0.25

Gain per Danish Company share	=	[(5 x 230) – (4 x 275)] ÷ 4		0.5
	=	12.5		0.25
In %	=	12.5 ÷ 275	= 5%	0.5

Marks

Bond Offer:

					Rupees	
Year	Cash Flow	DF AT 5%	PV	DF 6%	PV	
0	(1,040)	–	(1,040)	–	(1,040)	0.75
1	70	0.952	66.667	0.943	66.0377	0.75
2	70	0.907	63.492	0.890	62.2996	0.75
3	1,070	0.864	924.306	0.840	898.392	0.75
			14.465		(13.270)	0.5

Rate of return = $0.05 + \frac{14.465}{(14.465 + 13.270)} \times (0.06 - 0.05)$ 0.5

= 0.0552 = 5.52% OR 5.50% 0.5

Year	Cash Flow	DF AT 5.50%	PV	
1	30	0.948	28.44	0.5
2	30	0.898	26.94	0.5
3	1,030	0.852	877.56	0.5
			932.94	0.5
Value per share (933 ÷ 3)			311	0.5
Gain per share (311 – 275)			36	0.5
% gain (36 ÷ 275)			13%	0.5

Question No. 7

(a) According to the binomial model:

$C = \Delta S - B$ 0.5

$\Delta = \frac{C_u}{S(u-d)}$ 0.5

$B = \frac{dC_u - uC_d}{(u-d)R}$ 0.5

C_u = Max (us – E, 0) 0.5

C_d = Max (dS – E, 0) 0.5

Given:

S = Rs.100, E = Rs.90, C = Rs.15, R = 1.055, d = 0.8

C_d = Max (0.08 × 100 – 90, 0) = 0 0.5

Since C = Rs. 15, uS – E has to be positive. 0.5

So,

$C_u = uS - E = u \times 100 - 90$ 0.5

$\Delta = \frac{100u - 90 - 0}{100(u - 0.8)}$ 0.5

Marks

$$B = \frac{0.8(100u - 90) - 0}{1.055(u - 0.8)}$$ 0.5

$C = \Delta S - B$ 0.5

$$15 = \frac{(100u - 90)}{100(u - 0.8)} \times 100 - \frac{0.8(100u - 90)}{1.055(u - 0.8)}$$ 0.5

Multiplying both the sides by (u – 0.8) we get: 0.5

$$15\ (u - 0.8) = 100u - 90 - \frac{0.8(100u - 90)}{1.055}$$ 0.5

Solving this for u we get u = 1.0636 0.5

So, the stock can rise by 6.36% 0.5

(b)

S_0 = Rs.100 u = 1.1 d = 0.8 0.5

E = Rs.90 R = 1.055 0.5

$$\Delta = \frac{C_u - C_d}{(u - d)\ S} = \frac{20 - 0}{0.3 \times 100} = \frac{20}{30}$$ 1.5

C_u = Max (us – E, 0) 0.5

= Max (100x1.1 – 90, 0) = 20 0.5

C_d = Max (dS – E, 0) 0.5

= Max (100x0.8 – 90, 0) = 0 0.5

$$B = \frac{U\ C_d - d\ C_u}{(u - d)\ R} = \frac{1.1 \times 0 - 0.8 \times 20}{0.3 \times 1.055} = -50.55$$ 1

$C = \Delta S + B$ 0.5

$$= \frac{20}{30} \times 100 - 50.55 = 16.12$$ 1

THE END