



OPERATIONS MANAGEMENT AND STRATEGIC MANAGEMENT

Time Allowed: 3 Hours

Full Marks: 100

The figures in the margin on the right side indicate full marks.

SECTION – A (Compulsory)

1. Choose the correct option:

[15 x 2 = 30]

- (i) **Linear Programming is a technique used for determining:**
- a) **Production Programme**
 - b) **Plant Layout**
 - c) **Product Mix**
 - d) **Manufacturing sequence**
- (ii) **Which method is used to find the optimal production schedule that minimizes costs using limited resources?**
- a) **Linear programming**
 - b) **PERT/CPM**
 - c) **Lean accounting**
 - d) **Break even analysis**
- (iii) **Which of the following is NOT a core principle of Lean manufacturing?**
- a) **Elimination of waste**
 - b) **Continuous improvement (Kaizen)**
 - c) **Respect for people**
 - d) **Maximizing inventory levels**
- (iv) **'Z' chart is a chart used in:**
- a) **Programme control.**
 - b) **Job control.**
 - c) **Cost control.**
 - d) **Quality control.**
- (v) **The purpose of Gantt chart is to:**
- a) **Schedule and monitor project activities**
 - b) **Control inventory levels**
 - c) **Improve product quality**
 - d) **Conduct market analysis**
- (vi) **Which of the following refers to the practice of designing products so that they can be easily and efficiently manufactured?**
- a) **Total Quality Management**
 - b) **Lean manufacturing**
 - c) **Concurrent engineering**
 - d) **Design for Manufacture and Assembly (DFMA)**



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- (vii) The monthly requirement of raw material for a company is 3000 units. The carrying cost is estimated to be 20% of the purchase price per unit, in addition to ₹2 per unit. The purchase price of raw material is ₹20 per unit. The ordering cost is ₹25 per order. Calculate EOQ?
- 548 units
 - 590 units
 - 600 units
 - 500 units
- (viii) Wanda's Car Wash & dry is an automatic, five-minute operation with a single bay. On a typical Saturday morning, cars arrive at a mean rate of eight per hour, with arrivals tending to follow a Poisson distribution. Find the average number of cars in line.
- 0857
 - 1.225
 - 0.667
 - 0.125
- (ix) In a particular plant there are 15 workers manufacturing a single product and the output per month consisting of 29 days of that particular product is 270. How much is the monthly productivity?
- 15 units
 - 20 units
 - 18 units
 - 12 units
- (x) The BCG Matrix categorizes products into:
- Stars, Cows, Pigs, Dogs
 - Growth, Decline, Stability, Innovation
 - Cash cows, Dogs, Question marks, Stars
 - None of the above
- (xi) What does VRIO framework assess?
- Industry attractiveness
 - Core competencies
 - External environment
 - Competitive intensity
- (xii) Which approach focuses on creating new demand in an uncontested market space?
- Competitive strategy
 - Red ocean strategy
 - Blue ocean strategy
 - Market segmentation strategy
- (xiii) Which type of diversification strategy involves entering a new market with new products?
- Horizontal diversification
 - Vertical diversification

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- c) Conglomerate diversification
d) Concentric diversification

(xiv) Which of the following is NOT a component of the McKinsey 7S Framework?

- a) Strategy
b) Structure
c) Sales
d) Skills

(xv) Which of the following is NOT a component of the Balanced Scorecard framework?

- a) Financial perspective
b) Customer perspective
c) Internal business processes
d) Supplier relationships

Answer:

(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)	(xi)	(xii)	(xiii)	(xiv)	(xv)
c	a	d	a	a	d	a	c	c	c	b	c	c	c	d

SECTION – B

(Answer any five questions out of seven questions given. Each question carries 14 marks.)

[5 × 14 = 70]

2. (a) State the importance of layout. [7]
(b) Discuss the factors that will affect industrial productivity. [7]

Answer:

(a) The importance of a layout can be described as under:

- **Avoidance of Bottlenecks:** Bottlenecks refer to any, place in a production process where materials tend to pile up or produced at rates of speed less rapid than the previous or subsequent operations. Bottlenecks are caused by inadequate machine capacity, inadequate storage space or low speed on the part of the operators. The results of bottlenecks are delays in production schedules, congestion, accidents and wastage of floor area. All these may be overcome with an efficient layout.
- **Avoidance of Unnecessary and Costly Changes:** A planned layout avoids frequent changes which are difficult and costly. The incorporation of flexibility elements in the layout would help in the avoidance of revisions.
- **Better Production Control:** Production control is concerned with the production of a product of the right type at the right time and at reasonable cost. A good plant layout is a requisite of good production control and provides the plant control officers with a systematic basis upon which to build organisation and procedures.
- **Better Supervision:** A good plant layout ensures better supervision in two ways:

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- (a) Determining the number of workers to be handled by a supervisor and
(b) Enabling the supervisor to get a full view of the entire plant at one glance. A good plant layout is, therefore, the first step in good supervision.

- **Economies in Handling:** Nearly 30 per cent to 40 per cent of the manufacturing costs are accounted for by materials handling. Every effort should, therefore, be made to cut down this cost. Long distance movements should be avoided and specific handling operations must be eliminated.
- **Effective Use of Available Area:** Every unit of the plant area is valuable, especially in urban areas. Efforts should therefore, be made to make use of the available area by planning the layout properly.
- **Improved Employee Morale:** Employee morale is achieved when workers are cheerful and confident. This state of mental condition is vital to the success of any organisation. Morale depends on better working conditions; better employee facilities; reduced number of accidents; and increased earnings.
- **Improved Quality Control:** Timely execution of orders will be meaningful when the quality of the output is not below expectations. To ensure quality, inspection should be conducted at different stages of manufacture. An ideal layout provides ample space to carryout inspection to ensure better quality control.
- **Minimum Equipment Investment:** Investment on equipment can be minimised by planned machine balance and location, minimum handling distances, by the installation of general purpose machines and by planned machine loading. A good plant layout provides all these advantages.
- **Minimisation of Production Delays:** Repeat order and new customers will be the result of prompt execution of orders. Every management should try to keep to the delivery schedules by minimising delays in production.
- **Improved Utilisation of Labour:** A good plant layout is one of the factors in effective utilisation of labour. It makes possible individual operations, the process and flow of materials handling in such a way that the time of each worker is effectively spent on productive operations.

