FINAL EXAMINATION
GROUP - IV
(SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS
DECEMBER - 2017

Paper-20 : FINANCIAL ANALYSIS AND BUSINESS VALUATION

Time Allowed : 3 Hours **Full Marks : 100**

The figures in the margin on the right side indicate full marks.
Answer Question No. 1, which is compulsory and carries 20 marks.
Answer any five questions from Q. No. 2 to Q. No. 8, each of which shall carry 16 marks.

1. (a) State whether the following statements are true or false: 1x10=10

(i) There is an indirect relationship between inputs and outputs in financial model.
(ii) Analyzing revenue of Banks and Investment companies, assets and liabilities are essential value drivers.
(iii) The goal of financial analysis is to assess the performance of a firm in the context of its stated goals and strategy.
(iv) Under-capitalization is indicated by low current ratio.
(v) Low production capacity utilization is not an indicator of financial distress of a firm.
(vi) Production of goods without market survey is an internal factor responsible for corporate distress.
(vii)Issue of equity shares in lieu of some machinery will affect the current ratio.
(viii)Cash flow statement is based upon accrual basis of accounting.
(ix) Vertical financial statement analysis is useful to inter-firm comparison.
(x) The difference between the intrinsic value and the purchase price in the context of mergers and acquisition is known as synergy value.

(b) Selected data from ABC Co.'s balance sheet at the end of the year are as follows:

Investment in XYZ Co., at fair value	₹ 1,50,000
Deferred taxes	₹ 86,000
Equity share capital, ₹ 1 par value	₹ 5,50,000
Preference share capital, ₹100 par value	₹ 1,75,00
Retained earnings	₹ 8,93,000
Accumulated other comprehensive income	₹ 46,000

The investment in XYZ Co. had an original cost of ₹ 1,20,000. Assuming the investment in XYZ is classified as available-for-sale, ABC's total owner's equity at the year-end is closer to:
(i) ₹ 16,18,000 (ii) ₹ 16,64,000 (iii) ₹ 17,14,000

Which one among (i), (ii) and (iii) is correct? 4

(c) The Operating and Cost data of ABC Ltd., are:

Sales	₹ 20,00,000
Variable Costs	₹ 14,00,000
Fixed Costs (including 15% interest on ₹ 10,00,000)	₹ 4,00,000

You are required to calculate its operating, financial and combined leverage? 6

Answer:

1. (a) (i) False
(ii) True
(iii) True
(iv) True
(v) False
(vi) True
(vii) False
(viii) False
(ix) True
(x) False

(b) The Correct answer is (ii) ₹ 16,64,000.
Total shareholders' equity consist of equity share capital of ₹ 5,50,000, preference share capital of ₹ 1,75,000, retained earnings of ₹ 8,93,000, and accumulated other comprehensive income of ₹ 46,000, for a total of ₹ 16,64,000. The ₹ 30,000 unrealized gain from the investment in XYZ is already included in accumulated other comprehensive income.

(c) EBIT = Soles - VC-operative fixed cost = ₹ (20,00,000-14,00,000 - 2,50,000)
= ₹ 3,50,000.
Net earnings before taxes = EBIT - Interest = ₹ 3,50,000 – ₹ 1,50,000 = ₹ 2,00,000.
Operating leverage = (Sales- VC) / EBIT = ₹ 6,00,000 / ₹ 3,50,000 = 1.71
Financial leverage = EBIT/(EBIT - Interest) = ₹ 3,50,000/ ₹ 2,00,000 = 1.75
Combined leverage = Operating leverage x financial leverage = 1.71 x 1.75 = 2.99

2. (a) M/S Roy Brothers Co., has ₹ 3,00,000 to invest. The following proposals are under consideration. The Cost of Capital for the company is estimated to be 15%.

