Paper 17 - Strategic Performance Management (SPM)

Section – A

[Answer any 4 from the following]

1 (a) Let the demand curve be $p = \frac{10}{q}$ and $C = 5 + 2q + 5q^2$ if the objective of the firm is profit maximization only, will the firm produce?

(b) The cost function of a competitive firm is $c = 200 + 10q + 2q^2$. Determine price level if the firm only earns normal profit.

(c) Does the Benchmarking tantamount to Industrial Espionage.

(d) List a few business applications of Activity Based Management. **[3+3+3+6]**

2 (a) For the following pay – off matrix, find the value of the game and the strategies of players A and B using linear programming:

		Player B		
		1	2	3
Player A	1	3	-1	4
	2	6	7	-2

(b) List the steps of Business Process Re- Engineering. **[10+5]**

3(a) Yonex India Ltd. is segmented into three divisions A, B, and C. All were formed in the same year and now all assets have left exactly one – half of their expected life. Top management is attempting to determine which of the division is the most profitable. The following data have been prepared for your analysis:

Particulars	Division		
	A (₹)	B (₹)	C (₹)
Net income before taxes	78,000	90,000	96,000
Investment base – gross book value	3,90,000	5,00,000	6,00,000
Investment base – net book value	1,95,000	2,50,000	3,00,000

Prepare rankings of the three divisions using ROI and RI with a capital charge of 12.5% that each division manager might use to assert that here is the most profitable division.

(b) For a monopolist $p = 10 – 4q$ and $TC = 8q$

(i) If tax rate of t is imposed find the optimal p & q.

(ii) Determine the tax rate that maximizes tax revenue. **[6+9]**

4.(a) BLACK and BROWN are two Divisions in a group of Companies and both require intermediate products Alpha and Beta which are available from Divisions A and B respectively. Black and Brown Divisions convert the Intermediate products into products Blackalls and Brownalls respectively. The market demand for Blackalls and Brownalls considerably exceeds the production possible, because of the limited availability of Intermediate Products Alpha and Beta. No External market exists for

Alpha and Beta and no other Intermediate Product is available to Black and Brown divisions.

Other data are as follows –

Division	Selling price per unit (₹)	Processing cost per unit (₹)	Intermediate Products required per unit	
			Alpha	Beta
Black: Blackalls	45	12	3	2
Brown: Brownalls	54	14	2	4

Division A: Alpha	Variable cost ₹6 per unit	Max production capacity 1,200 units
Division B: Beta	Variable cost ₹ 4 per unit	Max production capacity 1,600 units

The solution to a Linear programming Model of the situation shows that the imputed scarcity value (Shadow Price) of Alpha and Beta is ₹0.50 and ₹2.75 per unit respectively and indicates that the Intermediate products be transformed such that 200 units of Blackalls and 300 units of Brownalls are produced and sold.

(i) Calculate the Contribution earned by the Group if the sales pattern indicated by the LPP Model is implemented.
(ii) Where Transfer Price are set on the basis of variable cost plus shadow Price, show detailed calculations for –
  (a) Contribution per unit of Intermediate Product earned by divisions A and B and
  (b) Contribution per unit of Final Product earned by Black and Brown Divisions.
(iii) Comment on the results derived in (2) and on the possible attitude of management of the various divisions to the proposed Transfer Pricing and product deployment policy.

(b) Explain the objectives of transfer pricing. **[10+5]**

5 (a) Started Ltd. provides the following details on its new product.

Years 1 and 2: R & D Costs: ₹2,40,000, Design Costs ₹1,60,000

Years 3 to 6: Other Functional costs:

Function	One – Time Costs	Cost per unit
Production	₹1,00,000	₹25
Marketing	₹70,000	₹24
Distribution	₹50,000	₹16
Customer Service	₹80,000	₹30

The Sale quantities during the Product Life Cycle at various Selling Prices are:

Selling Price per unit (₹)	400	480	600
Sale Quantity in units	5,000	4,000	2,500

Ignoring time value of money, compute the net Incomes generated over the Product Life Cycle at various prices. Which price should the Company select?