- (b) Productivity is defined to be some ratio between output and input. Thus all factors which affect output and inputs will also affect the measure of productivity.

The following factors affect the productivity.

1. **Technological Development:** Technical factors including the degree of mechanisation, technical know-how, raw materials, layout and the methods and techniques of work determine the level of technological development in any industry. The principal factors in technological development affecting productivity are:
 - (a) **The Size of the Plant:** The size of the plant and the capacity utilisation has direct bearing on productivity. Production below or above the optimum level will be uneconomical and will tend towards lower level of productivity.
 - (b) **Research and Development:** Investment in research and development may yield better method of work and better design and quality of products.
 - (c) **Plant and Job Layout:** The arrangement of machines and positions in the plant and the set-up of the work-bench of an individual worker will determine, how economically and efficiently production will be carried out.
 - (d) **Machine and Equipment Design:** Whether the design of machinery and equipment is



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modern and in keeping with the limitations and capacities of the workers, will also determine the production efficiency and level of productivity.

- (e) **Production Processes:** Advanced production processes involving the use of modern integrated and automatic machinery and semi-processed materials have been known to help in raising levels of productivity.
 - (f) **Power, Raw Materials etc. :-** Improved quality of raw materials and increased use of power have a favourable effect on productivity.
 - (g) **Scientific Management Techniques:** Scientific management techniques such as better planning of work, simplification of methods, time and motion study, emphasis for reduced wastage and spoilage have positive effects on productivity.
2. **Individual Factors:** Individual factors such as knowledge, skill and attitude also affect the productivity of industry. Knowledge is acquired through training, education and interest on the part of learner. Skill is affected by aptitude (one's capacity to learn a particular kind of work), personality (emotional maturity, balance of mind etc.) as also by education, experience, training etc. Increased knowledge, skill and aptitude certainly increase the productivity and a person deficient in these personal attributes is less productive than an average man.
3. **Organisation Factors:** Organisation factors include various steps taken by the organisation towards maintaining better industrial relations such as delegation and decentralisation of authority, participative management (workers' participation in management), organisational efficiency, proper, personnel policies relating to selection, placement, promotion, wage, salary levels, incentives, merit rating, job evaluation, training and provision for two-way communication, supervision, etc.
4. **Work Environment:** The importance of proper work environment and physical conditions on the job has been emphasised by industrial psychologists and human engineers. Better work environment ensures the greatest ease at work through better ventilation and lighting arrangement, improved safety devices, reduction in noise, introduction of suitable rest-pause etc.
5. **Other factors:** There are several other factors that affect productivity. These are:
- (a) **Natural Factors:** Physical, geographical and climatic conditions influence the productivity to a large extent. Abundance of natural resources affects the productivity and similarly climate affects the efficiency of workers to a great extent.
 - (b) **Managerial Factors:** The industrial productivity is influenced very much through managerial ability and leadership. The managerial ability of utilising the available resources to the maximum, organising capacity, foresightedness, decision-making ability and entrepreneurship are certain factors that contribute to productivity.
 - (c) **Government Policy:** Government policies towards industry also contribute to the industrial productivity. Taxation policy, financial and administrative policy, tariff policy and protection policy affect the productivity to a large extent.

3. (a) Analyze the functions of production control and also state its types. [7]
- (b) A company planning to manufacture a household cooking range has to decide on the location of the plant. Three locations are being considered viz., Lucknow, Jamnagar ,



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and Payampalli. The fixed costs of the three location are estimated to be ₹40 lakh, ₹45 lakh, and ₹35 lakh per annum respectively. The variable costs are ₹400, ₹250 and ₹300 per unit respectively.

The expected sales price of the cooking range is ₹900 per unit. Calculate the following:

- (i) The range of annual production/sales volume for which each location is most suitable and
- (ii) Which one of the three locations is the best location at a production/sales volume of 12,000 units?

Calculate and plot the total costs per annum at the three different locations for the various cases of production volume of 5,000, 10,000, 15,000, 20,000 25,000 units. [7]

Answer:

(a) Production control involves the following functions:

- (i) Planning the production operations in detail,
- (ii) Routing, i.e., laying down the path for the work to follow and the order in which the various operations will be carried out,
- (iii) Scheduling, i.e., establishing the quantity of work to be done, and fixing the time table for performing the operations,
- (iv) Dispatching, i.e., issuing the necessary orders, and taking necessary steps to ensure that the time targets set in the schedules are effectively achieved,
- (v) Follow-up, taking necessary steps to check up whether work proceeds according to predetermined plans and how far there are variances from the standards set earlier,
- (vi) Inspection, i.e., conducting occasional check-ups of the products manufactured or assembled to ensure high quality of the production.

Production control can be of six types:

(i) Block control

This type of control is most prominent in textiles and book and magazine printing. In these industries, it is necessary to keep things separated and this is the fundamental reason why industries resort to block control.

(ii) Flow control

This type of control is commonly applied in industries like chemicals, petroleum, glass, and some areas of food manufacturing and processing. Once the production system is thoroughly designed, the production planning and control department controls the rate of flow of work into the system and checks it as it comes out of the system. But, under this method, routing and scheduling are done when the plant is laid out. That is to say, the production line which is established is well balanced and sequenced before production operations begin; this type of control is more prevalent in continuous production systems.

(iii) Load control

Load control is typically found wherever a particular bottleneck machine exists in the process of manufacturing.

(iv) Order control

The most, common type of production control is called order control. This type of control is

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commonly employed in companies with intermittent production systems, the so-called job-lot shops. Under this method, orders come into the shop for different quantities for different products. Therefore, production planning and control must be based, on the individual orders.

(v) Special project control

Special production control is necessary in certain projects like the construction of bridges, office buildings, schools, colleges, universities, hospitals and any other construction industries. Under this type of control, instead of having sets of elaborate forms for tooling and scheduling, a man or a group of men keeps in close contact with the work.

(vi) Batch control

Batch control is another important, type of production control which is frequently found in the food processing industries. Batch control is controlling stock based on identifiers such as batch numbers, lot numbers, serial numbers, production dates or expiration dates.

