PUSASQF603B
Financial Modelling using Excel

Time: 2 hours Total
Marks: 60 marks

Note:
1. **The candidate has the option to either attempt question 3A or question 3B. Rest all questions are mandatory.**
2. **Numbers to the right indicate full marks.**
3. **The candidates will be provided with the formula sheet and graph papers [if required] for the examination.**
4. **Use of approved scientific calculator is allowed.**
5. **The folder should be named as follows: 701_FMExcel (or according to your Roll no).**
6. **Folder must include the Excel files**

Q1. Answer the Following **15 Marks**

A. **5 Marks**

ABC Company is considering a new product line to supplement its range of products. It is anticipated that the new product line will involve cash investments of Rs 13,00,000 at time 0, Rs 17,00,000 in year 1 and Rs 20,00,000 in year 2. After-tax cash inflows of Rs 4,50,000 are expected in year 2, Rs 9,00,000 in year 3, Rs 10,50,000 in year 4 and Rs 11,50,000 each year thereafter through year 10. Although the product line might be viable even after year 10, the company prefers to be conservative and end all calculations at that time.

a). If the required rate of return is 14%, COMPUTE NPV of the project. Is it acceptable? **(2)**
b). Analyse what would be the case if the required rate of return were 9%. **(1)**
c). Calculate its internal rate of return. **(2)**

B. **5 Marks**

Following table depicts the projected income statement of Cartel Ltd:

Particulars	**FY 20**	**FY 21**	**FY 22**	**FY 23**	**FY 24**	**FY 25**	**FY 26**
Revenue	96,00,000	1,21,00,000	1,39,50,000	1,62,50,000	1,89,50,000	2,29,50,000	2,89,50,000
Other Income	18,00,000	20,00,000	26,00,000	25,00,000	32,00,000	36,00,000	42,00,000
Total	**1,14,00,000**	**1,41,00,000**	**1,65,50,000**	**1,87,50,000**	**2,21,50,000**	**2,65,50,000**	**3,31,50,000**
Less: COGS	21,12,000	26,62,000	30,69,000	35,75,000	41,69,000	50,49,000	63,69,000
Gross Profit	**92,88,000**	**1,14,38,000**	**1,34,81,000**	**1,51,75,000**	**1,79,81,000**	**2,15,01,000**	**2,67,81,000**
Less: SG&A	6,72,000	8,47,000	9,76,500	11,37,500	13,26,500	16,06,500	20,26,500
EBIDTA	**86,16,000**	**1,05,91,000**	**1,25,04,500**	**1,40,37,500**	**1,66,54,500**	**1,98,94,500**	**2,47,54,500**
Less: Interest	5,44,000	5,44,000	5,44,000	5,44,000	5,44,000	5,44,000	5,44,000
Less: Depreciation	6,25,000	5,43,750	4,73,438	4,12,547	3,59,777	3,14,012	2,74,291
EBT	**74,47,000**	**95,03,250**	**1,14,87,063**	**1,30,80,953**	**1,57,50,723**	**1,90,36,488**	**2,39,36,209**
Less : Tax	18,61,750	23,75,813	28,71,766	32,70,238	39,37,681	47,59,122	59,84,052
Net Income	**55,85,250**	**71,27,438**	**86,15,297**	**98,10,715**	**1,18,13,042**	**1,42,77,366**	**1,79,52,157**

Other Information:

a. The Company has availed 2 loans - one at 8% interest and other at 12% interest. These two debts are in ratio of 1:5
b. The debt to equity ratio is 2:1. And total equity share capital is Rs 24,00,000
c. Tax rate is 25%
d. The risk free interest rate is 8.5% and risk premium is 8% and the beta factor is 0.75
e. Consider FY20 as Year 1 and FY 19 as year 0 in which Rs 450 lakhs were invested in the project

Required:

a. Calculate WACC based on information given. **(2)**
b. Calculate NPV of the total income using WACC **(1)**
c. If market return on equity reduces by 1% and risk free rate of return reduces by 0.5% and beta revised to 0.45, what will be the net NPV of the project? **(2)**

