FINAL EXAMINATION

GROUP III

(SYLLABUS 2012)

SUGGESTED ANSWERS TO QUESTIONS

JUNE 2014

Paper-15 : BUSINESS STRATEGY AND STRATEGIC COST MANAGEMENT

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

Working Notes should form part of the answer.
Whenever necessary, suitable assumptions should be made and indicated in answer by the candidates

SECTION A (50 marks)

(Business Strategy)

Questions No. 1 *and* 2 *are compulsory.*

Answer* any two *from the rest in this section.

(Please answer all parts of a question at one place)

1. **The postal Department of GOI is trying to develop competitive strategies to make better profits. The chief of the postal department presents the following facts:**

(i) **There are many couriers who operate in major cities and offer guaranteed delivery at very marginally higher prices than the postal department and yet manage to make a lot of profits.**

(ii) **Couriers offer tracking facilities on the e-computer so that a customer knows when his consignment is getting delivered or where it is located at any point of time.**

(iii) **Many pick up points are available for customers. Even retail customers find it convenient to book their requirements without having to travel much. For bulk booking, the couriers provided pick up facility at no further cost.**

(iv) **Couriers are not available in rural and sub-urban areas whereas postal network is very good in these places.**

(v) **Couriers in the cities operate until 7 p.m. whereas the corresponding speed posts or registered posts close at 2-30 p.m. / 4 p.m. in most areas and 6 p.m. / 8 p.m. in big Post Offices in Metro Cities/GPO respectively. There are one or at most two centers which operate speed post counters for 24 hours, but there are no 24×7 courier facilities.**

(vi) **Postal services for parcels are much cheaper than the courier services.**

(vii) **International courier charges very highly priced for documents and parcels, whereas postal charges are up to 70% cheaper, but delivery is at least 50% slower. Retail customers prefer postal services while corporate houses prefer couriers.**

(viii) International courier is mainly parcel services. Documents are not prominent revenue makers due to electronic mode of communication.

(ix) Staff in courier services is more customer-friendly than the Postal Dept. staff, whereas the Postal Dept. staff are paid much more.

(x) While wondering how different the scale of profits could be between similar services, the Chief of Postal Department considers that for a Post Office to operate, in addition to document/parcel bookings, banking services like MIS/PF/Savings Account, etc. telephone bill payment services, stamp sale services and other services are being renderd, requiring the necessary hierachy of approving authority to be present. He is considering opening of more centers exclusively for the equivalent of courier services.

Required:

(a) Identify threats to the Postal Department, GOI.

(b) What would you consider as important strenghts of the Postal Department, GOI?

(c) Mention the opportunities that the Postal Department, GOI can profitably consider.

(d) Apart from (x) suggest appropriate business strategies that the Postal Department, GOI may practically apply to successfully run a long-term profitable document/parcel service on the lines of the courier service. (3+3+3+6)

Answer:

1. (a) Threats:

(i) Couriers are almost replacing document delivery by postal department.

(ii) Couriers could cut price to increase the market share in parcel delivery segment.

(iii) Couriers may fast expand to capture some of the more viable rural areas and satellite towns also. Loss of such customers is a big threat.

(iv) More courier operators could get together to achieve better coverage and lower cost and offer stiff competition as bundled operators.

(v) International couriers may reset their prices and offer stiffer competition, since already in terms of delivery schedules they have a higher preference. The only prohibited aspect is the price, which may soon be reset.

(b) Strengths:

(i) There is a huge network in rural and sub-urban areas which is no easily affordable by couriers.

(ii) Cheaper pricing tactics with the help of government support and infrastructure usage and inter governmental rates.

(iii) International parcel/document services have a lot of retail customers who prefer this system.

(iv) 24×7 service in select centers which is yet to be copied by competitor effectively.

(c) Opportunities:

(i) Pick up facilities could lure more users.

(ii) Established 24×7 round the clock services in more centers to service more customers in different areas of the country.

(iii) Lower the rates for documents and offer stiffer competition like stay out pricing.

(iv) Parcel packing and pick up services at the customers' door step.

(v) Faster international delivery for embracing corporate clients from competing services, together with mobile phone updates on tracking.

(vi) Extended working timings for collection centers, especially those that are near railway stations or airports.

(d) Business Strategy:

(i) Tie up with couriers for subcontracting delivery of bundled bulk bags to rural areas by train.

