

R15**Code No: 127DV****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech IV Year I Semester Examinations, May/June - 2019****INDUSTRIAL MANAGEMENT****(Mechanical Engineering)****Time: 3 Hours****Max. Marks: 75****Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A**(25 Marks)**

- 1.a) Are management and administration different? How will you resolve their terminological conflict? [2]
- b) Assess the contribution of scientific management to the development of management thought? [3]
- c) What is departmentation? How it is essential for managing a business enterprise? [2]
- d) What do you mean by subsystem? Discuss the important subsystems of an organization? [3]
- e) Is it important to have a good product development process? What do firms gain from this? [2]
- f) What are the different types of layouts? How should an organization decide on which layout to choose? [3]
- g) Discuss the fundamental factors affecting quality. [2]
- h) An operator manufactures 50 jobs in 6 hours and 30 minutes. If this time includes the time for setting his machine. Calculate the operator's efficiency. Standard time allowed for the job was:
Setting time = 35 min, Production time per piece = 8 min [3]
- i) What do you mean by job evaluation? How does it differ from performance appraisal? [2]
- j) What do you mean by PERT and CPM? What are their uses in managerial planning and control? [3]

PART-B**(50 Marks)**

- 2.a) Define the concept of 'planning' as an element of Management process? Discuss its role in present day business organizations?
- b) Discuss the contributions of Hawthorne Experiments in the development of managerial thinking. How did behavioral scientists modify the basic findings of Hawthorne Experiments? [5+5]

OR

- 3.a) Bring out the significance of the statement, 'effective management is always contingency of situational management'. How does systems approach of management differ from contingency approach?
- b) "Management is the process by which managers create, maintain, and operate purposive organizations through coordinated, cooperative human efforts." Elaborate and explain this statement. [5+5]
- 4.a) What do you mean by matrix organization? How does it differ from project organization? Discuss the situations under which matrix organization can be used fruitfully.
- b) What do you understand by organization theory? What is its role in providing insights for designing organization structure? [5+5]

OR

- 5.a) Design an organization structure for Telangana Government?
 b) How does line and staff organization structure differ from pure line organization structure? What are the benefits and limitations of line and staff organization structure? [5+5]
- 6.a) What are the pros and cons of using the location factor analysis method for location planning? Do you have any recommendations on how to use this method for location planning?
 b) Explain briefly travel chart? What type of layout do you think might be appropriate for the manufacture of the V- belt pulley, discuss. [5+5]

OR

- 7.a) Consider the following assembly network relationships of a product. The number of shifts per day is one and the number of working hours is 8. The company aims to produce 40 units of the product per shift.
 Group the activities into optimal number of stations using:
 i) Rank positional weight method
 ii) Also, compute Balancing efficiency in each case.

Operation number	Immediate preceding tasks	Duration (min)
1	-	8
2	1	3
3	1	2
4	1	4
5	3,4	7
6	2,7	4
7	2,4,5	5
8	4	6
9	6,8	8

- b) Is layout design for a service organization any different from that of a manufacturing organization? Explain your answer in detail? [6+4]
- 8.a) i) A department store manager wishes to make a work sampling study to estimate the percentage time that clerks are busy waiting for customers and percent time that they are idle. The current best guess is that clerks are idle 25 percent of the time. Determine the number of observations required if we wish to be 95 percent confident that the results is within \pm percent, given number of observations at 20% is 2995 and at 30% it is 3750 for the same precision.
 ii) Compare stopwatch study and work sampling in terms of the cost to make studies, representatives of samples taken, field o application and comparative accuracy.
 b) Explain different charts and diagrams which are used in method study? [6+4]

OR

- 9.a) Suppose an organization utilizes a variable based measurement system for process control. During a period, it was found that while all the plotted observations with in the control limits in the X bar chart, on point was lying outside the control limits in the R chart. What should the organization do in this case?
 b) A company manufacturing crank case is interested in controlling the weight of crank case. For better operational performance, slightly underweight crank cases due to process variance may be tolerable. The company would like all crank cases to have a mean weight of 250 kg or less. The company wants to have a plan that will accept lots of such crank cases 90 percent confidence level. If further wants to accept lots having a mean weight of 252 kg or greater with 8 percent of the time. Assume the population standard deviation of weight of the crank cases as 5 kg. Any shift in the process mean between 250 kg and 252 kg will not affect the performance of the engine. Design a suitable single sampling plan. [5+5]

- 10.a) A firm is considering the launch of a new product in the national market. The project consists of the ten major activities. The precedence relationship and the estimated duration of each of the activity is given in the table below.

Activity	Predecessor	Duration (weeks)
A	-	8
B	-	3
C	A	6
D	B	4
E	B	5
F	A	4
G	B	6
H	C, D, E	6
I	F, G, H	6

- Draw a network of the above project.
 - What is the total duration of the project?
 - Identify the critical path? Do you have any specific observation to make?
 - Suppose the duration of the activity 'F' was wrongly estimated and the revised estimate is 10 weeks. What is the implication of this change?
- b) Consider design and development of a new executive health checkup for preventive healthcare for senior executives. Develop a two level work breakdown structure for this project? [6+4]

OR

- 11.a) Consider the following data project.

Activity	Normal Time (weeks)	Normal cost (Rs)	Crash time (weeks)	Crash cost (Rs)
1-2	6	700	4	840
1-3	12	300	10	First day:60 Second day:90
1-4	4	200	2	360
2-3	8	900	6	1000
2-4	4	600	2	760
2-5	15	100	8	380
3-5	8	500	3	960
4-5	6	400	4	500

- If the indirect cost per week is Rs 150, find the optimal crashed project completion time.
- b) Projects involve direct as well indirect costs and project managers need to use this information in project management. Comment on this statement. [6+4]

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