FINAL EXAMINATION 12636

December 2022

P–20(SPBV)
Syllabus 2016

Strategic Performance Management and Business Valuation

Time Allowed: 3 Hours Full Marks: 100

The figures in the margin on the right side indicate full marks.
Wherever required, the Candidate may make suitable assumptions and state them clearly in the answers.
Working notes should from part of the relevant answers.
This paper has been divided into two Sections, viz, Section A and Section B.

Section-A

Strategic Performance Management

(50 Marks)

Answer Question No. 1 *which is compulsory and* any two *from the rest of this Section.*

1. **Choose the correct option from amongst the four alternatives given. Provide justification/workings:** 2×5=10

(i) At the point of equilibrium of the firm (under perfect competition) __________.
- (A) MC curve must be rising
- (B) MC curve must be falling
- (C) MR curve must be rising
- (D) None of the above

(ii) Risk Management techniques do not include ____________.
- (A) Risk avoidance
- (B) Risk premium
- (C) Risk retention
- (D) Risk transfer

(iii) Co-variability of return on a security with that of the stock market return is referred to as
- (A) Systematic Risk
- (B) Financial Risk
- (C) Pooling Risk
- (D) Business Risk

(iv) The additional revenue received when selling one more unit of output is known as
- (A) Firm's Total Revenue
- (B) Firm's Marginal Revenue
- (C) Firm's total quantities produced
- (D) Firm's technical innovation

(v) If firms can exit and enter the market freely, it is a characteristic of a ____________.
- (A) perfectly competitive market
- (B) monopolistic competitive market
- (C) monopoly in the market
- (D) None of the above

2. (a) The following are the profits, investment and ROI for an investment center over a four-year period:

(₹ in crores)

Year	Divisional profit	Divisional investment
1	₹ 40.50	₹ 270.00
2	₹ 55.50	₹ 243.00
3	₹ 60.00	₹ 216.00
4	₹ 50.00	₹ 140.00

The investment in property, plant and equipment (PPE) was of ₹ 300 crores at the beginning year 1. It is being depreciated each year. **You are required to calculate ROI** (Return on Investment) for each year and critically comment on the performance of divisional manager on the basis of the above information. 5

(b) Define partial factor productivity and how is it different from total factor productivity? 3

(c) The following financial data related to Golden Delight Limited for FY 2020-21 and FY 2021-22 has been extracted from the Annual Report 2021-22.

(₹ in Crores)

Summarized Statement of Profit and Loss for the year	**FY 2020-21**	**FY 2021-22**
Total Revenue	8,882.80	9,800.55
Profit before Interest and Tax	2,862.46	3,505.86
Interest	156.75	189.45
Profit before Tax	2,705.71	3,316.41
Tax @ 30%	811.71	994.92
Profit after Tax	1,894.00	2,321.49
Dividend	1,184.80	1,396.80
Amount transferred to Other Equity	709.20	924.69
Balance Sheet as on March 31,	**2021**	**2022**
ASSETS:		
Non-Current Assets		
Property, Plant and Equipment	4,615.11	5,137.63
Intangible Assets	297.15	1,963.82
Other Non-Current Assets	1,094.18	1,187.95
	6,006.44	**8,289.40**
Current Assets		
Inventories	1,901.65	1,254.34
Financial Assets excluding Cash and Cash Equivalents	897.78	1,021.53
Cash and Cash Equivalents	136.85	186.35
Other Current Assets	3,638.67	3,971.08
Total Assets	**12,581.39**	**14,722.70**
EQUITY AND LIABILITIES:		
Equity		
Equity Share Capital	760.58	760.58
Other Equity	7,389.70	8,314.39
Total Equity	**8,150.28**	**9,074.97**

Non-Current Liabilities		
Financial Liabilities	1,306.85	1,379.41
Provisions	189.56	315.25
Other Non-Current Liabilities	324.59	345.69
Total Non-Current Liabilities	**1,821.00**	**2,040.35**
Current Liabilities		
Financial Liabilities	2,112.65	2,278.92
Provisions	300.25	878.50
Other Current Liabilities	197.21	449.96
Total Current Liabilities	**2,610.11**	**3,607.38**
Total Equity and Liabilities	**12,581.39**	**14,722.70**