(ii) Set up shift system at strategic centers. Get data on volume of services at different times and enhance availability of services.
(iii) Establish tracking facility on the mobile phones at a price - for example, with BSNL at cheaper rates.
(iv) Create better pick up facilities at more number of intervals, extend the last cut-off time.
(v) Cut overhead costs by using skeletal staff at non-pick hours.
(vi) Award incentives for timely service of staff at critical points. Extra reward for better customer satisfaction.
(vii) Establish a monitoring system and fix responsibility among staff - by customer analysis, repeat customers, customer feedback on why some bulk customers have shifted, etc.
(viii) Additional transport can be outsourced under proper supervision. Fixed costs can be reduced by removing staff without much work or by redistributing and aggregating work so that there no idle time.
(ix) Establish mobile counters in vans for many areas so that more comfort is given for nearby pick up facility and more customers are attracted.

2. (a) Identify types of strategic integration in each of the following independent situations and state any two conditions when such an integration is not beneficial to a company.

(i) A soft drink manufacturing company "A" is facing stiff competition from another manufacturer. "A" buys bottle from a supplier. "A" wants to manufacture its own bottles and avoid a price mark-up on the bottles and thereby compete with lower cost of packaged drinks.

(ii) Company Comp makes laptops and it wants to acquire its competitor's laptop division "D" and sell under the one brand name "Comp".

(iii) Agricult Company, which is currently engaged in efficient crop production with modern techniques, is planning to set up its own outlets to sell raw farm processed agricultural products.

(b) What are loss leaders? Mention its two specific uses.

(c) What are four levels of the residual uncertainty facing most strategic-decision makers?

(3+3+3)+2+4

Answer:

2.(a) (i) Vertical backward integration:

It is not beneficial when:

- There are capacity building issues - for example, the firm may need to build excess upstream capacity to ensure that its downstream operations have sufficient supply under all demand conditions.
- Low efficiency lead to potentially higher costs resulting from lack of supplier competition.
- When previous upstream or downstream investment lead to decrease flexibility.
- Due to in-house development there is decreased ability for enhanced product variety.
- Development of new core competencies may compromise existing competencies.

(ii) Horizontal integration:

It is not beneficial when:

- The investment involved is huge.
- When the industry is saturated.
- There is inefficiency in the bought-out entity.
- There is significant increase in overhead cost without corresponding revenue

generation or increase in productivity.

(iii) Vertical forward integration

It is not beneficial when:

- The company has to incur very high distribution costs.
- There is likelihood of decrease in concentration of existing products.
- The company will tend to become inefficient with regard to its existing strong operations.
- There is considerable investment required.

(b) Loss leaders are product priced below cost price in order to attract consumers into a shop or online store to buy some of the more profitable products being sold.

The following are some uses:

(i) To prevent or restrict competition.
(ii) To lure the customers from another company's products.
(iii) Existing customers become loyal.
(iv) To enhance bulk sales and achieve advantages of volume.
(v) To realize as much value as possible in case of perishable products.

(c) Four levels of the residual uncertainty:

(i) Level one: A clear enough future - The residual uncertainty is irrelevant to making strategic decisions at level one, so managers can develop a single forecast that is a sufficiently precise basis for their strategies. To help generate this useful precise prediction of the future, managers can use the standard strategy toolkit: market research, analyses of competitors" costs and capacity, value chain analysis, Poter's five-force framework, and so on. A DCF model that incorporates those predictions can then be used to determine the value of alternative strategies.

(ii) Level two: Alternative futures -The future can be described as one of a few discrete scenarios at level two. Analysis cannot identify which outcome will actually come to pass, though it may help establish probabilities. Most important. some, if not all, elements of the strategy would change if the outcome were predictable.

(iii) Level three: A range of future - A range of potential futures can be identified at level three. A limited number of key variables define that range, but the actual outcome may lie anywhere within it. There are no natural discrete scenarios

(iv) Level four: True ambiguity - A number of dimensions of uncertainty interact to create an environment that is virtually impossible to predict at level four. In contrast to level three situations, it is impossible to identify a range of potential outcomes, let alone scenarios within a range. It might not even be possible to identify, much less predict, at all the relevant variables that will define the future. Level four situations are quite rare, and they tend to migrate toward one of the others over time. Situational analysis at level four is highly qualitative.

3.(a) Explain in brief the different competitive strategies for competition globally in global industries. Give one example in each strategy.

