

**INTERMEDIATE EXAMINATION  
GROUP - III  
(SYLLABUS 2016)**

**SUGGESTED ANSWERS TO QUESTIONS**

**JUNE - 2017**

**Paper-9 : OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENTINDIRECT**

**Time Allowed : 3 Hours**

**Full Marks : 100**

**This paper contains two Sections.**

**Both Sections are compulsory, subject to instructions provided against each.**

**This figures in the margin on the right side indicate full marks.**

**All working must form part of your answer.**

**Assumptions, if any, must be clearly indicated.**

**Section - A  
(Operations Management)**

1. (a) Choose the correct answer: 1x10=10
- (i) Out of the following trends in production/operations management, which one is sometimes called as agile manufacturing?  
(A) Re-engineering  
(B) Supply-Chain Management  
(C) Lean Production  
(D) Flexibility
- (ii) Out of the following factors that are affecting Capacity Planning, which one is Less Controllable one?  
(A) Machine break-downs  
(B) Amount of labour employed  
(C) Facilities installed  
(D) Shifts of work per day
- (iii) Which of the following stages of Product Life Cycle does attribute beginning of substantial increase in Sales and Profits?  
(A) Introduction  
(B) Growth  
(C) Maturity  
(D) Decline
- (iv) This aims at finding the best and most efficient way of using the available resources - men, materials, money and machinery:  
(A) Time Study  
(B) Work Study  
(C) Method Study  
(D) Job Evaluation
- (v) Which one is NOT an index of Productivity?  
(A) Man-hour output  
(B) Productivity ratio  
(C) TQM  
(D) Use of Financial Ratios

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- (vi) The time by which an activity can be rescheduled without affecting the other activities - preceding or succeeding is called as
- (A) Slack
  - (B) Independent Float
  - (C) Free Float
  - (D) Total Float
- (vii) Reliability and per unit cost of which of the following spares are less?
- (A) Regular spares
  - (B) Insurance spares
  - (C) Capital spares
  - (D) Rotable spares
- (viii) For a marketing manager, the sales forecast is
- (A) estimate of the amount of unit sales for a specified future period.
  - (B) arranging the salesmen to different segments of the market.
  - (C) to distribute the goods through transport to satisfy the market demand.
  - (D) to plan the sales methods.
- (ix) The activity of specifying when to start the job and when to end the job is known as
- (A) Planning
  - (B) Scheduling
  - (C) Timing
  - (D) Follow-up
- (x) The lead time is
- (A) Time for placeholders for materials
  - (B) Time of receiving materials
  - (C) Time between receipt of material and using materials
  - (D) Time between placing the order and receiving the materials

(b) Match Column-I with Column-II:

1×6=6

I		II
(A) Aviation Fuel	(i)	Value Analysis
(B) Brainstorming	(ii)	Machine Shop
(C) Forgings	(iii)	Turbo-Alternator
(D) Tools	(iv)	Refinery
(E) Hydro-electricity	(v)	Job Evaluation
(F) Ranking Method	(vi)	Smithy

(c) State whether the following statements are 'True' or 'False':

1×6=6

- (i) Merit Rating is used to determine the cost of a product.
- (ii) Project costs increase as the duration of the project increases.
- (iii) In carrying out Job Evaluation studies, point system is the best method.
- (iv) Production planning and control is essentially concerned with the control of Finished goods.
- (v) A Productivity Index is a device of expressing the ratio between outputs and the inputs of the resources numerically.
- (vi) If the total float value is zero, it means the resources are just sufficient to complete the activity without delay.

**Answer:**

1. (a) (i) (d) Flexibility  
 (ii) (a) Machine break-downs  
 (iii) (b) Growth  
 (iv) (b) Work Study  
 (v) (c) TQM

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- (vi) (b) Independent Float.
- (vii) (a) Regular Spares.
- (viii) (a) Estimate of the amount of unit sales for a specified future period.
- (ix) (b) Scheduling.
- (x) (d) Time between placing the order and receiving the materials.