(b) The total cost of the three locations are:

At Total cost = Fixed cost + Variable cost for a volume “X”

Lucknow = Total cost = 40,00,000 + 400 × X

Jamnagar = Total cost = 45,00,000 + 250 × X

Payampalli = Total cost = 35,00,000 + 300 × X

i) Lucknow

Volume (x units)	5,000	10,000	15,000	20,000	25,000
Fixed cost	40,00,000	40,00,000	40,00,000	40,00,000	40,00,000
Variable cost (400 x)	20,00,000	40,00,000	60,00,000	80,00,000	100,00,000
Total cost	60,00,000	80,00,000	100,00,000	120,00,000	140,00,000

ii) Jamnagar

Volume (x units)	5,000	10,000	15,000	20,000	25,000
Fixed cost	45,00,000	45,00,000	45,00,000	45,00,000	45,00,000
Variable cost (250 x)	12,50,000	25,00,000	37,50,000	50,00,000	62,50,000
Total cost	57,50,000	70,00,000	82,50,000	95,00,000	1,07,50,000

iii) Payampalli

Volume (x units)	5,000	10,000	15,000	20,000	25,000
Fixed cost	35,00,000	35,00,000	35,00,000	35,00,000	35,00,000
Variable cost (300 x)	15,00,000	30,00,000	45,00,000	60,00,000	75,00,000
Total cost	50,00,000	65,00,000	80,00,000	95,00,000	1,10,00,000

If the volume distribution be as follows:

	Up to 15,000 units	Between 15,000 units to 25,000units
Favourable Location	Payampalli	Jamnagar



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For a volume of 12,000 units favourable location is Payampalli which can be substantiated by the followings calculations of Total Cost:-

$$\text{Lucknow} = 40,00,000 + 400 \times 12,000 = ₹88 \text{ lakhs}$$

$$\text{Jamnagar} = 45,00,000 + 250 \times 12,000 = ₹75 \text{ lakhs}$$

$$\text{Payampalli} = 35,00,000 + 300 \times 12,000 = ₹71 \text{ lakhs.}$$

4. (a) A captain of a cricket team has to allot five middle batting positions to five batsmen. The average runs scored by each batsman at these positions are as follows:

Batting Position						
		III	IV	V	VI	VII
	A	40	40	35	25	50
	B	42	30	16	25	27
Batsmen						
	C	50	48	40	60	50
	D	20	19	20	18	25
	E	58	60	59	55	53

Prepare the assignment so that the expected total average runs scored by these batsmen are maximum. [7]

- (b) A businessman is considering taking over a certain new business. Based on past information and his own knowledge of the business, he works out the probability distribution of the monthly costs and sales revenues, as given here:

Cost (in ₹)	Probability	Sales Revenue (₹)	Probability
19,000	0.10	22,000	0.10
21,000	0.15	22,800	0.17
22,000	0.30	23,500	0.23
23,500	0.25	25,400	0.30
24,700	0.20	26,700	0.15
		24,000	0.05

Use the following sequences of random numbers to be used for estimating costs and revenues. Prepare a probability distribution of the monthly net revenue.

Sequence 1	20	63	46	16	45	41	44	66	87	26
	78	40	29	92	21	36	57	03	28	08
Sequence 2	23	57	99	84	51	29	41	11	66	30
	41	80	62	74	64	26	41	40	97	15

[7]

Answer:



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- (a) This is a problem of Maximisation. To solve it using Assignment technique it has to be converted to a Minimisation problem by forming a Relative Loss Matrix.

	Batting Position				
Batsman	III	IV	V	VI	VII
A	40	40	35	25	50
B	42	30	16	25	27
C	50	48	40	60	50
D	20	19	20	18	25
E	58	60	59	55	53

Relative Loss Matrix

	Batting Position				
Batsman	III	IV	V	VI	VII
A	20	20	25	35	10
B	18	30	44	35	33
C	10	12	20	0	10
D	40	41	40	42	35
E	2	0	1	5	7

This matrix is formed by subtracting all the elements of the given matrix from the highest element (60) of it.

Row Operation Matrix

	Batting Position				
Batsman	III	IV	V	VI	VII
A	10	10	15	25	0
B	0	12	26	17	15
C	10	12	20	0	10
D	5	6	5	7	0
E	2	0	1	5	7



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Column Operation Matrix

Batsman	Batting Position				
	III	IV	V	VI	VII
A	10	10	14	25	0
B	0	12	25	17	15
C	10	12	19	0	10
D	5	6	4	7	0
E	2	0	0	5	7

Minimum no. of horizontal and vertical straight lines to cover all the zeros = 4 ≠ Order of the matrix(5). So the solution is non optimal.

Improved Matrix

Batsman	Batting Position				
	III	IV	V	VI	VII
A	10	6	10	25	0
B	0	8	21	17	15
C	10	8	15	0	10
D	5	2	0	7	0
E	6	0	0	9	11

Here minimum no. of horizontal and vertical straight lines to cover all the zeros = 5 = Order of the matrix. So the solution is optimal.

Optimal Assignment

Batsman	Batting Position	Average runs scored
A	VII	50
B	III	42
C	VI	60
D	V	20
E	IV	60
Total		232

Expected maximum total runs = 232



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(b)

Cost	Probability	Cumulative Probability	Random Range	Sales revenue	Probability	Cumulative Probability	Random Range
19,000	0.10	0.10	00-09	22,000	0.10	0.10	00-09
21,000	0.15	0.25	10-24	22,800	0.17	0.27	10-26
22,000	0.30	0.55	25-54	23,500	0.23	0.50	27-49
23,500	0.25	0.80	55-79	25,400	0.30	0.80	50-79
24,700	0.20	1.0	80-99	26,700	0.15	0.95	80-94
				24,000	0.05	1.00	95-99