(b) What things are to be looked by an industry at the time of competitive dynamics analysis?

(1 ½ ×4)+(1×4)

Answer:

3.(a) Competition in global industries poses a different kind of challenges because it cuts across national boundaries and international or global forces come into play. These forces create, among others, two distinctive pressures:

(i) Cost pressure because of global competition, and
(ii) Pressure for local responsiveness that is adoption to local needs or values and consumer tastes and preferences. For some products costs pressure may be more, and

for some others, the need for local adoption is more. Guided by these two factors and production structure, companies which wise to compete globally, generally adopt one of the four strategies:

a. International strategy;
b. Multi-domestic strategy;
c. Global strategy, and
d. Transnational strategy.

International strategy: It can be adopted for those products and services which are not available in some countries and can be transferred from other countries. Some examples are: Kellogg's, Indian software and Indian handicrafts.

Multi-domestic strategy: It is almost opposite of international strategy it involves high degree of local responsiveness or local content. Products are highly customized to suit local requirements or conditions. Some examples are: Asian Paints (paints in general) and Indian garments.

Global strategy: Global strategy suits companies which make highly standardized sophisticated products, and are in a position to reap benefits of economies of scale and experience effects. These also include high technology products which have universal applicability and hardly require any local adoption. Examples are: Intel, Motorola, Microsoft, Wal-Mart and Marks & Spenser also.

Transnational strategy: It is the most difficult strategy to follow because this is based on a combination of two apparently contradictory factors, i.e., cost effectiveness and local adoption but this may be a global strategy, because in global business, there is always a price pressure or cost pressure; and also the need to make the product as close to a particular country's expectation as possible to maximize value offering. Some good examples are: Caterpillar, McDonald's, Coca-Cola. Pepsi, Domino's Pizza, etc.

(b) Competitive dynamics is the analysis of competition at the action and response level to predict how a firm will act or react against opponents.

First, when analyzing the competitive dynamics of any industry initially look at what are the risks of someone else moving into the market and evaluate whether there are any barriers to entry in terms of e.g. brand loyalty, vast amount of capital needed, limited distribution access or may be absolute cost advantage.

Secondly, look at whether the buyers in the given industry has any specific bargaining power which could be the case if e.g. there only are a limited number of big powerful buyers or in case there are many substitute products.

Thirdly, look at the potential risk of a substitute product entering the market.

Fourth, evaluate the bargaining power of the suppliers by looking at the number of suppliers and their potential for switching production to something else or finding another buyer.

Fifth, look at the competitive rivalry among the companies in the same industry.

4.(a) The $23-billion Reliance Industries, representing 4% of India's economy spliced between the brothers Anil and Mukesh Ambani, heirs to the sprawling industries created by their father, Dhirubhai Ambani. It operates in the fields of petrochemicals, telecom, textiles, oils, and finance. It was India's largest private sector company, and had the most shareholders of any company in the world. It was also the only Indian private company in the Fortune 500, and the first to float ADRs in the US market. It operates some of the world's largest oil refineries, and their telecom company purchased FLAG Telecom, with 50,000 kilometers of undersea fiber-optic cable. The founder, Dhirubhai Ambani, structured the company with a number of holding companies, and subdivisions, over 300 inter-connected organisations. He died in 2002, leaving a murky succession plan. His two sons, Mukesh, a hard-driving engineer, and Anil, seen as a dynamic business-oriented industrialist, assumed the reins,

but signs of a split were visible early on, with Anil a no-show at the IPO of Reliance Infocom. Mukesh was named the Chairman and Chief Managing Director. Anil filed his papers for the Indian parliament's upper house in 2004, but faced objections from Mukesh camp.

What factors contributed to political behaviour in Reliance Industries?
What are strategies and tactics aimed directly at gaining power under political strategies and tactics?

(b) Mention the factors by which the choice of strategy is influenced. (4+4)+2

Answer:

4. (a) A number of individual and organizational factors contributes to political behavior. These are as follows:

(i) Pyramid-shaped organization structure;
(ii) Subjective standard for performance;
(iii) Environmental uncertainty and turbulence:
(iv) Disagreements that prevent rational decision-making; and
(v) Manipulative tendencies.

Strategies and tactics aimed directly at gaining power. It could be argued that all political tactics are aimed at acquiring and maintaining power, if we consider power in a broad scope.

