

**FINAL EXAMINATION
GROUP - IV
(SYLLABUS 2016)**

**SUGGESTED ANSWERS TO QUESTIONS
DECEMBER - 2017**

**Paper-20 : 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.

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: 2×5=10**
- (i) _____ is the uncertainty of the purchasing power of the monies to be received, in the future?
- (A) Market risk
 - (B) Physical risk
 - (C) Purchasing power risk
 - (D) Interest rate risk
- (ii) Unsystematic risk relates to
- (A) Market risk
 - (B) Inherent risk
 - (C) Beta;
 - (D) Interest rate risk
- (iii) In which discipline supply chain concept was originated?
- (A) Production
 - (B) Operation
 - (C) Marketing
 - (D) Logistics
- (iv) Under perfect competition and at the point of equilibrium of firm

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- (A) MC curve must be falling
 - (B) MC curve must be rising
 - (C) MR curve must be falling
 - (D) None of the above
- (v) Financial risk arises out of _____
- (A) Increased competition
 - (B) Conduct of business and investment
 - (C) The nature of financial transaction
 - (D) Both (B) and (C)

Answer 1.

- (i) (C) Purchasing power risk
- (ii) (B) Inherent risk
- (iii) (C) Marketing
- (iv) (B) MC curve must be rising
- (v) (D) both (B) and (C)

2. (a) (i) What is Benchmarking?

(ii) Briefly describe any two types of benchmarking.

(iii) Identify difficulties in implementation of benchmarking. 3+4+3=10

(b) (i) What are the characteristics of Enterprise Resource Planning (ERP)?

(ii) What are the reasons for the failure of ERP? 4+6= 10

Answer 2. (a)

- (i) **Benchmarking:** While planning is a feed forward process, control is a feedback process. Control involves comparison of the actual results with an established standard or target. The practice of setting targets using external information is known as benchmarking. In other words, Benchmarking is the establishment through data gathering of targets and comparatives, with which performance is sought to be assessed.

After examining the firm's present position, benchmarking may provide a basis for establishing better standards of performance, It focuses on improvement in key areas and sets targets which are challenging but evidently achievable. Benchmarking implies that there is one best way of doing business and orients the firm accordingly. It is a catching - up exercise and depends on the accurate information about the comparative company - be it inside the group or an outside firm.

Benchmarking is the continuous process of enlisting the best practices in the world for the process, goals and objectives leading to world class levels of achievement.

(ii) **Two types of benchmarking:**

- (A) **Product benchmarking:** It is also known as reverse engineering. It is an age old practice of Product oriented reverse engineering. Every organization buys its rival's product and tears down to find out how the features and performances etc. compare with its own products. This could be the starting point for improvement.
- (B) **Process benchmarking:** It is the activity of measuring discrete performance and functionality against organization through performance in excellent analogous business process e.g. for supply chain management, e.g. Mumbai dubba wallas. *[Note: reference may be of other type of benchmarking also e.g. competitive, internal strategic or global benchmarking.]*

(iii) **Difficulties in implementation of benchmarking**

- (1) Time consuming: Benchmarking is time consuming and at times difficult. It has significant requirement of staff time and company resources. Company may waste time in benchmarking non-critical functions.
- (2) Lack of management support: Benchmarking implementation requires the direct involvement of all managers. The drive to be best in the industry or world cannot be delegated.
- (3) Resistance from employees: It is likely that there may be resistance from employees
- (4) Copy-Paste attitude: The key element in benchmarking is the adaptation of a best practice to a company's needs and culture. Without that step, a company merely adopts another company's process. This approach condemns benchmarking to fail leading to a failure of benchmarking goals.