Month	Random no. for cost	Cost(₹)	Random no. for sales revenue	Sales revenue(₹)	Monthly net revenue(₹)
1	20	21,000	23	22,800	1,800
2	63	23,500	57	25,400	1,900
3	46	22,000	99	24,000	2,000
4	16	21,000	84	26,700	5,700
5	45	22,000	51	25,400	3,400
6	41	22,000	29	23,500	1,500
7	44	22,000	41	23,500	1,500
8	66	23,500	11	22,800	(700)
9	87	24,700	66	25,400	700
10	26	22,000	30	23,500	1,500
11	78	23,500	41	23,500	-
12	40	22,000	80	26,700	4,700
13	29	22,000	62	25,400	3,400
14	92	24,700	74	25,400	700
15	21	21,000	64	25,400	4,400
16	36	22,000	26	22,800	800
17	57	23,500	41	23,500	-
18	03	19,000	40	23,500	4,500
19	28	22,000	97	24,000	2,000
20	08	19,000	15	22,800	3,800
					43,600

Average = ₹43,600/20 = ₹2,180

5. (a) A large computer installation contains 2,000 components of identical nature which are subject to failure as per probability distribution that follows:

Month End:	1	2	3	4	5
% Failure to date:	10	25	50	80	100

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Components which fail have to be replaced for efficient functioning of the system. If they are replaced as and when failures occur, the cost of replacement per unit is ₹3. Alternatively, if all components are replaced in one lot at periodical intervals and individually replace only such failures as occur between group replacement, the cost of component replaced is ₹1.

Calculate the following

- Which policy of replacement would be economical.
- If group replacement is economical at current costs, then at what cost of individual replacement would group replacement be uneconomical.
- How high can the cost per unit in-group replacement be to make a preference for individual replacement policy? [7]

(b) Analyse the given data

Activity	Optimistic time(t_o)	Most likely Time(t_m)	Pessimistic time(t_p)
1-2	6	9	12
1-5	4	7	8
2-3	14	17	20
2-4	7	10	13
2-5	3	5	9
3-7	13	18	25
4-6	10	14	16
4-7	12	15	18
5-6	9	11	12
6-7	17	20	25

Find the

- expected duration of the project
- critical path
- variance of the project.
- EST, EFT, LST, LFT
- total float of each activity [7]

Answer:

(a)

- Computation of failures & Mean life

Month (X)	Probability of Failure (P)	PX
1	0.10	0.10
2	0.15	0.30



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3	0.25	0.75
4	0.30	1.20
5	0.20	1.00
		$\Sigma p_i x_i = 3.35$ month

Average No. of Replacements = $2000/3.35 = 597$ per month

Cost of Individual Replacement = $597 \times ₹3 = ₹1791$ per month

Computation of expected No. of Replacements:

Month	Expected number of components to be replaced by the month end	
1	$N_1 = N_0 P_1 = 2000 \times 0.1$	200
2	$N_2 = N_0 P_2 + N_1 P_1 = 2000 \times 0.15 + 200 \times 0.1$	320
3	$N_3 = N_0 P_3 + N_1 P_2 + N_2 P_1 = 2000 \times 0.25 + 200 \times 0.15 + 320 \times 0.1$	562
4	$N_4 = N_0 P_4 + N_1 P_3 + N_2 P_2 + N_3 P_1 = 2000 \times 0.3 + 200 \times 0.25 + 320 \times 0.15 + 562 \times 0.1$	754.2
5	$N_5 = N_0 P_5 + N_1 P_4 + N_2 P_3 + N_3 P_2 + N_4 P_1 = 2000 \times 0.2 + 200 \times 0.3 + 320 \times 0.25 + 562 \times 0.15 + 754.2 \times 0.1$	699.72

Computation of Average cost

Month(x)	Cumulative number of component Replace individually by month end	Cost		Total Cost(Tc) ₹	Average Cost = Tc/n ₹per month
		Individual ₹	Group ₹		
1	200	600	2000	2600	2600
2	520	1560	2000	3560	1780
3	1082	3246	2000	5246	1748.67
4	1836.2	5508.6	2000	7508.6	1877.15
5	2535.92	7607.76	2000	9607.76	1921.55

Since the average cost is lowest in 3rd month, the optimal interval i.e. replacement is 3 months. Also the average cost is less than ₹1791 of individual replacement, the group replacement policy is better.



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ii) Let 'K' be the cost of Individual Replacement

Month	Average Cost of Group Replacement	Average cost of Individual Replacement	'K' Value(₹)
1	$(2000 + 200 K)/1$	597 K	5.04
2	$(2000 + 520 K)/2$	597 K	2.97
3	$(2000 + 1082 K)/3$	597 K	2.82
4	$(2000 + 1836.2 K)/4$	597 K	3.62
5	$(2000 + 2535.92 K)/5$	597 K	4.45

To obtain the value of K use the equation Average cost of Individual Replacement = Average Cost of Group Replacement

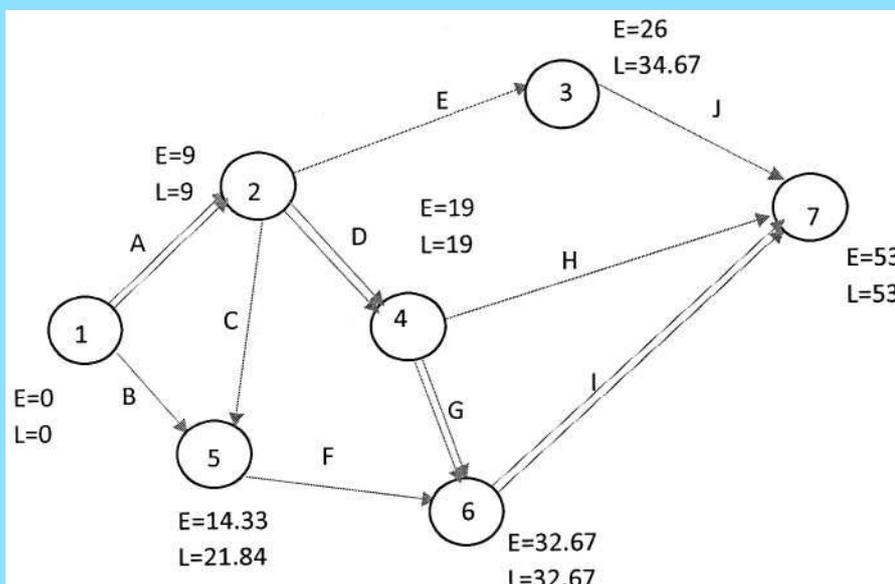
If group replacement is anything smaller than 2.82, then Group Replacement would be uneconomical.