(i) Develop power contacts and relationship:
(ii) Make an early showing;
(iii) Control vital information; and
(iv) Control line of communication.

We discuss it, below:

(i) Develop power contacts and relationship: One way to develop these contacts is to be more social, for example, throwing parties and inviting powerful people, although they may not be available.

(ii) Make an early showing: Once a person has impressed management with his or her ability to solve an important problem, that person can look forward to working on problems that will bring greater power.

(iii) Control vital information: The vital information they control is knowledge of whom to contact to shorten some of the complicated procedures in getting government contracts approved.

(iv) (iv)**Control line of communication:** Related to controlling information is controlling lines of communication, particularly access to key people. Administrative assistants and staff assistants frequently control an executive's calendar. Both insiders and outsiders must curry favor with the conduit in order to see an important executive.

(b) Choice of strategy is a decision making process from among alternative strategies. These decisions involve focussing on a few alternatives, considering the selection factors, evaluating the alternatives and making the actual choice.

Choice of strategy is influenced by following factors :-

(i) External Constraints: - Choice of strategy is governed by the extent and degree of the firm's dependence on owners, customers, suppliers, and the government.

(ii) Intra-Organizational Forces: - Decisions are influenced by the power play among different interest groups and by the degree of uncertainty.

(iii) Values and preferences and managerial attitudes towards risk: - Evaluation of strategy is determined by personal values (truth, knowledge etc.) and attitude towards risk. Risk lover prefers high risky projects with high return. Risk averse prefers safer options.

(iv) Impact of past strategy :- The choice of strategy may be influenced by the earlier strategy because it is starting point in the formulation of new strategy and decision maker is involved in past strategy.

(v) Time constraint: - Choice of strategy is influenced by the time dimension i.e., whether it will be short term or long term, whether it has immediate action or not.

5.(a) Hero Honda joint venture formed in 1984 is a classic case of strategic alliance involving the Indian company Hero group and the Japanese automobile major Honda Motorcycle. The alliance was terminated with the entire 24% stake of Honda Motorcycle in the venture bought by the Hero Group. Getting out of the venture it gives the Japanese Company the freedom to go it alone in the world's second largest market for two-wheelers.
In the context of the above statement, answer the following:
(i) Is joint venture the only way to enter into strategic alliance?
(ii) Alliances are not new, but in the competitive landscape, distinguishing features are emerging. Identify these features.
(iii) What are the key success factors for managing an alliance? Identify the reasons for the termination of a successful joint venture.

(b) "Internal Growth (often called 'Organic Growth') is where strategies are developed that build on the business' own capabilities and sources." — Mention different means by which such growth is achieved. (2+2+4)+2

Answer:

5.(a) (i) No, joint venture is only one of the many alternative ways to enter into a strategic alliance. Apart from joint venture, a strategic alliance may be in the form of:
(a) Management contract;
(b) Franchising;
(c) Supply or purchase agreement;
(d) Marketing and distribution agreement;
(e) Agreement to provide technical services;
(f) Licensing to know-how, technology, design, patent, etc.

(ii) All alliances involve some measure of inter-corporate integration. In the new emerging competitive environment the corporate are finding innovative ways of alliances with features meeting their requirements. Trading alliances are only but more complicated than traditional buy-self relationship. Normally the objectives of such trading alliances include the need to secure supplies of product, buy or exchange skills/technology and exploit market networks. The main features of such alliance are management at arm's length, implementation at a fast pace, exclusively, limited time frames with options to renew based on certain well-defined milestones.
On the other hand, partnerships involving an integration of business resources can take the form of functional alliances. Functional alliances are usually joint ventures or equity based partnerships. They are characterized by management integration, open-ended collaboration, separate joint venture entity and long-term commitment.

(iii) The key success factors for managing an alliance are:
a. **Mutual trust:** Mutual trust at senior management level carry ventures through turbulent times.

b. **Ability to compromise:** When there are two strong companies, the ability to compromise is not easy to achieve. If one expects to receive some valuable technology, production or marketing know-how from a partner, one must be willing to give something.

c. **Favourable business condition:** Launching an alliance when favourable business conditions exist makes a venture life considerably easier for its partners.

d. **Alliance autonomy:** The autonomy mandates a high degree of responsibility and good judgment by the ventures management.