(b)

I		II
(A) Aviation Fuel	(iv)	Refinery
(B) Brainstorming	(i)	Value Analysis
(C) Forgings	(vi)	Smithy
(D) Tools	(ii)	Machine Shop
(E) Hydro-electricity	(iii)	Turbo-Alternator
(F) Ranking Method	(v)	Job Evaluation

- (c) (i) False
- (ii) True
- (iii) True
- (iv) False
- (v) True
- (vi) True

2. Answer any three questions from the following:

16×3=48

(a) 'An important objective of Operations Management is Resource Utilization.' Enumerate. Also list the scope of Operations Management. 3+3=6

(b) Briefly explain various methods of sales forecasting.

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Answer:

2. (a) A major objective of Operations Management is to utilize resources for the satisfaction of customer wants effectively, i.e., customer service must be provided with the achievement of effective operations through efficient use of resources. Inefficient use of resources or inadequate customer service leads to commercial failure of an operating system. Operations management is concerned essentially with the utilization of resources, i.e., obtaining maximum effect from resources or minimizing their loss, underutilization or waste. The extent of the utilization of the resources' potential might be expressed in terms of the proportion of available time used or occupied, space utilization, levels of activity, etc. Each measure indicates the extent to which the potential or capacity of such resources is utilized. This is referred to as the objective of resource utilization.

The following are the scope of Operation Management:

1. Location of facilities.
2. Plant layouts and Material Handling.
3. Product Design.
4. Process Design.
5. Production and Planning Control.
6. Quality Control.
7. Materials Management.
8. Maintenance Management

- (b) (1) Survey of buyer's inventions or the user's expectation method:
- (2) Collective opinion or sales force composite method:
- (3) Group executive judgment or executive judgment method:
- (4) Experts' opinions:

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- (5) Market test method:
- (6) Trend projection method:

3. (a) Discuss the term 'Process Strategy'. What does it involve? 3+3=6
- (b) Calculate the standard time per article produced from the following data obtained by a work sampling study: 10
- Total no. of observations = 2,600  
 No. of working observations = 2,000  
 No. of units produced in 100 hours duration = 5,000 numbers  
 Proportion of manual labour =  $\frac{3}{4}$   
 Proportion of machine time =  $\frac{1}{4}$   
 Observed rating factor = 120%  
 Total allowances = 15% of normal time

**Answer:**

3. (a) A process strategy is an organisation's approach to process selection for the purpose of transforming resource inputs into goods and services (outputs). The objective of a process strategy is to find a way to produce goods and services that meet customer requirement and product specification (i.e., design specifications) within the constraints of cost and other managerial limitations. The process selected will have a long-term effect on efficiency and production as well as flexibility, cost, and quality of the goods produced. Hence it is necessary that a firm has a sound process strategy at the time of selecting the process.

Key aspects in process strategy include:

- (i) **Make or buy decisions** - It refers to the extent to which a firm will produce goods or provide services in-house or go for outsourcing (buying or subcontracting).
- (ii) **Capital intensity** - It refers to the mix of equipment and labour which will be used by the firm.
- (iii) **Process flexibility** - This refers to the degree to which the system can be adjusted to changes in processing requirements due to such factors as changes in product or service design, changes in volume of products produced and changes in technology.

- (b) (1) Actual working time in the duration of 100 hours =  $100 \times (2,000/2,600) = 76.923$  hours  
 (2) Time taken per article =  $(76.923 \times 60)/5,000 = 0.923$  minute  
 (3) Observed manual labour time per article =  $0.923 \times (3/4) = 0.6922$  minute  
 (4) Observed machine time per article =  $0.923 \times (1/4) = 0.230$  minute  
 (5) Normal labour time per unit = Observed time/unit  $\times$  Rating factor =  $0.6922 \times 1.20 = 0.8306$  minute  
 (6) Standard labour time per unit =  $0.8306 + (15/100) \times 0.8306 = 0.9552$  minute  
 (7) Standard time per unit of article produced =  $0.9552 + 0.230 = 1.185$  minutes.