iii) Let 'a' be the unit cost of Group Replacement Policy

Month	Average Cost of Group Replacement	Average of Individual Replacement	'a' Value(₹)
1	$(2000 a + 600)/1$	1791	0.60
2	$(2000 a + 1560)/2$	1791	1.01
3	$(2000 a + 3246)/3$	1791	1.06
4	$(2000 a + 5508.6)/4$	1791	0.83
5	$(2000 a + 7607.76)/5$	1791	0.67

When unit cost is more than ₹1.06 then Individual Replacement policy would be better

(b)





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Activity	Optimistic time (to)	Most likely Time (tm)	Pessimistic time (tp)	$a^2 = (tp-to/6)^2$	$te = to+4tm+tp/6$
1-2	6	9	12	1.00	9.0
1-5	4	7	8	0.44	6.7
2-3	14	17	20	1	17.0
2-4	7	10	13	1	10.0
2-5	3	5	9	1	5.33
3-7	13	18	25	4	18.33
4-6	10	14	16	1	13.67
4-7	12	15	18	1	15.00
5-6	9	11	12	0.25	10.83
6-7	17	20	25	1.78	20.33

Duration of the project = 53 days

The critical path is 1 - 2 - 4 - 6 - 7

Variance of the critical path = 1 + 1 + 1 + 1.78 = 4.78

SD of the critical path = SD of the network diagram $\sqrt{(4.78)} = 2.186$

Activity (i-j)	Time (tij)	Earliest Start (ESTij)	Earliest Finish (EFTij = ESTij + tij)	Latest Start (LSTij = LFTij - tij)	Latest Finish (LFTij)	Total Float (TFij = LSTij - ESTij = LFTij - EFTij)
1-2	9.0	0	9	0	9	0
1-5	6.7	0	6.7	15.14	21.84	15.14
2-3	17.0	9	26	17.67	34.67	8.67
2-4	10.0	9	19	9	19	0
2-5	5.33	9	14.33	16.51	21.84	7.51
3-7	18.33	26	44.33	34.67	53	8.67
4-6	13.67	19	32.67	19	32.67	0
4-7	15.00	19	34	38	53	19
5-6	10.83	14.33	25.16	21.84	32.67	7.51
6-7	20.33	32.67	53	32.67	53	0

6. (a) The four core principles that underpin effective goal systems can be summarised into the acronym FAST. Explain the four core principles and their benefits and how it is different from SMART. [7]

(b) Describe the different types of digital marketing strategies. [7]



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Answer:

a) Four Core Principles and their Benefits of FAST

F (Frequentlydiscussed): - Goals should be frequently discussed in order to see the progress, allocate resources as and when needed, prioritise of initiatives and provide feedback

Advantages: -

- Gives guidance for important decisions.
- Helps employees remain focused on the most important matters.
- Links performance feedback to concrete goals.
- Evaluates the progress and helps in course corrections.

A (ambitious): - Goals should be challenging or ambitious but not impossible to achieve

Advantages: -

- Motivates performance of individuals and teams towards goal.
- Helps in minimising the risk of downplaying the achievements of the subordinates.
- Focuses on the innovative ways to achieve goals.

S (specific): - Goals should be translated into specific metrics so that there is clarity in achieving the goals.

- Clearly mentions what the employees are expected to deliver.
- Helps in easy identification of deviations from the goals and offers quick course corrections.
- Enhances performance of individuals and teams.

T (transparent): - Goals and their achievements should be made public for all employees to see.

- Use of peer pressure to perform on goals.
- Clearly showcases the activities and contribution of the employees towards goal achievement.
- Helps employees understand the agenda of other employees and the teams.
- Helps to identify the strategies those are redundant and are not aligned to the overall organisational goals.

To create effective objectives, make sure they're specific, measurable, attainable, relevant and time-based. These guidelines are often abbreviated using the acronym SMART.

Specific: Specific goal provides the employee with the exact result needed for their performance to be successful. A clear objective can optimize productivity and effectiveness.

Measurable: Successful goals can usually be measured using metrics that determine an employee's success or progress. A quota, for example, is one way to measure an employee's success.

Attainable: Effective goals are often those which are ambitious and also possible to achieve. Consider if and how an employee can attain their objectives with the tools and resources available to them within a specified time frame.

Relevant: A relevant objective contributes to the larger goals of a company. Consider the upward impact of employees achieving certain goals, like how they tie to bigger company

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strategies like growth.

Time Based: Set realistic timelines for employees to complete their tasks. If a task is ongoing, you might consider your next review as a deadline for achieving objectives.

Traditionally the managers aspired to make their goals SMART, by ensuring they are specific, measurable, achievable, realistic, and time-bound. However, over the past few decades, a handful of leading companies including Google, Intel, etc. have pioneered and refined an alternative approach to harness the power of goals to drive and align action.

Goals should be embedded in frequent discussions; ambitious in scope; measured by specific metrics and milestones; and transparent for everyone in the organisation to see. The modern concept views goals to be FAST and not SMART.

b) The different types of digital marketing strategies are as follows:

- Social Media Marketing Platforms

Today's consumers are highly reliant on social media platforms such as Instagram, Facebook, LinkedIn, and Snapchat. This is why it is essential that brands are active across accounts. Social media platforms allow marketers to reach their prospects in a myriad of ways. First, marketing teams can use these channels to distribute paid ads and sponsored content. Each platform has a way for marketing teams to create paid ad campaigns and segment users so these ads appear on the feeds of target audience members. While each platform is different, most have capabilities that allow marketing teams to place ads based on location, job title, interests, age, etc. Social media is also a great way to promote products or resources organically to your followers, and engage with consumers. Chances are, people that follow your brand on social media have likely purchased from you in the past. Interacting with them on social media or answering customer service-oriented questions is a great way to ensure continued engagement with the brand and cultivate positive experiences and customer loyalty.

- Influencer Marketing

Another effective way to harness digital channels to reach target audiences is with influencer marketing. Brands can partner with celebrities, sites, or others that are considered experts in their field, that share similar values. Brands can then reach these influencers' followers with branded content and offers.