Using the information given, you are required to use suitable DU PONT Analysis and show how the Return on Equity (ROE) of the company is changing due to its profit margins, assets utilization and leverage over the period. 12

3. (a) How distress predictive models - the Altman Z-Score Model and the NCAER Model are different from each other? 4

(b) A real estate firm has estimated the cost of building an office block, x floors high, as follows:

(i) ₹ 10 Crores for the land

(ii) Construction Cost - ₹ 0.25 Crores per floor

(iii) Some specialized costs of ₹ 0.10x (please read it as ₹ 0.10x No. of Floors(x)) crores per floor.

How many floors should the office block contain if the average cost per floor is to be minimized? 4

(c) The following financial data related to the Balance Sheet of Bluebird Limited for FY 2021-22 has been extracted from the Annual Report 2021-22.

BALANCE SHEET of Bluebird Limited as at March 31	*(₹ in crores)*
ASSETS	**2022**
Non-current assets	
(a) Property, plant and equipment	71,399.77
(b) Capital work-in-progress	6,098.37
(c) Intangible assets	1,243.05
(d) Financial assets	456.87
(e) Other assets	2,597.71
Total non-current assets	**81,795.77**
Current assets	
(a) Inventories	11,480.28
(b) Financial assets	456.87
(i) Investments	15,097.24
(ii) Trade receivables	2,332.50
(iii) Cash and cash equivalents	5,045.76
(iv) Other financial assets	937.49
(c) Other assets	2,279.81
Total current assets	**37,629.95**
TOTAL ASSETS	**1,19,425.72**

EQUITY AND LIABILITIES	
Equity	
(a) Equity Share Capital	1,602.99
(b) Other equity	61,433.01
Total Equity	**63,036.00**
Non-current liabilities	
(a) Financial liabilities	
(i) Borrowings	25,025.82
(ii) Other financial liabilities	476.65
(b) Provisions	2,418.08
(c) Other liabilities	681.58
Total non-current liabilities	**28,602.13**
Current liabilities	
(a) Financial liabilities	
(i) Borrowings	1,583.62
(ii) Trade payables	11,699.62
(iii) Other financial liabilities	6,998.27
(b) Provisions	1,192.15
(c) Other liabilities	6,313.93
Total current liabilities	**27,787.59**
TOTAL EQUITY AND LIABILITIES	**1,19,425.72**

Additional Information:

- Market Price of Bluebird Limited share having a face value of ₹ 10 as on the Balance Sheet date was ₹ 950.
- Operating Profit of the Company for the year was – ₹ 25,640 crores.
- Operating Profit Margin of the Company is 16.25%.

Bluebird Limited is a closely held company. Using the above information and Altman's Multiple Discriminant Function, **you are required to calculate Z-Score of** Bluebird Limited as per the revised Z-Score Model of Altman (1983) and comment on the financial position of the Company. 12

4. (a) Explain RBI guidelines on the implementation of Basel III Capital Regulation in India. 8

(b) (i) List the main causes of corporate distress. 4

(ii) Define the following: 2×4=8

(I) Financial Distress

(II) Enterprise Risk Management

(III) Risk Retention

(IV) Value at Risk

Section-B

Business Valuation

(50 Marks)

Answer Question No. 5 *which is compulsory and* any two *from the rest of this Section.*

5. Choose the correct option from amongst the four alternatives given, with justification/workings. 1 mark will be for the correct choice and 1 mark will be for the justification/workings: $2 \times 5 = 10$

(i) If the current ratio and liquid ratio of a firm are 2.2 and 0.8 respectively and its current liabilities is ₹ 10 lakhs. The value of stock held by the firm is ₹ __________ lakhs.

(A) 10
(B) 12
(C) 14
(D) 16

(ii) Return on government securities is 8%; share beta 1.50 and market return is 12%, based on CAPM, cost of equity capital is equal to __________.

(A) 14%
(B) 18%
(C) 20%
(D) 17.25%

(iii) A firm's current assets and current liabilities are 1600 and 1000 respectively. How much can it borrow on a short-term basis without reducing the current ratio below 1.25?