Reasons for termination of a successful joint venture are as under:

(i) Different culture may quick find the variations in their behaviour norms which are creating breeding ground for misunderstanding, poor follow-through and eventual distrust.
(ii) Joint ventures are also potential for conflicts. They may result in disputes between or among partners due to varied interests.
(iii) Slow down in decision making process by partners.
(iv) Changes in the business environment in two countries and changes in partner strength.
(v) Life cycle of joint ventures.

(b) Organic growth, also called internal growth, is based on investing in what the business already does. This type of growth can be achieved by –

(i) Expanding product range – Once a product is established on the market, further related products can be introduced.
(ii) Targeting new markets - Selling the products to the new market sectors.
(iii) Expanding the distribution network - Products available in more places, and
(iv) Benefiting from economies of scale - reduce the costs, which should gain new customers.

Section B (50 marks)
(Strategic Cost Management)

Question No. 6 is compulsory.
Answer any two from the rest in this section.
(Please answer all part of the question at one place)

6. (a) Differentiate 'Traditional Cost Management' from 'Strategic Cost Management' in the light of
(i) Cost Analysis way
(ii) Cost Analysis - objectives, and
(iii) Cost Driver concept.

(b) Write in brief PDSA cycle.

(c) Mention any three objectives of 'Transfer Pricing'.

(d) As a CMA how would you apply EOQ in inventory management decisions in a situation of quantity discount offered by vendors? (3+2+3+2)

Answer:

6. (a) Differences:

(i) Cost Analysis- way: Traditional Cost Management is concerned with strong internal focus and related with product, customer and function.
Strategic Cost Management: concerned with strong external focus in terms of various

stages of the overall value chain of which the firm is a part.

(ii) Cost Analysis- objectives: Three objectives of Traditional Cost Management are, score keeping, attention directing, and problem solving. But in case of Strategic Cost Management three objectives are always present, the design of cost management system changes dramatically depending on the basic strategic positioning of the firm: either under a cost leadership strategy, or under a product differentiation strategy.

(iii) Cost driver concept: Traditional Cost Management concerns a single fundamental cost driver pervades literature - cost is a function of volume. It is applied only for considering the overall firm level. But in case of Strategic Cost Management, multiple cost drivers such as - structural drivers (e.g. scale, scope, experience, technology, complexity), executional drivers (e.g. participative management, total quality management) are to be considered. Each activity has set-of unique cost drivers.

(b) PDSA cycle refers the Plan-Do-Study-Act cycle. It describes the activities a company needs to perform in order to incorporate continuous improvement in its operation. The circular nature of this cycle shows that continuous improvement is a never-ending process. Let's look at the specific steps in the cycle:

Plan - Managers must evaluate the current process and make plans based on any problems they find.

Do - It means implementing the plan (do). During the implementation process managers should document all changes made and collect data for evaluation.

Study – The third steps is to study the data collected in previous phase. The data are evaluated to see whether the plan is achieving the goals established in the plan phase.

Act - The last phase of the cycle is to act on the basis of the results of the first three phases. After we have acted, we need to continue evaluating the process, planning, and repeating the cycle again.

(c) The objectives of transfer pricing:

(i) Goal congruence;
(ii) Performance appraisal;
(iii) Divisional autonomy;
(iv) Simple and easy method; and
(v) The transfer price should provide each segment with the relevant information required to determine the optimum trade-off between company costs and revenues.

[Student may answer any 3 points]

(d) The management accounting tool that may be used to make inventory purchase decisions is the EOQ model. This tool recognizes that there are two major decisions regarding the materials inventory: (i) order size, and (ii) number of orders.

There are consequently two major questions:

(i) How many units to be purchased each time a purchase is made (i.e., order size); and
(ii) How many times purchase should be made?

Suppliers will often provide incentives to purchase for bigger quantities. When quantity discounts are available, the basic EOQ model cannot be used to directly solve for the best order size. However, it must be used on an iterative (trial and error) basis to find the best order size.

7. (a) What is meant by Business Process Re-engineering(BPR)? How can BPR be applied to an organization? Give an example of BPR application.

(b) A manufacturing company currently operating at 80% capacity has received an export order from Middle East, which will utilize 40% of the capacity of the factory. The order has

to be either taken in full and executed at 10% below the current domestic prices or rejected totally.

The current sales or cost data are given below:

Items	₹ in lakhs
Sales	16.00
Direct Material	5.80
Direct Labour	2.40
Variable Overheads	0.60
Fixed Overheads	5.20

The following alternatives are available to the management:

(i) Continue with domestic sales and reject the export order.