- Email Marketing

Email marketing campaigns allow organizations to stay connected with prospects and customers, sending them customized newsletters or offers based on past shopping history or brand engagements. If an individual has interacted with a few of your branded touch points—like an email offer for 10 percent off the items they have been considering, or free shipping—that may be what ultimately brings about a conversion.

- Content Marketing

Content marketing allows marketing teams to be proactive in answering their users' questions. Marketing teams create content, videos, and other assets to answer questions or provide context to consumers throughout the three stages of the buyer's journey:

- i. The awareness stage: Buyer realizes they have a need
- ii. The consideration stage: Buyer determines a course of action to meet this need
- iii. The decision stage: Buyer decides on a product / service to purchase to meet the need

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For example, a consumer might realize they need new shoes to wear to the gym. The marketing team for an active wear company may produce a piece about what features you need from a running shoe, as opposed to what you need if you focus on strength training. Looking at this content, the buyer determines they need a pair of running shoes that meets that criterion. Another piece of content might show the most popular running shoes and their price points. Once they are educated on these factors, they decide. The guidance offered by your brand throughout will likely result in them purchasing from you. Content marketing is often less expensive than other forms of marketing, while producing many leads.

- Search Engine Optimization (SEO) Marketing

Search engine optimization often goes hand in hand with content marketing. When the customer from the above example is conducting research for which gym shoes to buy, they will probably click on one of the first three results that appear on Google. With this in mind, the athletic shoes' marketing team wants to ensure their article appears in those top results. This is done by optimizing content for user experience and ensuring the technical elements are in place to enable search engine crawlers to easily find and index this content.

- Pay-per-click (PPC)

Pay-per-click is a form of paid advertising that allows marketing teams to essentially purchase traffic to their website. Marketers place ads on websites or search engines such as Google and Microsoft Bing, and pay a fee each time the ad is clicked on. These ads often appear at the top of the search results page, and are typically determined by bids on specific keywords, while banner ads on websites usually have set prices.

- Affiliate Marketing

Affiliate marketing is similar to referral programs; it involves working with outside individuals or companies under the agreement that they promote your product in exchange for a commission from each sale that can be attributed to their efforts. This is a way to cut down on costs and outsource some of the heavy lifting of promotion; however, you're putting your brand's reputation in someone else's hands, so this type of marketing often requires more extensive monitoring and tracking.

- Mobile Marketing

Mobile marketing initiatives can include many of the digital marketing strategies mentioned above, and typically will leverage a combination of text messages, social media, email, push notifications, and mobile applications. The importance of mobile marketing is rising, as it is expected that by 2024, the number of mobile shoppers will rise to approximately 187.5 million users. With the clear move to mobile, marketers need to think about how they can optimize their current marketing efforts for mobile to be able to deliver a seamless and user-friendly experience.

7. (a) **Several scholars have criticized the formal planning model for three main reasons: the unpredictability of the real world, the role that lower-level managers can play in the strategic management process, and the fact that many successful strategies are often the result of serendipity, not rational strategizing. These scholars have advocated an alternative view of strategy making. Analyse the alternatives of strategic planning.** [7]

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(b) Analyse the stages in strategic planning process.

[7]

Answers:

(a) The planning model suggests that a company's strategies are the result of a plan, that the strategic planning process is rational and highly structured, and that top management orchestrates the process. Several scholars have criticized the formal planning model for three main reasons: the unpredictability of the real world, the role that lower-level managers can play in the strategic management process, and the fact that many successful strategies are often the result of serendipity, not rational strategizing. These scholars have advocated an alternative view of strategy making like:

• **Scenario Planning**

One reason that strategic planning may fail over longer time periods is that strategic managers, in their initial enthusiasm for planning techniques, may forget that the future is entirely unpredictable. Even the best-laid plans can fall apart if unforeseen contingencies occur, and that happens all the time.

- ✓ Scenario planning involves formulating plans that are based upon “what-if” scenarios about the future. In the typical scenario-planning exercise, some scenarios are optimistic and some are pessimistic. Teams of managers are asked to develop specific strategies to cope with each scenario.
- ✓ A set of indicators is chosen as sign posts to track trends and identify the probability that any particular scenario is coming to pass.
- ✓ The idea is to allow managers to understand the dynamic and complex nature of their environment, to think through problems in a strategic fashion, and to generate a range of strategic options that might be pursued under different circumstances.
- ✓ The scenario approach to planning has spread rapidly among large companies.

• **Decentralized Planning**

A mistake that some companies have made in constructing their strategic planning process has been to treat planning exclusively as a top-management responsibility.

- ✓ This “ivory tower” approach can result in strategic plans formulated in a vacuum by top managers who have little understanding or appreciation of current operating realities. Consequently, top managers may formulate strategies that do more harm than good.
- ✓ Correcting the ivory tower approach to planning requires recognising that successful strategic planning encompasses managers at all levels of the corporation.
- ✓ Much of the best planning can and should be done by business and functional managers who are closest to the facts; in other words, planning should be decentralized.
- ✓ Corporate-level planners should take on roles as facilitators who help business and functional managers do the planning by setting the broad strategic goals of the organization and providing the resources necessary to identify the strategies that might be required to attain those goals.

• **Brainstorming Sessions:**

In most organizations, strategic alternatives are identified during brainstorming sessions of top management and key executives. In such meetings, participants generate a number of



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alternatives. At this stage, no importance is given to the relative merits and demerits of the options. In the next stage, each alternative is reviewed and subjected to close scrutiny. The alternatives which are considered fairly appealing are further examined and analyzed for final selection.

• **Special Meetings:**

Some large organizations may hold special meetings of top executives away from their work, in a hotel or a holiday resort. This is to ensure that the process of thinking is not disturbed by interruptions during the course of deliberations. The participants present different alternative scenarios along with their recommended courses of action. Depending on the assumptions and future trends, each course of action is discussed and attempts are made to finalize the best options for further analysis.

• **Outside Consultants:**

Some organizations may engage the services of an outside consultant to handle the process of generating alternative strategies. The premise is that an outsider can observe the phenomenon objectively and dispassionately, and bring in his own expertise into the process. The outside viewpoint is expected to be new and fresh, and thus can show up many new opportunities to the organization.