Project	Initial Outlay (₹)	Annual Cash (₹)	Life of Project (Years)
P	1,50,000	30,000	10
Q	80,000	20,000	8
R	70,000	15,000	20
S	50,000	15,000	10
T	50,000	12,000	20

Rank the above projects on the basis of Profitability Index Method.
Given: Present value of annuity of ₹ 1 received in steady stream discounted @ 15%:
8 years = 4.487
10 years = 5.019
20 years = 6.259 **10**

(b) You are given the following information about Sandeep Ltd.,
(i) Beta for the year 2016-17 **1.05**
(ii) Risk free rate **12%**
(iii) Long range Market Rate (based on Sensex) **15.14%**
(iv) Extracts from the liabilities side of balance sheet as at 31st March, 2017:

	₹
Equity	29,160
Reserves and Surplus	43,740
Shareholders' Fund	72,900
Loan funds	8,100
Total funds (long-term)	81,000

(v) Profit after tax **₹ 20,394.16 Lakhs**
(vi) Interest deducted from profit **₹ 487.00 Lakhs**
(vii) Effective tax rate (i.e., Provision for Tax/PBT x 100) **24.45%**
Calculate 1. NOPAT 2. Cost of Equity 3. Cost of Debt **2x3=6**

Answer:

2. (a) Profitability index = Present Values of Net Cash Flows/ Initial Cash Outlay

Calculation under Profitability-Index Method

Project	Annual Cash Flow (₹)	Life of Project (Years)	PV at 15%	PV of N.C.F (₹)	Initial Outlay (₹)	Profitability Index	Rank
(1)	(2)	(3)	(4)	(5)= 2)x(4)	(6)	(7) =(5)/(6)	(8)
P	30,000	10	5.019	1,50,570	1,50,000	1.004	5
Q	20,000	8	4.487	89,740	80,000	1.122	4
R	15,000	20	6.259	93,885	70,000	1.341	3
S	15,000	10	5.019	75,285	50,000	1.506	1
T	12,000	20	6.259	75,108	50,000	1.502	2

(b) We know that EVA = NOPAT - Cost of Capital Employed,
Where, EVA = Economic Value Added
NOPAT = Net Operating Profit after tax

Required Calculations are as under:

(i) NOPAT

Profit after tax	₹ 20,394.16 lakhs
Add: Interest Net of tax [₹ 487 lakh (1 - 0.2445)] = ₹ 487 lakh x 0.7555	₹ 367.93 lakhs
NOPAT	₹ 20,762.09 lakhs

(ii) Cost of Equity: Risk free rate + β [Market rate - Risk free return]
= 12% + 1.05 (15.14% - 12%)
= 12% + 1.05 x 3.14
= 12% + 3.30%
= 15.30%

(iii) Cost of Debt = [Interest on Loan Funds (1 - tax rate) / Loan Funds] x 100
Cost of Debi = [487 x (1-0.2445) /8100] x 100
= [487 x 0.7555/ 8100] x 100
= [367.93/8100] x 100
= 4.54

3. (a) Hall Corporation paid ₹ 600 million for the outstanding share of Triple C Corporation. At the acquisition date, Triple C Corporation reported the following Condensed Balance Sheet:

Triple C Corporation—Condensed Balance Sheet

	Book Value (₹ in millions)
Current Assets	**80**
Plant and Equipment-Net	**760**
Goodwill	**30**
Liabilities	**400**
Shareholders' Equity	**470**

The fair value of the Plant and Equipment was ₹ 120 million more than its recorded book value. The fair values of all other identifiable assets and liabilities were equal to their recorded book values. Calculate the amount of Goodwill that Hall Corporation should report on its Consolidated Balance Sheet. 8

(b) During the past year, M & N Ltd., had net income of ₹ 1,00,000, paid dividends of ₹ 50,000 to its preference shareholders and paid ₹ 30,000 in dividends to its equity shareholders. M & N's Equity Share Account showed the following:

January 1	**Shares issued and outstanding at the beginning of the year**	**10,000**
April 1	**Shares issued**	**4,000**
July 1	**10% dividend on shares**	
September 1	**Shares repurchased for the treasury**	**3,000**

Compute the weighted average number of equity shares outstanding during the year and compute EPS. 8

Answer:

3. (a)

Particulars	Fair Value (₹ In millions)
Current Assets	80
Plant Equipment, Net	880
Liabilities	(400)
Fair value of net assets	560
Purchase price	600
Less: Fair value of net assets	(560)
Acquisition goodwill	40

Note: Goodwill is equal to the excess of purchase price over the fair value of identifiable assets and liabilities acquired. The Plant and equipment was "written -up" by ₹120 millions to reflect fair value. The goodwill reported on Triple C Balance Sheet is an unidentifiable asset and is thus ignored in the calculation of Hall's goodwill.