(A) ₹ 1,000
(B) ₹ 1,200
(C) ₹ 1,400
(D) ₹ 1,600

(iv) Assume that in a Stock Market, the CAPM is working. The company presently has a beta of 0.84 and will finance its new project through debt. This would increase its Debt/Equity Ratio to 1.56 from the existing 1.26. Due to the increase in the Debt/Equity Ratio, the Company's beta would _________.

(A) increase
(B) decrease
(C) remain unchanged
(D) nothing can be concluded

(v) A Firm has EBIT of ₹ 215 crores and Net Operating Profit After Tax (NOPAT) of ₹ 150 crores. It has Operating Capital of ₹ 1,500 crores. If the cost of Equity is 13%, then its EVA (Economic Value Added) will be (select the closest answer)

(A) (–) ₹ 45 crores
(B) ₹ 45 crores
(C) ₹ 215 crores
(D) ₹ 150 crores

6. (a) Alpha India Ltd., is trying to buy Beta India Ltd., Beta India Ltd., is a small bio-technology firm that develops products that are licensed to major pharmaceutical firms. The development costs are expected to generate negative cash flows of ₹ 10 lakhs during the first year of the forecast period. Licensing fee is expected to generate positive cash flows of ₹ 5 lakhs, ₹ 10 lakhs, ₹ 15 lakhs and ₹ 20 lakhs during 2-5 years respectively. Due to the emergence of competitive products, cash flows are expected to grow annually at a modest 5% after the fifth year. The discount rate for the first five years is estimated to be 15% and then drop to 8% beyond the fifth year. Calculate the value of the firm.

Given: The discount rate of 15% will be: 10

Year	1	2	3	4	5
Discount Rate	0.869	0.756	0.6575	0.572	0.497

(b) Z Ltd. has an issued and paid-up capital of 50,000 shares of ₹ 100 each. The company declared a dividend of ₹ 12.50 lakhs during the last five years and expects to maintain the same level of dividends in the future. The control and ownership of the company are lying in the hands of the Directors and their family members. The average dividend yield for the listed companies in the same line of business is 18%.

Calculate the value of 3000 shares in the company. 10

7. (a) An investor is having a bond a face value of ₹ 1000; a coupon rate of 10%, maturity 5 years and Yield-to-Maturity of 9%. He wants to know what is the interest risk in holding such a bond. He was told that using the concept of duration, one can measure interest rate risk. To give him an idea about interest rate risk, **you are required to** calculate duration of the bond. 5

Years	1	2	3	4	5
Discounting Factor @ 9%	0.917	0.842	0.772	0.708	0.650
Discounting Factor @ 10%	0.909	0.826	0.751	0.683	0.621

(b) Dominant Limited is considering the acquisition of Thin Limited in a stock- for- stock transaction in which shareholders of Thin Limited would receive ₹ 98 for each share of its common stock. Their Summarized Balance Sheets are given below :

(₹ in crores)	**Dominant Limited**	**Thin Limited**
Equity and Liabilities:		
Equity Capital - ₹ 10 each	₹ 680.00	₹ 240.00
Other Equity	₹ 710.00	₹ 163.50
Non-Current Liabilities	₹ 635.00	₹ 171.00
Current Liabilities and Provisions	₹ 585.00	₹ 156.00
Total	**₹ 2,610.00**	**₹ 730.50**
Assets:		
Non-Current Assets - Net	₹ 1,345.00	₹ 426.00
Current Assets	₹ 1,265.00	₹ 304.50
Total	**₹ 2,610.00**	**₹ 730.50**
Additional Information		
Profit for the year (PAT)	₹ 425.00	₹ 124.80
Market Price Per Share	₹ 140.00	₹ 89.60

Using the above information, **you are required to determine the following:**

(i) Exchange Ratio and the number of shares to be issued by Dominant Limited to the shareholders of Thin Limited.