(ii) Accept the export order and allow the domestic market to starve to the extent of excess of demand.

(iii) Increase capacity so as to accept the export order and maintain the domestic demand by -

(a) purchasing additional plant and increasing 10% capacity and thereby increasing fixed overheads by ₹ 65,000, and

(b) Working overtime at one and half time the normal rate to meet balance of the required capacity.

You are required to evaluate each of the above alternatives and suggest the best one.

(2+6+2)+(8+2)

Answer:

7. (a) BPR is a business management strategy, originally pioneered in the early 1990s. focusing on the analysis and design of workflows and process within an organization. BPR is also known as business process redesign, business transformation, or the business process change management. BPR aimed to help organizations fundamentally rethink how they do their work in order to dramatically improve customer services, cut operational costs, and become world-class competitors. Competition is continuously increasing with respect to price, quality and selection, service and promptness of delivery. Removal of barriers, international cooperation, technological innovations cause competition to intensify. All these changes impose the need for organizational transformation, where the entire processes, organization climate and organization structure is changed.

BPR application ways:

(i) Empowering people i.e., ability to do their work: the right information, the right tools, the right training, the right environment, and the authority they do.

(ii) Providing information in many different ways.

(iii) Providing right tools e.g. with the right tools, the numerical parts of the plans arrive in a consistent, electronic format permitting consolidation by a computer. This leaves the analyst free to do the more productive work of analyzing the quality of the plan.

(iv) Providing efficient training.

(v) Eliminating unproductive uses of time.

(vi) By improving data processing eliminate unnecessary papers.

(vii) Eliminating unnecessary variations in the procedures and systems.

(viii) Minimizing the burden of record keeping. It means more efficient and effective with the six components of data processing like capturing, transmitting, storing, retrieving, manipulating, and displaying data.

Example: A typical problem with processes in vertical organizational structure is that customers must speak with various staff members for different inquiries. For example, if a bank customer enters into the bank determined to apply for a loan, apply for an ATM card and open a savings account, most probably must visit three different desks in order to be serviced. When BPR is applied to an organization the customer communicates with only one person, called "case manager", for all three inquiries.

(b) Statement showing computation of profit at different alternatives:

Particulars	Alternative I (Present sales 80%)	Alternative II 40% - Foreign 60% - Domestic	Alternative III 40% - Foreign 80% - Domestic
(a) Sales	16.00	19.20 (7.20 +12.00)	23.20 (7.20 + 16.00)
(b) Variable cost:			
Direct material	5.80	7.25	8.70
Direct labour	2.40	3.00	3.60
Variable overheads	0.60	0.75	0.90
Overtime premium	-	-	0.15
Total	8.80	11.00	13.35
(c) Contribution (a-b)	7.20	8.20	9.85
(d) Fixed cost	5.20	5.20	5.85 (5.20 +0.65)
(e) Profit (c-d)	2.00	3.00	4.00

From the above computation, it was found that the profit is more at the Alternative III i.e. accepting the foreign order fully and maintaining the present domestic sales, it is the best alternative to be suggested.

8. (a) Write some typical applications of 'Operation Research".

(b) The following activities relate to Project:

Activity	Duration (days)	Cost of crashing per day
1-2	5	1200
1-3	8	700
2-4	4	600
3-4	0	-
4-5	7	400
4-6	11	-
6-8	0	-
5-7	6	-
7-8	5	600
8-9	5	1000

Only some activities can be crashed and the crashing costs are given. No activity can be crashed more than one day.
Draw the network; find the critical path and the normal duration. Perform step by step crashing and show the effect of crashing on each path to achieve minimum crashing cost. What would be the minimum crashing cost to complete the project three days earlier and the revised critical path(s)?