(b) Step-1: Adjust the number of pre-dividend shares to post-dividend units (to reflect the 10% share dividend) by multiplying all share numbers prior to the share dividend by 1:1. Shares issued or retired after the share dividend are not affected.

January 1	Initial shares adjusted for the 10% dividend	11,000
April 1	Shares issued adjusted for the 10% dividend	4,400
September 1	Shares of treasury stock repurchased (no adjustment)	3,000

Step 2: Compute the weighted average number of post-dividend shares

Initial shares	11,000 x 12 months outstanding	1,32,000
Issued shares	4,400 x 9 months outstanding	39,600
Retired treasury shares	-3,000 x 4 months retired	- 12,000
Total share month		1,59,600
Average shares	1,59,600/12	13,300

Step 3: Compute basic EPS:
Basic EPS= Net income - Preference dividend /Weighted average no. of equity shares
= ₹ [1,00,000 – 50,000/13,300]
= ₹ 3.76

4. (a) G. Co. Ltd. is studying the possible acquisition of K. Company Ltd., by way of merger. The following data are available in respect of the companies:

Particulars	**G. Co. Ltd.**	**K. Co. Ltd.**
EAT (₹)	**80,00,000**	**24,00,000**
No. of Equity Shares	**16,00,000**	**4,00,000**
Market Value per Share (₹)	**200**	**160**

(i) If the merger goes through by exchange of equity and the exchange ratio is based on the current market price, what is the new earning per share for G. Co. Ltd.?

(ii) K. Co. Ltd. wants to be sure that the earnings equitable to its shareholders will not be diminished by the merger. What should be the exchange ratio in that case? 8

(b) The following financial share data pertaining to TECHNO Ltd., an IT company is made available to you:

Year ended March 31st	2016	2015	2014
EBIT (₹)	696.03	325.65	155.86
Non-branded Income (₹)	53.43	35.23	3.46
Inflation compound factor @ 8%	1.000	1.087	1.181
Remuneration of Capital	5% of Average Capital Employed		
Average Capital Employed (₹)	1112.00		
Corporate Tax Rate	35%		
Capitalization Factor	16%		

You are required to calculate the Brand Value for Techno Ltd. 8

Answer:

4. (a) (i) Calculation of new EPS of G. Co. Ltd.
No. of equity shares to be issued by G. Co. to K. Co Ltd.

$= 4,00,000 \times \frac{160}{200} = 3,20,000$ shares

∴ Total number of shares = 1 6,00,000 – 3,20,000 = 19,20,000 shares

Total EAT (after acquisition) - ₹ (80,00,000 + 24,00,000) = ₹ 1,04,00,000

$\therefore$ EPS = $\frac{₹1,04,00,000}{19,20,000 \text{ Shares}} = ₹ 5.42.$

(ii) Calculation of exchange ratio which would not diminish the EPS of K. Co. Ltd. after its merger with G. Co. Ltd.

Current EPS of G. Co. Ltd. = $\frac{₹ 80,00,000}{16,00,000 \text{ Shares}} = ₹ 5$

K. Co. Ltd. = $\frac{₹ 24,00,000}{4,00,000 \text{ Shares}} = ₹ 6$

$\therefore$ Exchange ratio = $\frac{6}{5} = 1.20$

No. of shares to be issued by G. Co. Ltd. to K. Co. Ltd.

$= 4,00,000 \times \frac{6}{5} = 4,80,000$ shares

or, = 4,00,000 × 1.20 = 4,80,000 shares

Total number of shares of G. Co. ltd. after acquisition
= 16,00,000 + 4,80,000 = 20,80,000 shares

EPS (after merger) = $\frac{₹1,04,00,000}{20,80,000 \text{ Shares}} = ₹ 5$

Total earnings in G. Co. Ltd. available to new shareholders of
K. Co. Ltd. = 4,80,000 x ₹ 5 = ₹ 24,00,000

Recommendation: The exchange ratio (6 for 5) based on market shares in beneficial to shareholders of K. Co. Ltd.