(ii) Assuming that there will not be any synergy gains, then determine the EPS after merger; and

(iii) The share prices of Dominant Limited if after-merger Price/Earnings Ratio would be 24.50. 9

(c) The following information has been extracted from the financial records of a company:

Equity Capital (18,000 Shares of ₹ 100 each)	₹ 18,00,000
12% Preference Capital 5,000 Shares of ₹ 100 each	₹ 5,00,000
12% Secured Debentures	₹ 5,00,000
Other Equity	₹ 5,00,000
Profit earned before Interest and Taxes during the year	₹ 7,20,000
Tax Rate	40%

Additional Information:

(i) Yield on equity shares is calculated at 60% of distributed profits and 10% of undistributed profits.

(ii) The Company pays regular Equity Dividend of 15% every year.

(iii) If the equity shares are valued at par (or Face value), then the expected yield on equity is 16%.

Using the Yield Method, **you are required to determine** the value of the Company's Equity Share. 6

8. (a) Prasad Ltd. is considering take-over of Raghuveer Ltd. by the exchange of four new shares in Prasad Ltd. for every five shares in Raghuveer Ltd. The relevant financial details of the two companies prior to merger announcement are as follows:

	Prasad Ltd.	Raghuveer Ltd.
Profit before tax (₹ Crore)	15	13.50
No. of shares (Crore)	25	15
P/E ratio	12	9

Corporate tax rate 30% including surcharge and cess.

You are required to determine —

(i) Market value of both the company.

(ii) Value of original shareholders.

(iii) Price per share after merger. 10

(b) Radha Ltd. is taking over the Krishna Ltd. The following details are given:

	Radha Ltd.	Krishna Ltd.
Total number of shares	8,00,000	5,50,000
Market price per share	₹ 6	₹ 3.25
10% Debentures	—	₹ 2,50,000

The Board decides the following:

Issue one share of Radha Ltd. for every 10 shares held.

Issue 12% debentures for every four shares held.

Balance is paid in cash.

Pay existing debenture holders at par by issuing 20% debentures in Radha Ltd.

Nominal value of debentures is ₹ 2.

Calculate purchase consideration. 5

(c) **Calculate** Economic Value Added with the help of the following information of Geeta Ltd:

Capital structure: Equity capital ₹ 170 lakhs; Reserves & Surplus ₹ 130 lakhs and 10% debentures ₹ 400 lakhs. EBIT ₹ 140 lakhs. Cost of equity 15% and Income Tax rate 30% including surcharge and cess. 5

SUGGESTED ANSWERS TO QUESTIONS

Section – A

Answer Question No. 1 *which is compulsory and* any two *from the rest of this Section.*

2X5 = 10 Marks

1:

(i) - (A)

(ii) - (B)

(iii) - (A)

(iv) - (B)

(v) - (A)

2 (a):

5 Marks

Year	ROI	Adjusted ROI
1	15.00%	13.50%
2	22.84%	18.50%
3	27.78%	20.00%
4	35.71%	16.67%

Adjusted ROI – ROI calculated without reducing value of investment due to depreciation.

The ROI of the firm is increasing over the period. It may be due to increase in profit margins or due to effective investment decision and policies or both. In this case, profits are not showing growth and hence, ROI is increasing mainly due to reduction in investment which is primarily due to depreciation over the period. In fact the return adjusted for effect of investment value taking Rs. 300 Crore as investment base for all the years has not substantially increased. It means that the divisional manager is indulging into sub-optimal investment decisions which are not financially sound.

2 (b): **3 Marks**

Partial Factor Productivity (PFP) refers to the change in output owing to the change in the quantity of one input, whereas Total Factor Productivity (TFP) refers to the change in output owing to changes in the quantity of more than one input.

2 (c): **12 Marks**

Golden Delight Limited

DU PONT ANALYSIS …	FY 2020-21	FY 2021-22
Net Profit Ratio (PAT/Total Revenue)	21.32%	23.69%
Assets Turnover Ratio (Total Revenue/Total Assets)	0.706	0.666
Assets to Equity Ratio (Total Assets/Total Equity)	1.544	1.622
RETURN ON EQUITY	23.24%	25.58%

The above DuPont Analysis shows that Return on Equity (ROE) of the company has increased from 23.24% to 25.58%. The main drivers behind such increase is Profit Margin (from 21.32% to 23.69%) and the leverage ratio (from 1.544 to 1.622). Though the assets utilization has come down (from 0.706 to 0.666) but better use of profit margin and leverage has resulted into higher ROE in FY 2021-22.