C. **5 Marks**

X Limited is considering purchasing of new plant worth Rs 75,00,000. The expected net cash flows after taxes and before depreciation are as follows:

Year	Net Cash Inflow
1	10,50,000
2	12,80,000
3	16,50,000
4	13,50,000
5	12,80,000
6	8,90,000
7	18,00,000
8	25,00,000
9	28,00,000
10	11,00,000

i. Calculate Payback Period of the project **(1)**
ii. Calculate net present value at 11% discounting factor **(2)**
iii. Calculate Internal Rate of Return **(2)**

Q2. Answer the Following **15 Marks**

A. **5 Marks**

Aroma Ltd. is a company situated in Gujarat that is currently analyzing capital expenditure proposals for the purchase of machinery; the company uses the net present value technique to evaluate projects. The capital budget is limited to Rs 15,00,000 which Aroma Ltd. believes is the maximum capital it can raise. The initial investment and projected net cash flows for each project are shown below. The cost of capital of Aroma Ltd is 13.5%.

	Project A	**Project B**	**Project C**	**Project D**
Initial Investment	8,00,000	8,20,000	9,50,000	7,50,000
Inflow				
Year 1	2,20,000	1,10,000	1,40,000	2,50,000
Year 2	2,20,000	1,50,000	1,50,000	1,80,000
Year 3	2,20,000	2,20,000	1,90,000	1,50,000
Year 4	2,20,000	2,70,000	2,20,000	1,20,000
Year 5	2,20,000	2,00,000	3,50,000	1,00,000

i. Compute the NPV of the different projects. **(4)**

ii. Also perform sensitivity analysis if discount rate moves by 0.5%. **(1)**

B.

(i). Calculate Free Cash Flow to Equity (FCFF) for all years using Profit Before Tax as base (assuming no working capital and fixed investment and Depreciation is the only non cash item and Interest is paid to borrowers , so consider interest net of tax while calculating FCFF) **(3)**

Income Statement

Particulars	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**
Revenue from Operations	2,62,08,000	3,21,39,000	3,94,20,000	4,86,00,000	6,07,68,000
Other Income	14,40,000	11,70,000	7,56,000	15,12,000	16,20,000
Total	**2,76,48,000**	**3,33,09,000**	**4,01,76,000**	**5,01,12,000**	**6,23,88,000**
Less: COGS	2,14,90,560	2,63,53,980	3,23,24,400	3,98,52,000	4,98,29,760
EBIDTA	**61,57,440**	**69,55,020**	**78,51,600**	**1,02,60,000**	**1,25,58,240**
Less: Depreciation	7,00,000	6,60,000	6,20,000	5,40,000	5,00,000
Less: Interest (10%)	5,00,000	5,00,000	5,00,000	2,00,000	2,00,000
EBT	**49,57,440**	**57,95,020**	**67,31,600**	**95,20,000**	**1,18,58,240**
Less : Tax (25%)	12,39,360	14,48,755	16,82,900	23,80,000	29,64,560
Profit after Tax	**37,18,080**	**43,46,265**	**50,48,700**	**71,40,000**	**88,93,680**
Less : Dividend Paid	2,50,000	2,75,000	3,02,500	3,32,750	3,66,025
Net ncome	**34,68,080**	**40,71,265**	**47,46,200**	**68,07,250**	**85,27,655**

(ii). Compute WACC from the above Income Statement assuming there are two sources- Debt and Equity and Debt quity structure is 1:2. (Risk Free Rate 7.5%, Beta – 0.75 and Market Return is 15% **(2)**

C. **5 Marks**

(i). Compute the Current Value of Company's Share using Gordon Growth Model: Arman Ltd recently paid dividend of Rs 35. The dividend rate is expected to grow at constant rate of 8%. The Risk Free rate is considered to be 7.5% and Market Return to be 18% and the beta of the firm to be 0.65.