(b)

Techno Ltd.
Computation of Brand Value

Year ended 31st March	2016	2015	2014
EBIT(₹)	696.03	325.65	555.86
Less: Non-branded income (₹)	53.43	35.23	3.46
Adjusted Profits	642.60	290.42	152.40
Inflation compound factor @ 8%	1.000	1.087	1.181
Present value of profits for the brand	642.60	315.69	179.98
Weightage factor	3	2	1
Weightage profits	1,927.80	631.38	179.98
Profits = (1,927.8+631.38+179.98)/(3+2+1)= 2,739.16/6	456.53		
Remuneration of capital (5% of average capital employed) (1,112 x 0.05)	55.60		
Brand related	400.93		
Corporate tax @ 35%	140.33		
Brand earning	260.60		
Capitalization factor	16%		

Brand Value = Return /Capitalization rate = 260.60/0.16 = ₹ 1,628.75.

5. (a) Shyam Ltd., has announced issue of warrants on 1:1 basis for its equity shareholders. The current price of the stock is ₹ 10 and warrants are convertible at an exercise price of ₹ 11.71 per share. Warrants are detachable and are trading at ₹ 3.

(i) What is the minimum price of the warrant?

(ii) What is the warrant premium?

(iii) Had the current price now had been ₹ 16.375, what is the minimum price and the warrant premium? (Consider warrants are tradable at ₹ 9.75) 2x3=6

(b) R Ltd., is intending to acquire S Ltd., (by merger) and the following information are available in respect of both the companies:

Particulars	R Ltd.	S Ltd.
Total Current Earnings (₹)	**2,50,000**	**90,000**
No. of Outstanding Shares	**50,000**	**30,000**
Market Price per Share (₹)	**21**	**14**

(i) What is the present EPS of both the companies?

(ii) If the proposed merger takes place, what would be the new earnings per share for R Ltd., (assuming the merger takes place by exchange of equity shares and the exchange ratio is based on the current market price)?

(iii) What should be the exchange ratio if S Ltd., wants to ensure the same earnings to members as before the merger took place? 2+4+4=10

Answer:

5. (a) Minimum Price = (Market price of common stock- Exercise price) x (Exercise ratio)
= (₹ 10 - 11.71) x 1.0
= ₹ - 1.71

Thus, the minimum price on this warrant is considered to be zero because things simply do not sell for negative prices.

Warrant Premium = Market price of Warrant - Minimum price of warrant
= ₹ 3 -0
= ₹ 3

Minimum Price = (Market price of common stock - Exercise price) x (Exercise ratio)
= (₹ 16.375-11.71) x 1.0
= ₹ 4.665

Warrant premium = Market price of warrant- Minimum price of warrant
= ₹9.75 - 4.665
= ₹ 5.085
= Say ₹ 5.09

(b) (i) EPS = Total earnings / No. of equity shares
EPS $_{R\ Ltd.}$ = 2,50,000/50,000 = ₹ 5
EPS $_{S\ Ltd.}$ = 90,000/30,000 = ₹ 3

(ii) No. of shares S Ltd., shareholders will get in R Ltd., based on market prices of shares is as follows:

Exchange Ratio = 14/21 = 2/3 i.e., for every 3 shares of S Ltd., 2 shares of R Ltd.,
Total No. of shares of R Ltd., issued = 14/21 x 30,000 = 20,000 shares.
Total number of shares of R Ltd., after merger = 50,000 + 20,000 = 70,000
Total earnings of R Ltd., after merger = 2,50,000 + 90,000 = 3,40,000
(No synergy given)
The new EPS of R Ltd., after merger = ₹ 3,40,000/70,000 = ₹4.86

(iii) Calculation of exchange ratio to ensure S Ltd., to earn the same before the merger took place:

Both acquiring and acquired firm can maintain their EPS only if the merger takes place based on respective EPS.