3 (a): 4 Marks

Edward I. Altman developed a Multivariate Model of Corporate Distress Prediction on the basis of Multiple Discriminant Analysis (MDA). In his study, Altman selected 33 failed and 33 non-failed firms, of which 22 Accounting and Non-accounting Ratios, which had been deemed to be the predictors of Corporate Distress, were taken into consideration. Of the 22 Accounting Ratios, Prof. Altman selected 5 ratios which had been deemed as the best predictors of Corporate Distress Prediction. The purposes of these five selected ratios are as follows:

(i) To measure liquidity position of the firms.
(ii) To measure reinvestment of earnings of the firms.
(iii) To measure profitability of the firms.
(iv) To measure financial leverage condition of the firms.
(v) To measure sales-generating ability of firm's Assets.

Using the above, he gave the final model as follows:

$Z = 1.2\ X_1 + 1.4\ X_2 + 3.3\ X_3 + 0.6\ X_4 + 1.0\ X_5$

Where

Z = Overall Index of Multiple Index Function

And the five variables are

X_1 = Working Capital to Total Assets (a liquidity measure)
X_2 = Retained Earnings to Total Assets (a measure of reinvestment of earnings)
X_3 = EBIT to Total Assets (a profitability measure)
X_4 = Market Value of Equity & Preference to Book Value of Total Debt (a measure of leverage)
X_5 = Sales to Total Assets (a measure of sales-generating ability of the firm's assets)

On the other hand, we have another model to predict corporate distress – NCAER. According to NCAER model, an industrial undertaking may be financially viable, if its three elements are proved to be positive. The NCAER Study on Corporate Distress Prediction prescribed the following three elements/ parameters for predicting the stages of corporate sickness:

(i) Cash profit position (a profitability measure).
(ii) Net working capital position (a liquidity measure).
(iii) Net worth position (a solvency measure).

In a firm, if any of the above three elements/parameters are found to be negative, it may be considered that the firm has a 'tendency of becoming sick'. If any two of the above three elements/parameters are found to be negative in a firm, it may be considered that the firm possesses 'incipient sickness'. If all the above three elements/parameters are found to be negative in a firm, it may be considered that the firm is 'fully sick'.

3 (b): 4 Marks

The office block should contain 10 floors.

3 (c): **12 Marks**

Altman's Z Score (as per Altman's 1983 Model of Corporate Distress Prediction) of Bluebird Limited	2.950

Since Bluebird Ltd is a closely held company the Altman's Formula developed in 1983 that uses the book value of equity for the market value is used. The score is 2.95 that is, Z>2.9 hence the company is in the safe zone though borderline and it will have to be monitored every year/annually. As of now the company is not in corporate distress.

4 (a): 8 Marks

Reserve Bank of India on May 02, 2012, released its final guidelines on the implementation of Basel III Capital regulation in India. These guidelines would become effective from January 1, 2013, in a phased manner. The Basel III capital ratios will be fully implemented on March 31, 2018. This entails higher global minimum capital standards for banks. Implementation of Basel III is essential for restoring confidence in the regulatory framework for banks and ensuring a safe and stable global banking system.

The Basel III framework sets out the following:

- ✓ Higher and better equity capital.
- ✓ Better risk coverage.
- ✓ Introduction of the leverage ratio.
- ✓ Measures to promote the build-up of capital for periods of stress.
- ✓ Introduction of new liquidity standards.

A key element of the new definition is the greater focus on "common equity" (paid-up equity capital, reserves, retained earnings, etc.). In addition to raising the quality of the capital base, banks need to ensure that all material risks are captured in the capital framework. What counts as core may impact the Indian banking sector's competitiveness significantly.

As per the RBI's new Basel III capital regulation, common equity (or core tier I) should be at least 5.5% (1% higher than the original Basel III rule) & minimum tier I capital should be at least 7% of total risk-weighted assets. There should be a predominance of common equity and tier I regulatory capital. Common equity is 78.57% of tier I capital and total tier I capital should be at least 77.58% of total minimum capital (as per RBI's Basel III circular).