2. (b)

(i) The characteristics of Enterprise Resource Planning (ERP) are :

ERP refers top techniques and concepts for integrated management of business as a whole from the view point of the effective use of management resources to improve the efficiency of enterprise management. ERP provides integrated business software modules to support functional units of an enterprise. An ideal ERP system should have following characteristics;

1. **Flexibility:** An ERP system must be flexible enough to respond fast to the changing needs of the organization. The client server technology enables ERP to run across various databases at the back end using open database connectivity.
2. **Modular and open:** ERP system has the open architecture i.e. any modules can be interfaced or dethatched without affecting the rest of the modules. It should support multiple hardware platforms as well as third party add-on solutions.
3. **Beyond the company:** It is confined to the organizational boundaries rather it is extended to the external business entities connected to the organization with online connectivity.
4. **Best business practice -** It has inbuilt best business practices applicable worldwide and imposes its own strategies and logics over existing culture and processes of organization.

(ii) Reasons for failure of ERP:

An organization cannot reap desired benefits from the ERP system under the following circumstances:

- Lack of effective project management
- Inability to resolve issues and make decisions in timely manner
- Resources not available when needed
- Perceived or real lack of executive support
- Software fails to meet business needs
- Under estimated levels of change management
- Improper communication
- Insufficient end user training
- Failure in gap analysis
- Failure to identify future business needs
- Technological obsolescence
- Failure to make available user-friendly checklist/guidelines.

- 3. (a) A manufacturer can sell "X" items ($X \geq 0$) at a price of $(330 - X)$ each; the cost of producing 'X' items is ₹ $(X^2 + 10X + 12)$. How many items should he sell to make the maximum profit? Also determine the maximum profit. 8**

- (b) Using Altman's Model (1968) of Corporate Distress Prediction, calculate the Z-score of S & Co. Ltd., whose five accounting ratios are given as below and comment on its financial position.**

The five variables are:

- (i) Working Capital to Total Assets = 25%**
- (ii) Retained Earnings to Total Assets = 30%**
- (iii) EBIT to Total Assets = 15%**
- (iv) Market Value of Equity Shares to Book Value of Total Debt = 150%**
- (v) Sales to Total Assets = 2 times.** 12

Answer 3.

3. (a)

Given price (p) = $330 - x$

Cost(c) = $x^2 + 10x + 12$

Output = $x \geq 0$

Revenue (R) = $p \times x = (330 - x) \times x = 330x - x^2$

Profit = $R - C$

= $(330x - x^2) - (x^2 + 10x + 12) = 320x - 2x^2 - 12$ (say y)

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In order to achieve maximum profit

$$\frac{dy}{dx} = 0 \text{ and } \frac{d^2y}{dx^2} = \text{positive}$$

$$\frac{dy}{dx} = 320 - 4x = 0$$

or, $x = 80$

$$\frac{d^2y}{dx^2} = -4, \text{ which is negative. Therefore profit is maximum at } x = 80 \text{ units.}$$

$$\begin{aligned} \text{Maximum profit} &= 320(80) - 2(80)^2 - 12 \\ &= 25600 - 12800 - 12 \\ &= 12788 \end{aligned}$$

3. (b)

As per Altman's Model (1968) of Corporate Distress Prediction:

$$Z = 1.2x_1 + 1.4x_2 + 3.3x_3 + 0.6x_4 + 1.0x_5$$

Given 5 variables are:

x_1 = Working Capital to Total Assets = 25%

x_2 = Retained earnings to total Assets = 30%

x_3 = EBIT to Total Assets = 15%

x_4 = Market Value of Equity Shares to Book Value of Total Debts = 150%

x_5 = Sales to Total Assets = 2 times

$$\begin{aligned} \text{Hence, Z-score} &= (1.2 \times 25\%) + (1.4 \times 30\%) + (3.3 \times 15\%) + (0.6 \times 150\%) + (1 \times 2) \\ &= 0.30 + 0.42 + 0.495 + 0.90 + 2.00 = 4.115. \end{aligned}$$

Comments on the Financial position: 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.

4. (a) Briefly explain the term "Enterprise Risk Management" (ERM). What are the basic needs for implementation of ERM? 4+6= 10

(b) What is Risk Mapping? Briefly explain. State the benefits of Risk Mapping. 5+5= 10

Answer 4. (a)

Enterprise Risk Management (ERM): ERM is 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 and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives."