Exchange Ratio based on EPS = 3/5 = 0.6
Total shares of R Ltd., receivable by S Ltd., shareholders = 0.6 x 30,000 = 18,000
Total No. of shares of R Ltd., after merger = 50,000 + 18,000 = 68,000

EPS after merger = Total Earnings / Total no. of shares.
(₹ 2,50,000 + ₹ 90,000) / 68,000 = ₹ 5.00
Total earnings after merger of S Ltd., = ₹ 5 x 18,000 = ₹ 90,000

6. (a) From the following information given below relating to Unfortunate Ltd., calculate Altman's Z-score and comment on the state of its financial position:

Working Capital / Total Assets	**= 45%**	
Retained Earnings / Total Assets	**= 25%**	
Earnings before Interest and Taxes / Total Assets	**= 30%**	
Market Value of Equity / Book Value of total debt	**= 250%**	
Sales/Total Assets	**= 3 times**	**6**

(b) A Ltd., is considering the acquisition of B Ltd., with stock. Relevant financial information is given below:

Particulars	A Ltd.,	B Ltd.,
Present Earnings (₹)	7.5 Lakhs	2.5 Lakhs
Equity (No. of shares)	4.0 Lakhs	2.0 Lakhs
EPS (₹)	1.875	1.25
P/E Ratio	10	5

You are required to answer the following questions: 2x5=10

(i) What is the Market Price of each company?
(ii) What is the Market Capitalization of each company?
(iii) If the P/E of A Ltd., changes to 7.5, what is the Market Price of A Ltd.?
(iv) Does Market Value of A Ltd. change?
(v) What would be the exchange ratio based on Market Price? (Take revised price of A Ltd.,)

Answer:

6. (a) We set the given data as per the Altman's Model (1968) of corporate Distress prediction

Let X_1 = Working capital / Total Assets = 45%
X_2 = Retained earnings / Total Assets = 25%
X_3 = Earnings before Interest and taxes/Total Assets = 30%
X_4 = Market value of equity/Book value of total debt = 250%
X_5 = Sales/Total Assets = 3 times

Hence, Z score = $1.2\ x_1+1.4\ x_2+3.3\ x_3 +0.6\ x_4 + 1.0\ x_5$ or
= (1.2 x 0.45) + (1.4 x 0.25) + (3.3 x 0.30) + (0.6 x 2.50) + (1 x 3)
= 0.54 + 0.35 + 0.99 + 1.50 + 3 = 6.38.

Comment on the financial status: As the calculated value of Z-score is much higher than 2.99, it can be strongly predicted that the company is a non-bankrupt company (i.e., non-failed company.)

(b) (i) P/E = Market Price/EPS
Therefore we have, Market price = P/E x EPS.
A Ltd.'s Market Price = 10 x 1.875 = ₹18.75
B Ltd.'s Market price = 5 x 1.25 = ₹ 6.25

(ii) Market Capitalization (same as market value or in short referred to as market cap) = Number of outstanding shares x market price
A Ltd.'s Market cap = 4.0 lakhs x ₹18.75 = ₹ 75 Lakhs
B Ltd.'s Market cap = 2.0 lakhs x ₹6.25 = ₹12.5 Lakhs.

(iii) If the P/E of A Ltd., changes to 7.5, then the market price is given by
= 7.5 x ₹1.875 = ₹ 14.0625

(iv) Yes. The market value decreases i.e., A Ltd.'s market Value = 4.0 Lakhs x ₹14.0625 = ₹ 56.25 Lakhs.

(v) General Formula for exchange ratio = MPS of Target Firm / MPS of acquiring Firm = 6.25/14.0525 = 0.44.

7. (a) The following information are furnished in respect of a certain firm:

Earnings per Share	**= ₹ 3.15**
Capital Expenditure per Share	**= ₹ 3.15**
Depreciation per Share	**= ₹ 2.78**
Change in Working Capital per Share	**= ₹ 0.50**
Debt Financing Ratio	**= 25%**

Earnings, Capital Expenditure, Depreciation and Working Capital are all expected to grow at 6% per year. The beta for stock is 0.90. Treasury bond rate is 7.50%. A premium of 5.5% is used for the market.
Calculate the value of stock. **8**

(b) Assume that the following details are given for a company:

Sales		**₹ 1,00,000**
Cash		**₹ 75,000**
Depreciation		**₹ 20,000**
Tax rate		**35%**
Change in the Net Working	**Capital**	**₹ 1,000**
Change in Capital Spending		**₹ 10,000**

Calculate the Free Cash Flow to Firm (FCFF) for the given data. **8**

Answer:

7. (a) Estimating Value
Long term bond rate 7.5%

Cost of equity = 7.5% + (0.90 x 5.5%) = 12.45%
Expected growth rate 6%

Base year Free Cash flow to Equity (FCFE)

= Earnings per share -(Capital Expenditure - Depreciation) (1- Debt Ratio) -Change in working capital (1-Debt Ratio)

= 3.15 - (3.15 - 2.78) (1 - 0.25) - 0.50 (1 - 0.25) = 2.49

Value per share = 2.49 x 1.06 / (0.1245 – 0.06) = ₹ 41

(b) The Free Cash Flow to firm (FCFF) for the given data can be calculated as follows:

	(₹)
Sales - Costs - depreciation	5,000
Less: Tax (35% of ₹ 5,000)	1,750
PAT	3,250
Add: Depreciation	20,000
Less: Changes in Net Working Capital	1,000
Less: Change in Capital Spending	10,000
Free Cash Flow to Firm (FCFF)	12,250

8. Write Short Notes on any four out of the following: 4×4=16
(a) Bridge Finance
(b) Capital Rationing
(c) Operating Income
(d) Off-Balance Sheet Financing
(e) Conglomerate Merger

Answer:

8. (a) **Bridge Finance:** Bridge finance refers to loans taken by a company normally from commercial banks for a short period, pending disbursement of loans sanctioned by financial institutions. Normally, it takes time for financial institutions to disburse loans to companies.
However, once the loans are approved by the term lending institutions, companies, in order not to lose further time in starting their projects, arrange short term loans from commercial banks. Bridge loan are also provided by financial institutions pending the signing of regular term loan agreement, which may be delayed due to non-compliance of conditions stipulated by the institution while sanction the loan.

(b) **Capital rationing:** Capital rationing can be experienced due to external factors, mainly imperfections in capital markets which can be attributed to non-availability of market information, investor attitude etc. Internal capital rationing is due to the self-imposed restrictions imposed by management like not to raise additional debt or laying down a specified minimum rate of return on each project. Capital rationing may also be introduced by following the concept of 'responsibility accounting', whereby management may introduce capital rationing by authorizing a particular department to make investment only up to a specified limit, beyond which the investment decisions are to be taken by higher-ups.

(c) **Operating Income:** The name operating income is used to mean different things in different circumstances. Even though GAAP does not recognize the term, firms sometimes tag a line in their income statement as operating income. However, the analyst must be careful. Operating income so reported often includes income on financial assets and excludes some expenses associated with operations. Operating income is used by analysts to refer to recurring income, that is, income adjusted for one-time charges such as restructuring charges and gains from asset sales. Firms sometimes refer to operating income or pro forma income in their press releases as different from GAAP income. Be particularly careful in this case. These Performa income numbers sometimes exclude significant expenses.

(d) **Off-Balance-Sheet Financing:** A form of financing in which large capital expenditure are kept off of a company's balance sheet through various classification methods. Companies will often use off- balance -sheet financing to keep their debt to equity (D/E) and leverage ratio low, especially if the inclusion of a large expenditure would break negative debt covenants. Contrast to loans, debt and equity, which do appear on the balance sheet. Examples of Off- balance-sheet financing include joint venture, research and development partnerships and operating leases.

(e) **Conglomerate merger:** It is a type of merger between two or more companies having unrelated business. These transactions are not aimed at explicitly sharing resources, technologies, synergies or product. They do not have an impact on the acquisition of monopoly power and hence are favoured throughout the world.

They are undertaken for diversification of business in other products, trade and for advantages in bringing separate enterprise under single control namely:

(i) Synergy arising in the form of economies of scale
(ii) Cost reduction as a result of integrated operations
(iii) Risk reduction by avoiding sales and profit instability
(iv) Achieve optimum size and carve out optimum share in the market.