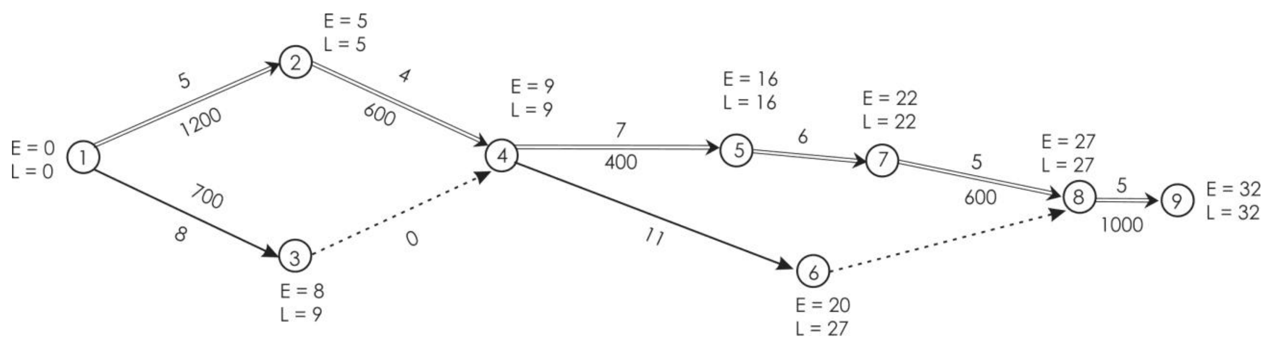
(c) What are the impacts of 'learning curve model' on labour variances? (5+11+4)

Answer:

8. (a) Typical applications of operation research:

- Capital Budgeting
- Asset allocation
- Portfolio selection
- Benchmarking
- Supply chain planning
- Inventory planning
- Resource allocation and staff allocation
- Marketing channel optimization
- Fraud prevention, Anti-Money Laundering
- Direct marketing campaigns, predicting customer response, and campaign optimization

(b)



<u>CP 1-2-4-5-7-8-9 =32 days</u>
Crossing path 4-5 by 1 day= 31 days
Crossing path 7-8 by 1 day =30 days
Crossing path 2-4 by 1 day= 29 days

<u>CP 1-2-4-6-8-9 =25 days</u>
Crossing path 4-5 = 25 days
Crossing path 7-8 =25 days
Crossing path 2-4 by 1 day = 24 days

<u>CP 1-3-4-5-7-8-9= 31 days</u>
Crossing path 4-5 by 1 day= 30 days
Crossing path 7-8 by 1 days= 29 days
Crossing path 2-4 = 29 days
<u>Cp 1-3-4-6-8-9 = 24 days</u>
Crossing path 4-5 =24 days
Crossing path 7-8 = 24 days
Crossing path 2-4 = 24 days

Note: Since Overhead cost is not mention in the sum so crash the entire possible way.

The critical path is 1-2-4-5-7-8-9 with duration 32 days.
For crash 4-5 (₹ 400), crash 7-8 (₹ 600), and 2-4 (₹ 600) respectively
Crashing costs to finish the project 3 days earlier is ₹ 1,600.
Critical path remains the same, viz 1-2-4-5-7-8-9 with duration 29 days.

(c) The learning curve model will affect labour variance since:
- The initial standard time taken to produce the item will become rapidly out of date.
- Variances calculated using out of date standards will quickly become meaningless for planning and control.

In many respects the easiest way of incorporating learning effects is to build them into the standards used.

9. (a) What is meant by the term "cost pool" and "cost driver" in Activity Based Costing (ABC)? Give example in reference to R&D activity.

(b) What is meant by 'Continuous Process Improvement (CPI)'? State five phases of CPI procedure.

(c) S.U.Ltd. produces three products namely A, B, and C. The budgeted production, costs and selling prices for the next year are as under:

Particulars	Product A	Product B	Product C
Direct Materials (₹ per unit)	**24**	**16**	**12**
Direct Wages:			
Department rate/Hour			
Dept. 1: ₹4 Hrs/unit	**3**	**5**	**25**
Dept. 2: ₹2 Hrs/unit	**3**	**8**	**6**
Budgeted production (units)	**10,000**	**12,000**	**20,000**
Max. possible sales(units)	**12,000**	**16,000**	**24,000**
Selling price (₹ per unit)	**75**	**105**	**60**

Variable overheads:
Dept. 1: Recovered at 100% of direct wages.
Dept. 2: recovered at 50% of direct wages.
Fixed overheads: ₹5,00,000 per annum.
A direct labour hour in Dept. 1 is in short supply and the budgeted volume of output envisages full utilization of the available direct labour hour. In Dept.2, the company has committed to engage the workers to the extent of the direct labour hours required for the budgeted volume of production. Should a change in the production mix be desired, the company can engage additional direct labour hours required in Dept.2 at normal rates but any portion of the direct labour hours of Dept.2 rendered surplus by reasons of a change in the present product mix have to be paid by the company as idle wages in view of the commitment already made.