From the above definition ERM is:

- A process, ongoing and following through an entity
- Effected by people at every level of an organization

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- Applied in strategy-setting
- Applied across the enterprise, at every level and unit
- Designed to identify potential events affecting the entity and manage risk within its risk appetite.
- Able to provide reasonable assurance to an entity's management and board.

ERM is about designing and implementing capabilities for managing the risks that matter.

ERM deals with risk and opportunities affecting value creation or preservation. ERM is a comprehensive and integrated approach to addressing corporate risk. ERM enables management to effectively deal with uncertainty and associated risk and opportunity, enhancing the capacity to build value.

Basic needs for implementation of ERM:

ERM needs to be implemented for the following reasons:

- (i) Reduce unacceptable performance variability.
- (ii) Align and integrate varying views of risk management
- (iii) Build confidence of investment community and stakeholders
- (iv) Enhance corporate governance
- (v) Successfully respond to a changing business environment
- (vi) Align strategy and corporate culture

4. (b)

Risk Mapping:

Risk Mapping is the first step in operational risk measurement, since it requires identifying all potential risks to which the bank is exposed and then pointing out those on which attention and monitoring should be focused given their current or potential future relevance for the bank. While the risk mapping process is sometimes identified with the usual classification of operational risks in a simple frequency/severity matrix, what is really needed to map bank's internal processes in order to understand what could go wrong, where and why, to set the basis for assessing potential frequency and severity of potential operational events and to define a set of indicators that can anticipate problems based on the evolution of the external and internal environments.

Risk mapping is the process of identifying, quantifying and prioritizing the risks that may interfere with the achievement of your organizational objectives.

The aim of Risk mapping is to arrive at a clear set of action plans that improve risk management controls, in areas where these are necessary and help the management of the organization's direct resources.

Benefits of Risk Mapping: The following are some of the benefits of Risk Mapping:

- Promotes awareness of significant risks through priority ranking, facilitating the efficient planning of resources
- Enables the delivery of solutions and services across the entire risk management value chain.

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- Serves as a powerful aid to strategic business planning
- Aids the development of an action plan for the effective management of significant risks
- Assigns clear responsibilities to individuals for the management of particular risk areas
- Provides an opportunity to leverage risk management as a competitive advantage
- Facilitates the development of a strategic approach to insurance programme design
- Supports the design of the client's financing and insurance programmes, through the development of effective/optimal retention levels and scope of coverage etc.,

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. 2x5=10
- (i) If a company has a P/E ratio of 20 and a ROE (Return on Equity) of 15%, then the Market to Book Value Ratio is
- (A) 3 times
(B) 3%
(C) cannot be calculated from the given information
(D) None of the above
- (ii) Assume that in a stock market the CAPM is working. A company has presently beta of 0.84 and its going to finance its new project through debt. This would increase its debt/equity ratio to 1.56 from the existing 1.26. Due to increased debt/equity ratio, the company's beta would
- (A) increase
(B) decrease
(C) remain unchanged
(D) nothing can be concluded
- (iii) Identify which of the following is not a financial liability?
- (A) X Ltd. has 1 lakh ₹ 10 ordinary shares issued.
(B) X Ltd. has 1 lakh 8% ₹ 10 redeemable preference shares issued.
(C) X Ltd. has ₹ 2,00,000 of 6% bond issued.
(D) Both (A) and (B)

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- (iv) X Ltd.'s share beta factor is 1.40. The risk free rate of interest on government securities is 9%. The expected rate of return on the company equity shares is 16%. The cost of equity capital based on CAPM is
- (A) 15.8%
- (B) 16%
- (C) 18.8%
- (D) 9%
- (v) A firm current assets and current liabilities are ₹ 1,600 and ₹ 1,000 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

Answer 5.