(2)

(ii). If in sub question (i) above, growth rate is revised to 7% and beta is revised to 0.8, what will be the value of shares? **(2)**

(iii). Compute the implied growth rate if Current price is Rs 530 and latest dividend paid is Rs 50 and required rate of return is Rs 16%. **(1)**

Q3. Attempt question 3A or question 3B. 30 Marks

A. 30 Marks

Peter started a business of Bags- Office Bags and School Bags . Using following information, please fill the missing values for the projected financials statements Using following information, please fill the missing values wherever "REQ" is mentioned for the projected financials statements:

Balance Sheet

Particulars	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30
I. ASSETS						
A. Non Current Assets						
a. Properties,Plants & Equipments	29,70,000	REQ	25,85,700	REQ	20,94,400	REQ
b. Long Term Investments	3,60,000	REQ	3,60,000	REQ	REQ	2,82,000
Total Non - Current Assets	REQ	REQ	REQ	REQ	REQ	REQ
B. Current Assets						
a. Inventory	16,50,000	REQ	60,05,000	REQ	1,21,72,000	REQ
b. Trade Receivables	REQ	77,440	REQ	65,620	REQ	82,240
c. Cash & Bank Balances	36,71,300	7,91,120	(2,74,880)	1,11,750	65,815	8,48,964
d. Other Current Assets	-	39,50,000	47,85,700	49,57,800	46,39,840	48,75,500
Total Current Assets	54,45,300	83,82,560	1,05,80,440	1,40,18,170	1,69,53,115	2,17,84,704
Total Assets	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**
II.EQUITIES & LIABILITIES						
A. Equity						
a. Share Capital	30,00,000	30,00,000	30,00,000	30,00,000	30,00,000	30,00,000
b. Reserves & Surplus	12,35,300	REQ	54,39,360	REQ	REQ	1,89,94,699
Total Equities	REQ	REQ	REQ	REQ	REQ	REQ
B. Non Current Liabilities						
a. Long Term Loan	40,00,000	REQ	34,00,000	REQ	8,00,000	-
Total Non Current Liabilities	REQ	REQ	REQ	REQ	REQ	REQ
C. Current Liabilities						
a. Trade Payables	REQ	9,32,600	REQ	17,52,200	17,51,410	REQ

b. Other Current Liabilities Total Current Liabilities	- REQ	2,78,700 REQ	3,23,280 REQ	7,70,260 REQ	3,40,550 REQ	5,10,395 REQ
Total Equities & Liabilities	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**

Income Statement

Particulars	FY 25	FY 26	FY 27	FY 28	FY 29	FY 30
Revenue from Operations	REQ	76,72,000	REQ	1,15,50,000	REQ	REQ
Other Income	1,50,000	REQ	1,86,000	REQ	REQ	1,31,200
Total	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**
Less: COGS	REQ	45,12,000	REQ	65,09,000	REQ	98,23,000
Gross Profit	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**
Less: SG&A	1,74,000	2,15,540	REQ	3,25,500	REQ	5,03,580
EBIDTA	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**
Less: Depreciation	REQ	2,97,000	2,87,300	2,58,600	2,32,700	2,09,400
Less: Interest	REQ	3,36,000	REQ	REQ	64,000	-
EBT	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**
Less : Tax	REQ	5,45,500	REQ	9,88,600	REQ	16,35,500
Profit after Tax	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**
Less : Dividend Paid	1,50,000	REQ	1,81,500	REQ	2,19,615	REQ
Net Income	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**	**REQ**