• **Joint Meetings:**

Another useful way of generating alternatives is to hire the services of a consultant and also associate some internal members in the process. This method has the advantage of blending the new ideas contributed by the outside consultants with workable solutions from within the organization.

(b) The formal strategic planning process has five main steps:

i. **Select the corporate mission and major corporate goals:**

The first component of the strategic planning process is crafting the organisation's mission statement, which provides the framework or context within which strategies are formulated. A mission statement has four main components: a statement of its reason for existence which is normally referred to as the mission; a statement of some desired future state, usually referred to as the vision; a statement of the key values that the organisation is committed to; and a statement of major goals.

ii. **Analyse the organisation's external competitive environment to identify opportunities and threats:**

The second component of the strategic planning process is an analysis of the organisation's external operating environment. The essential purpose of the external analysis is to identify strategic opportunities and threats within the organisation's operating environment that will affect how it pursues its mission. Three interrelated environments should be examined when undertaking an external analysis: the industry environment in which the company operates, the country or national environment and the wider socioeconomic or macro environment.

iii. **Analyse the organisation's internal operating environment to identify the organisation's strengths and weaknesses:**

Internal analysis, the third component of the strategic planning process, focuses on reviewing the resources, capabilities, and competencies of a company. The goal is to identify the strengths and weaknesses of the company. The next component of strategic thinking requires

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the generation of a series of strategic alternatives, or choices of future strategies to pursue, given the company's internal strengths and weaknesses and its external opportunities and threats. The comparison of strengths, weaknesses, opportunities, and threats is normally referred to as a SWOT analysis. More generally, the goal of a SWOT analysis is to create, affirm, or fine-tune a company-specific business model that will best align, fit, or match a company's resources and capabilities to the demands of the environment in which it operates.

iv. Select strategies:

Managers select strategies that build on the organisation's strengths and correct its weaknesses in order to take advantage of external opportunities and counter external threats. In order to select the right strategies managers compare and contrast the various alternative possible strategies against each other and then identify the set of strategies that will create and sustain a competitive advantage. It is very important for the strategic managers to keep in mind that the strategies selected should be consistent with the mission and major goals of the organisation. They should be congruent and constitute a viable business model.

i. Implement the strategies:

In order to achieve a competitive advantage and increase profitability managers must put those strategies selected into action. Strategy implementation involves taking actions at the functional, business, and corporate levels to execute a strategic plan.

Strategy implementation also entails designing the best organisation structure and the best culture and control systems to put a chosen strategy into action. In addition, senior managers need to put a governance system in place to make sure that all within the organisation act in a manner that is not only consistent with maximizing profitability and profit growth, but also legal and ethical.

The Feedback Loop:

The strategy planning process is a continuous process and the feedback loop indicates that strategic planning never ends. In order to determine the extent to which strategic goals and objectives are actually being achieved, and to what degree competitive advantage is being created and sustained execution of the strategy must be monitored. This information and knowledge is returned to the corporate level through feedback loops, and becomes the input for the next round of strategy formulation and implementation. Top managers can then decide whether to reaffirm the existing business model and the existing strategies and goals, or suggest changes for the future.

8. (a) **Managers often describe their organisation by drawing an organisation chart, mapping out its formal structure. These structural charts define the 'levels' and roles in an organisation. With context to this, discuss the various structures of organization for implementation of strategy.** [7]
- (b) **Business Process Engineering may be considered to be a radical redesign of business processes often used by companies to cut costs and return to profitability. Discuss with appropriate example.** [7]

Answer:

- (a) structural reporting lines shape patterns of communication and knowledge exchange: people tend not to talk much to people much higher or lower in the hierarchy, or in different parts of the organisation.



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The kinds of structural positions at the top suggest the kinds of skills required to move up the organisation: a structure with functional specialists such as marketing or production at the top indicates the importance to success of specialised functional disciplines rather than general business experience.

The five basic structural types: are functional, multidivisional, matrix, transnational and project. Broadly, the first two of these tend to emphasise one structural dimension over another, either functional specialism or business units. The three that follow tend to mix structural dimensions more evenly, for instance trying to give product and geographical units equal weight. However, none of these structures is a universal solution to the challenges of organising. Rather, the right structure depends on the particular kinds of challenges each organisation faces.

• **The Functional Structure:**

A functional structure is based on the primary activities that have to be undertaken by an organisation such as production, finance and accounting, marketing, human resources and research and development. This structure is usually found in smaller companies, or those with narrow, rather than diverse, product ranges. Also, within a multidivisional structure the divisions themselves may be split up into functional departments.

The potential advantages of a functional structure include

- It gives senior managers direct hands-on involvement in operations and allows greater operational control from the top.
- The functional structure provides a clear definition of roles and tasks, increasing accountability

However, there are disadvantages, particularly as organisations become larger or more diverse.

- Perhaps the major concern in a fast-moving world is that senior managers focus on their functional responsibilities, becoming overburdened with routine operations and too concerned with narrow functional interests. As a result, they find it hard either to take a strategic view of the organisation as a whole or to manage coordinated responses quickly. Thus functional organisations can be inflexible.
- Separate functional departments tend also to be inward looking – so-called ‘functional silos’ – making it difficult to integrate the knowledge of different functional specialists.

• **The Multidivisional Structure:**

A multidivisional structure is built up of separate divisions on the basis of products, services or geographical areas. Divisionalisation often comes about as an attempt to overcome the problems that functional structures have in dealing with the diversity mentioned above. Each division can respond to the specific requirements of its product/market strategy, using its own set of functional departments.

There are several potential advantages to divisional structures.

- They are flexible in the sense that organisations can add, close or merge divisions as circumstances change.
- As self-standing business units, it is possible to control divisions from a distance by monitoring business performance.
- Divisional managers have greater personal ownership for their own divisional strategies.



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However, divisional structures can also have disadvantages of three main types.

- Divisions can become so self-sufficient that they are de facto independent businesses, but duplicating the functions and costs of the corporate centre of the company. So it may make more sense to split the company into independent businesses, and demergers of this type have been very common.
- Divisionalisation tends to get in the way of cooperation and knowledge sharing between business units: divisions can quite literally divide. Expertise is fragmented and divisional performance targets provide poor incentives to collaborate with other divisions.