- (i) (A) 3 times, (Since $P/E \times ROE = 20 \times 0.15$)
- (ii) (C) Remain unchanged (Because as per CAPM the company specific risk has no impact on the systematic risk)
- (iii) (A) X Ltd. has 1 lakh ₹ 10 ordinary shares issued
(A share is an indivisible unit of capital, expressing the proprietary relationship between the company and the shareholder)
- (iv) (c) 18.8% [$9\% + 1.40(16\% - 9\%) = 9\% + 9.8\% = 18.8\%$]
- (v) (b) Amount of borrowing be x [current asset will increase because borrowing will increase the cash amount]
 $1600 + X$ divided by $1000 + X =$ current ratio 1.25
 $X = 1400$

6. (a) Alpha India Ltd., is trying to buy Beta India Ltd., Beta India Ltd., is a small biotechnology 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 @ 15% will be:

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

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- (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 is lying in the few hands of 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

Answer 6. (a)

Year	Cash flows (₹ In lakhs)	Discount rate @15%	Present Value (₹ in lakhs)
1	(10)	0.869	(8.69)
2	5	0.756	3.78
3	10	0.6575	6.575
4	15	0.572	8.58
5	20	0.497	9.94

Total sum of present value =

20.185

Terminal Value $t = \text{Cash Flow}_{t+1} / r - g_{\text{stable}}$

Cash flow $t+1 = \text{Cash flow} (1+g) = 20 (1+0.05) = 21$ Lakhs

Terminal Value = $21 / (0.08 - 0.05) = ₹700$ Lakhs.

Present value of terminal value = $700 \times 0.497 = ₹ 347.9$

Value of the firm = Total sum of present value + Present value of terminal value

= ₹20.185 + ₹ 347.9 = ₹ 368.085.

6. (b)

Dividend per share = ₹12,50,000/50,000 = ₹25

Dividend yield = 18%

Value per share = $25 / 0.18 = ₹138.89$

Value of 3,000 shares = 3,000 shares x ₹138.89 = ₹4,16,670

7. (a) 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

Answer the following questions:

(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.?

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- (iv) Does market value of A Ltd., change?
- (v) What would be the exchange ratio based on Market Price? (Take the revised price of A Ltd.) 2x5=10
- (b) The shareholders of A Co. Ltd., have voted in favour of a buyout offer from B Co. Ltd. Information about each firm is given here below. Moreover, A Co. Ltd.'s shareholders will receive one share of B Co. Ltd. Stock for every three shares they hold in A Co. Ltd.

Particulars	B Co. Ltd.	A Co. Ltd.
Present earnings (in ₹)	6.75	3.00
EPS (in ₹).	3.97	5.00
Number of share (Lakhs)	1.70	0.60
P/E ratio	20	5

- (i) What will the EPS of B Co. Ltd., will be after the merger? What will the PE ratio if the NPV of the acquisition is zero?
- (ii) What must B Co. Ltd. feel would be the value of the synergy between these firms? 10

Answer 7. (a)

- (i) $P/E = \text{Market Price}/\text{EPS}$.
Therefore we have, $\text{Market Price} = P/E \times \text{EPS}$
A Ltd.'s Market Price = $10 \times 1.875 = ₹18.75$.
B Ltd.'s Market Price = $5 \times 1.25 = ₹6.25$.
- (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 = $4.0 \text{ lakhs} \times ₹18.75 = ₹75 \text{ Lakhs}$.
B Ltd.'s Market cap = $2.0 \text{ Lakhs} \times ₹6.25 = ₹ 12.5 \text{ Lakhs}$.
- (iii) If the P/E of A Ltd., changes to 7.5, then the market price is given by
 $= 7.5 \times ₹1.875 = ₹14.0625$.
- (iv) Yes. The market value decreases, i.e., = A Ltd.'s market value = $4.0 \text{ lakhs} \times ₹14.0625 = ₹56.25 \text{ Lakhs}$.
- (v) General Formula for exchange ratio = $\text{MPS of Target Firm} / \text{MPS of acquiring Firm}$
 $= 6.25/14.0625 = 0.44$.