Other Information

- Office Bag sale will be 2,000 unit at Rs 2,500 in year 1. The unit will increase at 15% and sale price will increase at 8% thereafter
- School Bag sale will be 1,500 unit at Rs 800 in year 1. The unit will increase at 12% and sale price will increase at 8% thereafter
- Office Bag purchase will be 3,000 unit at Rs 1,500 in year 1. The unit will increase at 11% year on year. The sale price will increase at 8% year on year
- School Bag purchase will be 1,800 unit at Rs 500 in year 1. The unit will increase at 13% and sale price will increase at 8% thereafter
- Out of total Sales of Bags, 98% will be in cash and 2% will be on Credit.
- Out of total purchases of Bags, 90% will be in cash and 10% will be on Credit.
- Closing unit to be valued at current years purchase price
- Round off Unit for Sale and Purchase of items to 2 decimal (i.e. put -2 in roundoff formula) and Price for Sale and Purchase of items to 1 decimal (i.e. put -1 in roundoff formula)
- Sales Commission on Office Bag is 2% of Sale from Office Bag and on School Bag it is 1% on sales from School Bag
- Other Operating Expenses are 1% of total revenue from Sale of both Bags
- Tax Rate is 22% for all year . Round Off to nearest Rs 1,000.
- Machinery worth Rs 25 lac was purchased in year 1 - Depreciated at 10% pa as per WDV Method
- Furniture worth Rs 8 lac purchased in Year 1 and additional of Rs 2 lac in Year 3- Depreciated at 10% wdv method.
- All purchases made on 1st day of respective year. (Round off depreciation to -2 in formula)
- The Company purchased 6,000 shares of X Ltd in year 1 at Rs 60 per share. The Company further purchased 1,200 shares in FY 28 at Rs 135 per share.

- The Company further sold 4,000 shares at Rs 175 in FY 29.
- The shares were purchased/sold at start of relevant FY. The shares were sold on FIFO basis
- Dividend Income on investment will be Rs 25 in year 1 and will increase by 10% thereafter.
- The dividend on shares were realised in cash and to be recorded in Other Income. Also, the gain/loss on sale to be appropriately recognised in P&L.
- Company availed loan from HDFC @ 8% interest rate for Rs 40 lac. The loan will be paid in 5 equal annual instalment from start of year 2.
- Company also availed loan from Axis Bank @ 8% interest rate for Rs 10 lac in FY 26 which was fully repaid on 1st day of in FY 29
- Company issued 3 lac equity shares at rs 10 each fully paid up. No further shares issued.
- The dividend declared in year 1 is Rs 0.5 per share and is expected to increase by 10%.
- The Reserves would be accumulated for all years.

- Other Working Capital:
  Following are the schedule of recoveries from and payments to outstanding creditors and trade receivables (Please note that this is not the closing balance):

Particulars	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**	**FY 30**
Trade Receivables	-	2,00,000	2,00,000	2,30,000	2,80,000	3,50,000
Trade Payables	-	2,50,000	3,50,000	5,50,000	11,36,390	16,67,700

Basis above and also on the basis of percentage of total sales/purchase on credit, closing balances can be ascertained for Trade Receivables and Trade Payables

Other Closing Balances are as follows :

Particulars	**FY 25**	**FY 26**	**FY 27**	**FY 28**	**FY 29**	**FY 30**
Cash & Bank Balances	36,71,300	7,91,120	-2,74,880	1,11,750	65,815	8,48,964
Other Current Assets	-	39,50,000	47,85,700	49,57,800	46,39,840	48,75,500
Other Current Liabilities	-	2,78,700	3,23,280	7,70,260	3,40,550	5,10,395

A. Please fill the required cells in Balance Sheet and Income Statement as per projections (20)
B. Prepare the projected Cash Flow for FY 28 and FY 29 – only for Cash Flow from Financing Activities (10)

OR

B. **15 Marks**

a. Choose the correct options for the following sub questions :

1. If the risk-free rate of return equals 7.5%. The firm's beta equals 0.50 and the return on the market portfolio equals to 15%. What is Cost of Equity? **(2)**

A. 17.50%
B. 16.88%
C. 11.25%
D. 15.00%

2. Given: risk-free rate of return = 6.5%; market return = 15%; cost of equity = 13.30%; value of beta (β) is: **(2)**

A. 0.9
B. 0.8
C. 1.1
D. 0.85

3. A company has a financial structure where equity is 60% of its total debt plus equity. Its cost of equity is 9.5% and gross loan interest is 8%. Corporation tax is paid at 25%. What is the company's weighted average cost of capital (WACC)? **(2)**

A. 8.20%
B. 8.00%
C. 8.10%
D. 8.15%

4. What is the Internal rate of return for a project having cash flows of Rs 40,000 per year for 10 years and a cost of Rs 2,26,009? **(2)**