(b) Discuss the benefits of Branding.

(c) Discuss the different types of Benchmarking. **[5+4+6]**

SECTION - B
[Question no. 6 is compulsory and any one from the rest]

6. Employee Performance Appraisal Using Data Envelopment Analysis

A small company located in southern India, which is involved in the manufacturing of automobile parts. This company was established six years ago and is involved in manufacturing and supplying components of carburettors (for two and four wheelers) to a manufacturing firm. Its annual turnover is INR 1.2 millions. Sixteen different components for various types of carburettors are manufactured. The company employs 23 people. There are two managers under the managing director. One is in charge of manufacturing and the other has responsibility for sales/purchases. Under the control of the manager (manufacturing), there are two supervisors, one each per shift of eight hours of duty. For each shift nine employees are working who are engaged in metal machining using lathes, and drilling machines. All these 18 employees underwent a Personal Appraisal (PA) within a framework of DEA that provided data for this study. The managers and supervisors are not included for PA.

The main focus of the study is how to improve the working efficiencies of the employees and to determine their training needs. Evaluating and ranking the employees working in organizations are challenging tasks involving several factors. Each employee achieves certain performance levels in various factors and the resulting information can be overwhelming. The Data Envelopment Analysis (DEA) can be applied as a fair evaluating and sorting tool to support the performance appraisal (PA) as well in the decision making process. DEA focuses on the best practices of efficient employees for the purpose of improving overall performance. Unlike traditional performance appraisals DEA searches for the efficient employees who will serve as peers. The DEA process identifies inefficient employees, magnitude of inefficiency and aids to eliminate inefficiencies with a relatively easy to employ framework. Rating formats need reexamination with a focus on computer based models as an alternative to traditional rating methods. Earlier adopted methods have seldom identified and quantified the individual factors for inefficiency whereas DEA could overcome these shortfalls. Based on the results of DEA the improvement of employees' performance are possible by way of providing training, talent enhancement and further qualification wherever required.

Employee rankings will be used to decide the types of incentives and promotions during future expansion of the company. The factors (dataset) considered for the evaluation process are classified into input and output factors. One of the major advantages of the DEA is the inputs and outputs can be measured and used in their own units (Sami-Mahgary & Lahdelma 1995). No universally applicable rational template is available for the selection of factors. However, in general, the inputs must reflect the resources used and the outputs must reflect the service levels of the utility and the degree to which the utility is meeting its objective (Richards 2003, Thakur 2005).

The dataset is decided upon, by having discussions and brainstorming sessions with the managers, supervisors and representatives of employees. While considering input and output factors the isotonicity relations are assumed for DEA (i.e., an increase in any input should not result in a decrease in any output). Consequently, the values of some factors may have to be inverted before they are entered into the analysis. Another group of factors is the qualitative ones. These have to be assigned numerical values in order to participate in the mathematical evaluation of efficiency. Any number of input or output factors which are relevant and have an impact on the efficiency of employees could be considered for DEA. But the number of employees in the analysis should be at least twice the number of inputs and outputs considered (Golany & Roll 1989).

To evaluate efficiency scores of employees the following factors are used: job knowledge, customer relations, interpersonal relations, and work habits as input factors; and quality, and quantity of products produced as output factors. Among the input factors customer relations and interpersonal relations are qualitative. In a wide range of problem settings to which DEA can be applied qualitative factors are often present. Marketing's interest in consumer perception and expectation, and human resources' desire to explore and describe employees' skills are two areas that routinely involve the quantification of qualitative concepts (Dyson, Allen, Camanho, Podinovski, Sarrico & Shale 2001). Only quantitative measures are used in DEA hence, qualitative factors need to be converted into quantitative scores. Such factors may be legitimately quantifiable, but very often such quantification is superficially forced, as a modelling convenience. Typically, a qualitative factor is captured either on a Likert scale, or is represented by some quantitative surrogate such as plant downtime or percentage sick days by employees (Cook, Kress & Seiford 1996). Many authors, Roman, Wigand and Wolfgang (2003), Wong, Yang and Greatbanks (2004), Biehl, Cook and Jonston, (2006), Cook and Zho (2006) utilised a five point Likert scale to convert qualitative data into quantitative used for the evaluations of performance using DEA.
A year of experience of employees is considered to represent the job knowledge (Ross & Droge 2002) and work habits are measured with a surrogate, percentage of employees' attendance. The qualitative input factors Customer Relations and Interpersonal Relations are assessed by using a five point Likert scale with high scores reflecting better relations. In the case of Customer Relations; 1 = school final, 2 = industrial training, 3 = diploma, 4 = degree, and 5 = post graduate; and Interpersonal Relations is measured using: 1 = fair, 2 = satisfactory, 3 = good, 4 = very good, and 5 = excellent.