Answer to Qn.7 (b)

- (i) The EPS of the combined company will be the sum of the earnings of both companies divided by the shares in the combined company. Since the stock offer is one share of

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the acquiring firm for three shares of the target firm, new shares in the acquiring firm will increase by one-third (Exchange ratio = 1/3)

$$\begin{aligned} \text{So, the new EPS will be} &= (\text{₹ } 3,00,000 + 6,75,000) / [1,70,000 + (1/3)(60,000)] \\ &= (9,75,000/1,90,000) = \text{₹ } 5.132. \end{aligned}$$

The market price of B Co will remain unchanged if it is a zero NPV acquisition. Using the P/E ratio, we find the current market price of B. Co stock, which is = P/E x EPS = 20 x (6.75 lakhs / 1.70 lakhs) = 20 x (3.97) = ₹79.40

- (ii) If the acquisition has a zero NPV, the stock price should remain unchanged.

Therefore, the new P/E will be = P/E = ₹79.40 / ₹5.132 = 15.47.

- (ii) If the NPV of the acquisition is zero, it would mean that B Co. would pay just the market value of A Co. i.e., Number of shares x market price of A Co. i.e.,
= 60,000 x 25 (MPS = P/E x EPS = 5 x 5 = 25)

The market value received by B Co. = ₹ 15,00,000.

The cost of the acquisition is the number of shares offered times the share price, so the cost is = (1/3) (60,000) (₹79.40) = ₹ 15,88,000.

The difference is synergy i.e., ₹88,000.

8. (a) A company has a capital base of ₹ 1 crore and has a earned profits to the tune of ₹11,00,000. The Return on Investment (ROI) of the particular industry to which the company belongs is 12.5%. If acquired by a company, it is expected that the profits will increase by ₹ 2,50,000 over and above the target profit. Determine the amount of maximum bid price for that particular executive and the maximum salary that could be offered to him. 10

- (b) Q Ltd. wants to acquire R Ltd. and has offered a swap ratio of 1 : 2 (0.5 shares for every one share of R Ltd.).

Following information is provided:

Particulars	Q Ltd.	R Ltd.
Profit after tax (₹)	18,00,000	3,60,000
Equity shares outstanding (Nos.)	6,00,000	1,80,000
EPS (₹)	3	2
P/E Ratio	10 times	7 times
Market price per share (₹)	30	14

Required:

- (i) The number of equity shares to be issued by Q Ltd., for acquisition of R Ltd.
- (ii) What is the EPS of Q Ltd., after the acquisition?
- (iii) Determine the equivalent earnings per share of R Ltd.
- (iv) What is the expected market price per share of Q Ltd., after the acquisition, assuming its P/E multiple remains unchanged?
- (v) Determine the market value of the merged firm. 2x5=10

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Answer 8. (a)

Capital base = ₹ 100,00,000

Actual profit = ₹ 11,00,000

Target profit = ₹100,00,000 x 12.5% = ₹ 12,50,000

Expected profit on employing the particular executive = ₹ 12,50,000 + ₹ 2,50,000
= ₹ 15,00,000

Additional profit = Expected profit - Actual profit

= ₹ 15,00,000 - ₹ 11,00,000

= ₹4,00,000

Maximum bid price = Additional profit / rate of return

= ₹ 4,00,000 / 12.5% = ₹ 32,00,000

Maximum salary that can be offered = ₹32,00,000 x 12.5% = ₹ 4,00,000

8. (b)

(i) The number of shares to be issued by Q Ltd.:

The Exchange ratio is 0.5

So, the new shares = 1,80,000 × 0.5 = 90,000 shares.

(ii) EPS of Q Ltd., after acquisition:

Total Earnings = ₹ (18,00,000 + 3,60,000)	₹ 21,60,000
No. of Shares (6,00,000 + 90,000)	6,90,000
EPS (₹ 21,60,000) / 6,90,000	₹ 3.13

(iii) Equivalent EPS of R Ltd.,

No. of new shares	0.5
EPS (₹)	3.13
Equivalent (3.13 × 0.5) (₹)	1.57

(iv) New Market price of Q Ltd., (P/E remaining unchanged):

Present P/E Ratio of Q Ltd.,	10 times
Expected EPS after merger (₹)	3.13
Expected Market Price (3.13 × 10) (₹)	31.30

(v) Market Value of merged firm:

Total number of Shares	6,90,000
Expected Market Price (₹)	31.30
Total Value (6,90,000 × 31.30) (₹)	2,15,97,000