4. (a) A Bakery shop sells bakery items. Past data of demand per week in hundred kilograms with frequency is given below:

<b>Demand/Week</b>	<b>0</b>	<b>6</b>	<b>12</b>	<b>18</b>	<b>24</b>	<b>30</b>
<b>Frequency</b>	<b>1</b>	<b>12</b>	<b>19</b>	<b>8</b>	<b>6</b>	<b>4</b>

Using the following sequence of random numbers, generate the demand for the next 10 weeks. Also find out the average demand per week. 10

<b>Random numbers</b>	<b>12</b>	<b>27</b>	<b>18</b>	<b>58</b>	<b>43</b>	<b>75</b>	<b>31</b>
	<b>62</b>	<b>47</b>	<b>35</b>	<b>53</b>	<b>42</b>	<b>68</b>	<b>71</b>

- (b) An incentive scheme allows proportionate production bonus beyond 100% performance level.  
 Calculate the amount of

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- (i) Incentive bonus and  
 (ii) Total payment received by an operator on a particular day during which the following particulars apply:  
 Operation : Assembling a table clock set  
 Work Content : 40 Standard minutes per assembled set  
 Attended Time: 8 Hours  
 Time spent on unmeasured work : 3 Hours  
 Number of sets assembled during the day : 10  
 Wage rate : ₹ 5 per hour  
 (iii) What is the net labour productivity achieved by the operator during the day?

2×3=6

Answer:

4. (a)

Random No. Range Table for Demand				
Demand per week	Frequency	Probability	Cumulative Probability	Range
0	1	0.02	0.02	0-1
6	12	0.24	0.26	2-25
12	19	0.38	0.64	26-63
18	8	0.16	0.80	64-79
24	6	0.12	0.92	80-91
30	4	0.08	1.00	92-99
	Σf = 50	1.00		

Simulated values for next 10 weeks		
Weeks	R. Nos.	Demand
1	12	6
2	27	12
3	18	6
4	58	12
5	43	12
6	75	18
7	31	12
8	62	12
9	47	12
10	35	12
		Total: 114

Average Weekly demand = 114/10 = 11.4

- (b) Total standard minutes worked during the day = 40×10 = 400, working time = 8-3 = 5 hours = 300 minutes.  
 Performance = (400×100)/300 = 133.34% or 0.3333

- (i) Incentive bonus = 0.3333×5×5 = ₹ 8.33 for five hours on measured work  
 (ii) Guaranteed wage for 8 hours = 8×5 = ₹ 40;  
 Total earnings for the day = ₹ (8.33+40) = ₹ 48.33  
 (iii) Net labour productivity = Output in units/Net person hours = 10/5 = 2 sets per hour.

5. (a) A project consists of eleven activities A, B, C, D, E, F, G, H, I, J and K. The relationship among various activities is as follows:

Activity	Preceding Activity
A	—
B	A
C	A

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D	B
E	C
F	D,E
G	F
H	F
I	G
J	I,H
K	J

Draw the network diagram.

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(b) Product A has a Mean Time Between Failures (MTBF) of 35 hours and a Mean Time to Repairs (MTTR) of 6 hours. Product B has a MTBF of 45 hours, and has a MTTR of 3 hours.

- (i) Which product has higher reliability?
- (ii) Which product has greater maintainability?
- (iii) Which product has greater availability?

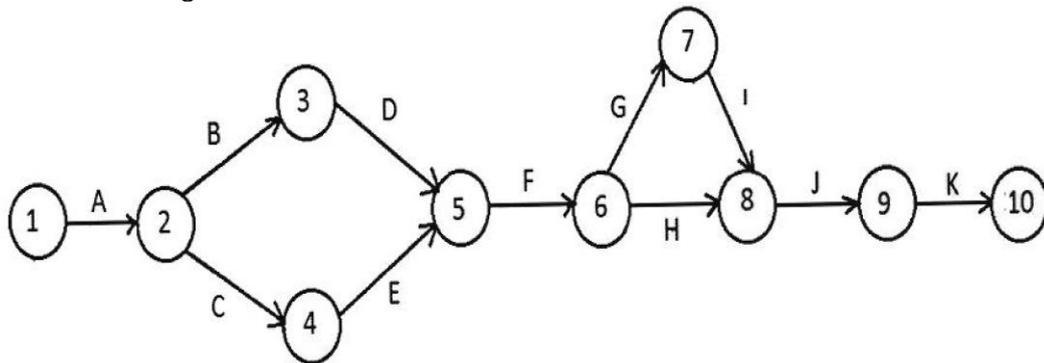
3+3+4=10

Answer:

5. (a) The relationships among various activities is as follows:

Activity	Preceding Activity
A	-
B	A
C	A
D	B
E	C
F	D,E
G	F
H	F
I	G
J	I,H
K	J

The network diagram:



- (b) (i) Product B, with the higher MTBF (i.e. 45 hours) than product A (i.e. 35 hours), is more reliable since it has lesser chances for failure during servicing.
- (ii) The MTTR means time taken to repair a machine. Thus lesser MTTR (of 3 hours) pertaining to Product B vis-a-vis of 6 hrs of Product A makes Product B to have greater maintainability.
- (iii) Availability of a machine/product =  $MTBF / (MTBF + MTTR)$

Thus Availability of Product A =  $35 / (35 + 6) = 35 / 41 = 85.366\%$

Availability of Product B =  $45 / (45 + 3) = 45 / 48 = 93.75\%$

Hence, Product B has more availability.

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## Section - B (Strategic Management)

6. Choose the correct answer:

1×6=6

- (i) Benchmarking is
- (A) the analytical tool to identify high cost activities based on the 'Pareto Analysis'.
  - (B) the search for industries best practices that lead to superior performance.
  - (C) the simulation of cost reduction schemes that helps to build commitment and improvement of actions.
  - (D) the process of marketing and redesigning the way a typical company works.
  - (E) the framework that earmarks a linkage with suppliers and customers.
- (ii) Successful differentiation strategy allows the company to
- (A) gain buyer loyalty to its brands.
  - (B) charge too high a price premium.
  - (C) depend only on intrinsic product attributes.
  - (D) have product quality that exceeds buyers' needs.
  - (E) segment a market into distinct group of buyers.
- (iii) The essential ingredients of Business Process Re-engineering (BPR) are
- (A) continuous improvements of products, processes and technologies.
  - (B) planning for the technologies, processes and strategic partnerships etc.
  - (C) fundamental re-thinking and radical redesign of business process to achieve dramatic results.
  - (D) generation, comparison and evolution of many ideas to find one worthy of development.
  - (E) identification and selection of lay-outs most suited for products and processes.
- (iv) Marketing Research Studies are undertaken
- (A) to measure brand loyalty of a class of consumers.
  - (B) to predict market potential of a product on a future date.
  - (C) to understand product-price relationship.
  - (D) to make out a case for revision of an existing strategy.
  - (E) All of the above
- (v) Organisation culture is
- (A) appreciation for the arts in the organisation.
  - (B) ability of the organization to act in a responsible manner to its employees.
  - (C) combination of (A) and (B) above
  - (D) deeper level of basic assumptions and beliefs that are shared by the members of the firm.
  - (E) None of the above
- (vi) Innovation strategy is
- (A) defensive strategy
  - (B) offensive strategy
  - (C) responding to anticipating customers and market demands
  - (D) guerrilla strategy
  - (E) harvesting strategy

Answer:

6. (i) (b)  
(ii) (a)  
(iii) (c)  
(iv) (e)  
(v) (d)  
(vi) (c)

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Answer any two questions from the following:

12×2=24

7. (a) Enlist the advantages of Strategic Management. 6
- (b) State various limitations of the BCG model. 6

Answer:

7. (a) Advantages of Strategic Management:

- (i) Discharges Board Responsibility
- (ii) Forces an Objective Assessment
- (iii) Provides a Framework for Decision-Making
- (iv) Supports Understanding & Buy-In
- (v) Enables Measurement of Progress
- (vi) Provides an Organizational Perspective

(b) Limitations of BCG model:

- (i) How do you define your market? Segmentation strategies can provide a niche. A niche is inevitably a low or restricted share of the market, yet it is the heart of a focus strategy. Firms can profit servicing small low-growth niches.
- (ii) Market growth and market share are assumed to be reliable pointers for cash flow. This is often not true. High market share does not necessarily mean high profits, especially if a firm has high costs, or has bought market share by low pricing.
- (iii) Relative market share amongst competitors is not necessarily an indication of their competitive strengths at any particular time. After all, market leaders are vulnerable.
- (iv) The BCG model might become a self-fulfilling prophecy: Dogs which could be made profitable might simply be left to the rather than be resuscitated.
- (v) It does not suggest any response to declining markets other than withdrawal: many firms can make money in 'sunset industries'.
- (vi) It ignores the extent to which a firm which serves a number of markets can exploit production synergies.
- (vii) It ignores the threat of substitute products.

8. (a) Briefly discuss important features which Human Resource Strategy may bring to bear on the organization. 6

(b) List down some guidelines for formulation of the "Mission Statement". 6

Answer:

8. (a) Important features of Human Resource Strategy:

- (i) Orientation of the members.
- (ii) Facilitation of organizational changes as and when called for
- (iii) Coping with diversity of workforce.
- (iv) Maintaining competent and committed workforce in a competitive environment.
- (v) Development of core competency.
- (vi) Empowered workforce as an active resource.
- (vii) Appropriate work culture and ethical norms.

(b) Guidelines for formulation of the "Mission Statement":

- It should be based on existing business capabilities "Who we are and what we do?"
- It should follow the long term strategy principles
- Profit making should not be the only mission of organisation
- It should be logical extension of business existing capabilities
- It should clearly and precisely present the future orientation of business
- It should include achievable missions

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- It should be stated in a form that it becomes the motivating force to every member of organisation
- Mission statement once formed shall be communicated to every member of organisations
- It should include interest of customers and society

9. Write short notes on any three of the following:

4×3=12

- (a) Functional organisational structure
- (b) Role of marketing
- (c) Contingency plan
- (d) Managerial Communication

Answer:

9. (a) **Functional organisational structure:** The functional structure is characterized by the simultaneous combination of similar activities and the separation of dissimilar activities on the basis of function. All Cost Accountants are located in the Cost Accounting Department, and the HOD of Cost Accounting is responsible for all cost related activities. The same is true in marketing, research and development, and manufacturing.

The functional organization form is one of the most common organizational structures found in firms pursuing strategy of concentration or very high relatedness. A functional structure is most appropriate when the organization is small to medium size and relatively stable.

(b) **Role of marketing:** The first and foremost role of marketing is that it stimulates potential aggregate demand and thus enlarges the size of the market. It helps in the economic growth of a country. Through stimulation of demand people are motivated to work harder and earn additional money to buy the various ideas, goods and services being marketed. An additional advantage which accrues in the above context that it accelerates the process. (In India, it is believed that about one-fourth of GNP and more than one-third of agricultural output are still non-monetised).

Marketing plays a role in the discovery of entrepreneurial talent. Peter Drucker, a celebrated writer in the field of management, makes this point very succinctly when he observes that marketing is a multiplier of managers and entrepreneurs. It also helps in sustaining and improving the existing levels of employment.

(c) **Contingency plan:** A basic premise of good strategic management is that firms plan ways to deal with unfavourable and favourable events before they occur. Regardless of how carefully strategies are formulated, implemented, and evaluated, unforeseen events, such as strikes, boycotts, natural disasters, arrival of foreign competitors, and government actions, can make a strategy obsolete. To minimize the impact of potential threats, organizations should develop contingency plans as part of their strategy-evaluation process. Contingency plans can be defined as alternative plans that can be put into effect if certain key events do not occur as expected. Only high-priority areas require the insurance of contingency plans. Strategists cannot and should not try to cover all bases by planning for all possible contingencies. Contingency plans should be as simple as possible.

(d) **Managerial Communication:** The most important and basic strategy for a manager is simply to communicate well with the organisational people. This satisfies such basic human needs as recognition, a sense of belonging, and security. For example, such a simple action as a manager's attempting to become better acquainted with subordinates can contribute substantially to the satisfaction of each of these three needs. As another example, a message from a manager to a subordinate that praises the subordinate for a job well done can help satisfy the subordinate's recognition and security needs.