Unlike traditional performance appraisals, DEA searches for the efficient employees who will serve as role models. The efficiency of a machine can be determined by comparing its actual output to its engineering specifications. However, when considering human service generally, the optimum efficiency is unknown, and, therefore, cannot be determine whether an employee is absolutely efficient (Sowlati & Paradi 2004). DEA can be used to identify employees, who are relatively inefficient, measure the magnitude of the inefficiency, and aids to select the alternative paths to eliminate inefficiencies. More efficient employees, who can act as trainers to the less efficient employees, can have a stake in the employee performance improvement process.

Required:

(a) Discuss the disadvantages and advantages of DEA.

(b) Considering the given information, suggest how can the performance of employee can improve and become more efficient? Which methodology can be implemented for the same? **[5+10]**

7 Describe the doctrine demand of Six Sigma. [5]

8 Explain the Statistical Process Control (SPC) methods. [5]

Section- C
[Question no. 9 is compulsory]

9 BASEL II CREDIT RISK IMPLEMENTATION

The client is a major Irish Bank in the commercial and retail banking market.

The Irish Financial Regulator (the "Financial Regulator") required the client to implement a new credit risk capital calculation policy based on the European Capital Requirements Directive (CRD). The client's strategy was to implement the reporting of Risk Weighted Assets (RWA) under the CRD Foundation Internal Ratings Based Approach (FIRB). This required an application to and approval of this methodology from the Financial Regulator. The implementation represented significant change in the organization. A programme of change was needed to design and implement new systems, risk models, policies, procedures and processes to manage.

The Financial Regulator provided a detailed template as a basis of all material that was required in the application pack. The role involved gathering key documents (policy, procedures, processes) relating to the completion of the pack. Documentation was reviewed for compliance against CRD FIRB requirements and mapped against application pack sections. Some testing of processes and procedures under implementation was also carried out.

A key deliverable was the drafting and completion of the application pack for submission to the Financial Regulator with a library of supporting documentation providing evidence of compliance with CRD.

The project workstreams revolved around the objectives of designing, validating and implementing new credit risk models that would enable the client to achieve FIRB status.

Key workstreams included:

- Gap analysis and compliance gap closure relating to CRD,
- Credit Risk model development gaps, and
- Creation and management of a document library (policy, procedures FIRB supporting evidence).

Project management activities included engaging with senior programme executives to ensure the project work stream deliverables and objectives were met. This was achieved through specialist knowledge of regulatory requirements. A key part of the role was to provide advice and guidance on engaging with the Financial Regulator throughout the life cycle of the project. This was critical in ensuring that the regulators were engaged continuously throughout the application process thus mitigating any objections or conditions to approval of the FIRB approach being granted.

In addition, the role called for guidance on a quantitative basis for the approach and validation of credit risk models under development.

The FIRB application pack was delivered to the Financial Regulator on time and after a period of review the FIRB approach was granted to the client.

The assets created during the project such as the documentation library were successfully transferred to Business as Usual and form a core part of the governance of the Credit Risk methodologies employed by the client.

Required:

(a) Distinguish between Basel I and Basel II.

(b) Discuss the challenges faced by the Irish Financial Regulator.

(c) How did they face challenge and discuss the benefits.

[5+5+5]

10. Explain the objectives of Risk Management. **[5]**

Or

Explain the L. C. Gupta Model under the Predictions of Corporate Failure. **[5]**