Basel III regulation expects that Banks for their survival in the future must understand the importance of people's perception about a Bank's liquidity condition (short term as well as long term) besides internal management of liquidity. It emphasized that the bank's liquid assets should be sufficient enough to cover net cash outflow. Two liquidity standards/ ratios are proposed.

(i) Liquidity coverage ratio (LCR) which is the ratio of liquid assets to net cash outflow for short-term (30 days) liquidity management. And

(ii) Net stable funding ratio (NSFR) for long-term structure liquidity mismatches.

4 (b) **4 Marks**

(i) There are multiple causes for corporate distress:

1) Technological changes.
2) Working capital problems-maintaining liquidity or over liquidity.
3) Economic distress-economic crisis.
4) Mismanagement.
5) Over-expansion and diversification.
6) Fraud by management.
7) Poorly structured Board.
8) Financial Distress.

(ii): **2X4 = 8 Marks**

(I) Financial Distress: Financial distress means a condition of a firm when it is not in a position to meet or meet with difficulty its commitment to creditors or lenders. If financial distress cannot be relieved in time, it can lead to bankruptcy. Firms that become financially distressed are found to be underperforming relative to the other companies in their industry. Financial distress is rooted in management defects, resulting in poor decisions, leading to financial deterioration and finally collapse.

(II) Enterprise Risk Management: Enterprise Risk Management is a comprehensive and integrated approach to addressing corporate risk. It may be defined as "a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity adversely, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives".

(III) Risk Retention: Risk Retention denotes acceptance of the loss or benefit arising out of a risk when it takes place. It may also be termed self-insurance. This strategy is viable when the risks are small enough to be transferred at a cost that may be higher than the loss arising out of the risk itself. On the other hand, the risk can be so big that it cannot be transferred or insured. Such risks will have to be phased out when the eventuality occurs.

(IV) Value at Risk: Value at Risk (VaR) is one of the widely used methods of measuring financial risks. VaR is a statistical technique used to measure and quantify the level of financial risk within a firm or investment portfolio over a specific time frame. It estimates how much a set of investments might lose, given normal market conditions, in a set period. A loss that exceeds the VaR threshold is known as a 'VaR break'. In it, the probability level is specified as 1 minus the probability of a VaR Break. Normally VaR parameters are 1 percent and 5 percent probabilities and 1-day and 2-week horizons. While VaR represents loss, a negative VaR would indicate that a portfolio has a high probability of making profits.

Section-B

Answer Question No. 5 *which is compulsory and* any two *from the rest of this Section.*

5: **2X5 = 10 Marks**

(i) - (C)

(ii) - (A)

(iii) - (C)

(iv) - (C)

(v) - (A)

6 (a): **10 Marks**

Value of the firm = ₹ 368.085 lakh.

6 (b): **10 Marks**

Value of 3,000 shares = ₹ 4,16,670

7 (a): **5 Marks**

Duration of the Bond is = 4.187

7 (b): **9 Marks**

(i) Exchange Ratio = 0.70
No of shares to be issued by Dominant Limited to the share holders of Thin Limited (in crores) = 16.80.

(ii) EPS after merger = ₹ 6.48

(iii) Share Price of Dominant Limited after merger = ₹ 158.76

7 (c): **6 Marks**

Value of Company's Equity Shares = ₹ 58.56

8 (a): **10 Marks**

(i) Market value of both the company-

Prasad Ltd. = ₹126 crores.
Raghuveer Ltd. = ₹ 85.05 crores
Combined = ₹ 211.05 crores.

(ii) Value of original shareholders

Prasad ltd. = ₹ 142.61 crore
Raghuveer ltd. = ₹ 68.44 crore

(iii) Price per share after merger-

Price of share = Rs.6.47

8 (b): **5 Marks**

Pay existing debenture holders at par by issuing 20% debentures is not part of purchase consideration.

Purchase consideration- = ₹ 1787500

8 (c): **5 Marks**

EVA= ₹ 24.99 lakh = say Rs. 25 lakhs