A. 9.00%
B. 10.00%
C. 11.00%
D. 12.00%

5. Assume cash outflow equals Rs 1,60,000 followed by cash inflows of Rs 45,000 per year for 10 years and a cost of capital of 14%. What is the Net present value? **(2)**

A. Rs 74,725
B. Rs 91,653
C. Rs 28,653
D. Rs (74,725)

6. Which of the following is not one of the five elements of industry structure as developed by Professor Michael Porter? **(1)**

A. Bargaining power of Suppliers
B. Bargaining power of Customers
C. Competitors rivalry
D. Threats of New Regulation

7. A Company has 10,000 debenture issued at 15% rate having face value of Rs 100 issued at Rs 103. If tax rate is 25%. What is Cost of Debt (Kd)? **(1)**

A. 10.50%
B. 15.00%
C. 11.25%
D. 10.92%

8. Which of the following cost of capital does not require adjusting taxes? **(1)**

A. Cost of Borrowings from Banks

B. Cost of Preference Shares

C. Cost of Debentures

D. Cost of Related Party Loan

9. Interest paid on Loan from a group company will be recorded under which activity of Cash Flow Statement? **(1)**

A. Operating Activities

B. Financing Activities

C. Investing Activities

D. None of the above

10. For a company for which the going-concern assumption is not valid, the most appropriate valuation approach would be to calculate its: **(1)**

A. residual income model value

B. dividend discount model value

C. liquidation value

b.

Following is the income statement of Remco Ltd:

Particulars	FY 25	FY 26	FY 27	FY 28	FY 29
Revenue from Operations	2,20,14,720	2,69,96,760	3,31,12,800	4,08,24,000	5,10,45,120
Other Income	12,09,600	9,82,800	6,35,040	12,70,080	13,60,800
Total	**2,32,24,320**	**2,79,79,560**	**3,37,47,840**	**4,20,94,080**	**5,24,05,920**
Less: COGS	1,87,12,512	2,29,47,246	2,81,45,880	3,47,00,400	4,33,88,352
EBIDTA	**45,11,808**	**50,32,314**	**56,01,960**	**73,93,680**	**90,17,568**
Less: Depreciation	7,00,000	6,60,000	6,20,000	5,40,000	5,00,000
Less: Interest (10%)	4,00,000	4,00,000	4,00,000	4,00,000	4,00,000
EBT	**34,11,808**	**39,72,314**	**45,81,960**	**64,53,680**	**81,17,568**
Less : Tax (20%)	6,82,362	7,94,463	9,16,392	12,90,736	16,23,514
Profit after Tax	**27,29,446**	**31,77,851**	**36,65,568**	**51,62,944**	**64,94,054**
Less : Dividend Paid	2,50,000	2,75,000	3,02,500	3,32,750	3,66,025
Net Income	**24,79,446**	**29,02,851**	**33,63,068**	**48,30,194**	**61,28,029**

Extract of Balance Sheet:

Particulars	FY 25	FY 26	FY 27	FY 28	FY 29
Equity Share Capital	2,50,000	2,50,000	2,50,000	2,50,000	2,50,000
Reserves & Surplus	24,79,446	53,82,298	87,45,366	1,35,75,560	1,97,03,589
Borrowings	40,00,000	40,00,000	40,00,000	40,00,000	40,00,000

Cash Bank	2,75,47,000	3,50,97,000	3,89,72,800	4,78,42,800	5,77,18,300

Other Information

No. of Shares	35,000	35,000	35,000	35,000	35,000
MPS	265	305	326	365	431

Calculate the following:

a) P/E Ratio **(2)**
b) Price to Sales Ratio **(2)**
c) EV/EBIDTA **(2)**
d) Dividend Yield **(2)**
e) Price to Book Value **(2)**

c.
Compute the value of stock for the following years using given inputs **(5)**

Particulars	Company A	Company B	Company C	Company D	Company E
Dividend Current	40	25	10	80	50
Risk Free Rate	6.50%	6.50%	6.50%	6.50%	6.50%
Risk Premium	12.50%	9%	11.50%	9%	14%
Beta	0.8	0.55	0.65	0.8	0.6
Dividend Growth	5%	10%	12%	10%	7%