PVP 14

Code: ME6T5

III B.Tech - II Semester – Regular/Supplementary Examinations
AUGUST 2021

INDUSTRIAL ENGINEERING AND MANAGEMENT
(MECHANICAL ENGINEERING)

Duration: 3 hours Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11 x 2 = 22 M

1.

a) List various functions of management.
b) Differentiate between theory X and theory Y.
c) Discuss various time estimates.
d) State various objectives of plant layout.
e) How plant location is different from the plant layout?
f) Mention the importance of statistical quality control.
g) Differentiate between variable and attribute charts.
h) Define total quality management (TQM).
i) What is work study? Explain its importance.
j) What are the equipments used in time study?
k) What is PERT? Recommend two applications of it.

PART – B

Answer any *THREE* questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) What do you mean by management? Explain Fayol's principles of management. 8 M

   b) Illustrate Maslow's Hierarchy of human needs in brief. 8 M

3. a) Outline various needs for a good plant layout. Discuss various types of plant layouts with suitable examples. 8 M

   b) Classify types of leadership. Explain them in detail stating their advantages and limitations. 8 M

4. a) What is operating characteristics (OC) curve? Analyse it for various sample sizes and explain it in detail with neat diagram. 8 M

   b) The number of weekly customer complaints are monitored in a large hotel using C- chart.
   Develop three sigma control limits for using the data given in table below and conclude whether the process is in control or not. 8 M

Week	1	2	3	4	5	6	7	8	9	10
Number of complaints	3	2	3	1	3	3	2	1	2	1

5. a) Analyze and construct two handed process chart for the assembly of nut and bolt. 8 M

b) The observed times and the performance ratings for the five elements are given below. Make use of standard time formula to compute standard time assuming rest and personal allowance as 15% and contingency allowance as 2% of basic time. 8 M

Element	Observed time (min)	Performance Rating (%)
1	0.20	85
2	0.08	80
3	0.5	90
4	0.12	85
5	1.1	80

6. a) Differentiate between CPM and PERT. Assess the effect of crashing on CPM and PERT. 8 M

b) A project consists of seven (A-G) activities. The activities precedence relations and activity durations (in days) are given below.

i) Draw the project network ,

ii) Determine critical path

iii) Calculate project completion time

iv) Calculate the various floats of each activity. 8 M

Activity	Predecessor activity	Activity Duration
A	-	5
B	-	7
C	A	9
D	B	3
E	C	6
F	D	8
G	E,F	2