Required:
(i) Present a statement showing the budgeted profitability.
(ii) Set optimal product mix and work out the optimum profit after taking into consideration the idle time wages, if any, payable in the Dept.2.
(iii) If the company desires to subcontract the surplus direct labour hours, if any, in Dept.2, what minimum changes should be quoted per direct labour hour?

(1+2+2)+(2+3)+(4+5+1)

Answer:

9. (a) Cost Pool: A cost pool is a term of ABC operation, used to indicate grouping of costs incurred on a particular activity which drives them.

Cost Drivers: Any element that would cause a change in the cost of activity is cost driver. Actually cost drivers are basis of changing cost of activity to cost object. Cost drivers are used to trace cost to product by using a measure of resources consumed by each activity. For example, frequency of order, number of order etc. may be cost drive of customer order processing activity; cost driver may be involved two parts: (i) Resources Cost Driver & (ii) Activity Cost Driver.

(i) Resource Cost Driver - it is a measure of a quantity of resources consumed by an activity, and

(ii) Activity Cost Driver - it is a measure of the frequency and intensity of demand placed on activities by cost objects.

In R&D activity:

Resources - Staff, Equipment, Material.

Cost Pool - Salaries, Maintenance Cost, Material Cost.

Cost Driver - Number of Research Projects, Time Spent on Project, Technical Complexities of Project.

(b) CPI is a never ending effort to discover and eliminate the main causes of problems. It accomplishes this by using small-steps improvements, rather than implementing one huge improvement. CPI simply means making things better. It is not fighting fires. Its goal is not to blame people for problems or failures. It is simply a way of looking at how we can do our work better. In CPI, we seek to learn what causes things to happen and then use this knowledge to:

- Reduce variation.
- Remove activities that have no value to the organization.
- Improve customer satisfaction.

Five phases of CPI:

(i) Analysis Phase - Identify areas of opportunity and target specific problems. These areas and problems are based on team brain-storming sessions, process definition sessions, recommendation forwarded to the team by organizational members, and other various analysis techniques.

(ii) Design Phase - Generate solutions through brain-storming sessions. Identify the required resources to implement the chosen solution and identify baselines to measure.

(iii) Development Phase - Formulate a detailed procedure for implementing the approved solution.

(iv) Implementation Phase - Execute the solution.

(v) Evaluation Phase - Build measurement tools, monitor implementation, and evaluate measurements to baseline, this phase is performed throughout the entire process.

(c) Statement showing computation of budgeted profit and contribution per labour Dep. 1:

Particulars	Product A (₹)	Product B (₹)	Product C (₹)	Total (₹)
Selling Price	75	105	60	

Variable Cost:				
Direct Materials	24	16	12	
Direct Wages: Dept. I	12	20	10	
Dept.2	6	16	12	
Variable Overheads	15	28	16	
Total	57	80	50	
Contribution	18	25	10	
Contribution lab./ hour In dept. I	6	5	4	
	Stage I	Stage II	Stage III	
Budgeted units	10,000	12,000	20,000	
Total contribution	1,80,000	3,00,000	2,00,000	6,80,000
Fixed cost				5,00,000
Profit				1,80,000

(ii) Statement showing optimum product mix and profit at that mix:

No. of units	Product A (₹)	Product B (₹)	Product C (₹)	Total (₹)
Production (units)	12,000	16,000	9,600	
Contribution per unit	18	25	10	
Total	2,16,000	4,00,000	96,000	7,12,000
Fixed cost				5,00,000
Profit				2,12,000
Less, cost of idle wages in Dept. 2: 24,400 ×2				48,800
Profit after idle wages:				1,63,200

Working Notes:

No. of hours in Dept.1 = (10,000 ×3) + (12,000 ×5)+(20,000 ×2.5) = 1,40,000

No. of hours in Dept.2 = (10,000 ×3) + (12,000 ×8)+ (20,000 x 6) = 2,46,000

		Dept. 1(Hours)	Dept.2 (Hours)
Available hours		1,40,000	2,46,000
(-) utilised for Product A		36,000	36,000
		1,04,000	2,10,000
(-) utilised for Product B		80,000	1,28,000
		24,000	82,000
No. of units of C - 24,000/2.5= 9,600 units		24,000	9,600 ×6= 57,600
Idle hours		NIl	24,400

(iii) Hire charges Labour cost + Variable Overheads 2+2 ×50% = ₹3