• **The Matrix Structure:**

A matrix structure is a combination of structures which could take the form of product and geographical divisions or functional and divisional structures operating in tandem.

Matrix structures have several advantages.

- They are effective at knowledge management because they allow separate areas of knowledge to be integrated across organisational boundaries. Particularly in professional service organisations, matrix organisation can be helpful in applying particular knowledge specialisms to different market or geographical segments.
- Matrix organisations are hard to control.
- There may be excessive reliance of group processes and teamwork.
- May erode timely decision making.

As with any structure, but particularly with the matrix structure, the critical issue in practice is the way it actually works (that is, the processes and relationships). The key ingredient in a successful matrix structure can be senior managers good at sustaining collaborative relationships (across the matrix) and coping with the messiness and ambiguity which that can bring.

• **The transnational structure:**

A transnational structure combines the local responsiveness of the international subsidiary with the coordination advantages found in global product companies. The transnational structure seeks to obtain the best from the two extreme international strategies, the multi domestic strategy and the global strategy. A global strategy would typically be supported by global product divisions; a multi domestic strategy would be supported by local subsidiaries with a great deal of design, manufacturing and marketing autonomy for all products. The transnational structure, however, attempts to achieve both high local responsiveness and high global coordination. The transnational is like a matrix but has two specific features: first, it responds specifically to the challenge of internationalisation; second, it tends to have more fixed responsibilities within its crosscutting dimensions.

The transnational has the following detailed characteristics:

- Each national unit operates independently, but is a source of ideas and capabilities for the whole corporation.
For example, in Unilever, the centre for innovation in hair-care products worldwide is in France.
- National units achieve greater scale economies through specialisation on behalf of the whole corporation, or at least large regions. Unilever in Europe has replaced its web of small national food manufacturing units with a few specialised larger factories that export its



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products to other European countries.

- Functional managers such as finance or IT have a major responsibility for ensuring worldwide innovation and learning across the various parts of the organisation. This requires the skill to recognise and spread best practice across the organisation. So they must be able to scan the organisation for best practice, cross-pollinate this best practice and be the champion of innovations.
- Global business managers have the overriding responsibility to further the company's global competitiveness, which will cross both national and functional boundaries. They must be the product/market strategist, the architect of the business resources and competences, the driver of product innovation and the coordinator of transnational transactions.
- **Project-based structures:**

A project-based structure is one where teams are created, undertake the work and are then dissolved. This can be particularly appropriate for organisations that deliver large and expensive goods or services (civil engineering, information systems, films) or those delivering time-limited events (conferences, sporting events or consulting engagements). The organisation structure is a constantly changing collection of project teams created, steered and glued together loosely by a small corporate group. Many organisations use such teams in a more ad hoc way to complement the 'main' structure. For example, task forces are set up to make progress on new elements of strategy or to provide momentum where the regular structure of the organisation is not effective.

Advantages of Project-based structures

- The project-based structure can be highly flexible, with projects being set up and dissolved as required.
- Accountability and control are good because project teams should have clear tasks to achieve within a defined life.
- Projects can be effective at knowledge exchange as project team members will typically be drawn from different departments within the firm.
- Projects can also draw members internationally and, because project life spans are typically short, project teams may be more willing to work temporarily around the world.

Disadvantages of Project-based structures

- Without strong programme management providing overarching strategic control, organisations are prone to proliferate projects in an ill-coordinated fashion.
 - The constant breaking up of project teams can also hinder the accumulation of knowledge over time or within specialisms.
- (b) BPR is the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance such as cost, quality, service, and speed.

There are primarily three important reasons that lead an organisation to undertake re-engineering

- An organisation needs dramatic improvements to sustain itself and is already in deep trouble. High failure rates of products and repetitive customer complaints can be a one of the



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reasons that can cause huge disruption in the functioning of the organisation.

- The need for re-engineering can be felt by the management keeping in mind the imminent problems that the organisation is expected to face in the future due to some dramatic changes in the environment, both internal and external.
- There can be situations when reengineering can help organisations to be in better position than they are currently in.

characteristics' that can guide BPR are: -

- Combining several jobs into one.
- Allowing workers to make decisions.
- Performing the steps of a process in a natural order.
- Recognition that processes have multiple versions and designing processes to take account of different situations.
- Minimizing reconciliation.
- Appointing a case manager to provide a single point of contact at the interface between processes.
- Reconciling centralization with decentralization in process design - e.g., via a shared database, decentralized decisions can be made while permitting overall coordination simply through information sharing.

Concerns in BPR

In many instances has produced disappointing result.

- One of the major realizations to emerge from BPR is that most business processes are complex. To redesign a process one must first understand it.
- Process mapping exercises reveal that even seemingly simple business processes, such as the procurement of office supplies, involve complex and sophisticated systems of interactions among a number of organizational members.
- Many organizational routines operate without any single person fully understanding the mechanism.

Example: - Process Reengineering at IBM Credit

IBM credit provides credit to customers of IBM for the purchase of IBM hardware and Software. Under the old system, five stages were involved:

- The IBM salesperson telephoned a request for financing. The request was logged on a piece of paper.
- The request was sent to the Credit Department where it was logged onto a computer and the customer's creditworthiness was checked. The results of the credit check were written on a form and passed to the Business Practices Department.
- There the standard loan covenant would be modified to meet the terms of customer loan.
- The request was passed to the pricer who determined the appropriate interest rate.
- The clerical group took all the information and prepared a quote letter, which was sent to the salesperson.

Because the process took an average of six days, it resulted in a number of lost sales and delayed



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the sales staff in finalizing deals. After many efforts to improve the process, two managers undertook an experiment. They took a financing request and walked it around through all five steps. The process took 90 minutes.

On this basis, a fundamental redesign of the credit approval process was achieved. The change was replacing the specialists (credit checkers, pricers, and so on) with generalists who undertook all five processes. Only where the request was nonstandard or unusually complex were specialists called in. The basic problem was that the system had been designed for the most complex credit requests that IBM received, whereas in the vast majority of cases no specialist judgment was called for- simply clerical work involving looking up credit ratings, plugging numbers into standard formulae, etc.

The result was that credit requests are processed in four hours compared to six days, total employees were reduced slightly, while the total number of deals increased one hundred times.