7E1751

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B. Tech. VII - Sem. (Main / Back) Exam., January - 2022

Open Elective - I

7ME6 – 60.2 Quality Management

Time: 3 Hours **Maximum Marks: 120**

Min. Passing Marks: 42

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and four questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL 2. NIL

PART – A

(Answer should be given up to 25 words only) **[10×2=20]**

All questions are compulsory

Write briefly -

Q.1 Define quality assurance.

Q.2 What is customer's perception of quality?

Q.3 What is the mean time between failures?

Q.4 State the utility of quality circles.

Q.5 Discuss quality cost.

Q.6 State the graphical tools for data representation.

Q.7 State seven basic QC tools.

Q.8 What are the different dimensions of quality?

Q.9 What do you mean by acceptance sampling?

Q.10 Define Lean philosophy.

PART – B

(Analytical/Problem solving questions) **[5×8=40]**

Attempt any five questions

Q.1 Briefly explain the six basic concepts of Quality Management.

Q.2 Explain Taguchi method for product quality improvement.

Q.3 Explain the elements, benefits of equipment layout for JIT system.

Q.4 What are the control charts? How are they made and used in controlling a process?

Q.5 Explain, how six sigma helps an organization to improve quality of process?

Q.6 Explain with a neat diagram, ISO 9001 requirements for maintaining quality.

Q.7 Define benchmarking. What are the various types of benchmarking studies undertaken for improving quality? Describe briefly the steps involved in the benchmarking process.

PART – C

(Descriptive/Analytical/Problem Solving/Design Questions) **[4×15=60]**

Attempt any four questions

Q.1 Discuss the following in detail –

(a) ISO 14000 and QS 9000

(b) Views of different quality gurus

Q.2 (a) Explain the steps involved in plan formulation and implementation of TQM.

(b) Describe the steps involved in construction house of quality in QFD study.

Q.3 Briefly describe Analysis of Variance (ANOVA) and Design and Analysis of Experiments (DOE) with respect to process quality improvement.

Q.4 Explain briefly following design failure analysis –

(a) Process Failure Mode and Effect Analysis (PFMEA)

(b) Product Reliability Analysis

Q.5 In an automatic filling, 175 gms of certain chemicals is to packed in certain container. The permissible variation is ±5gms. To investigate the capacity of process, samples of 5 each were drawn from 10 successive batches and data were recorded as given below -

Batch	1	2	3	4	5	6	7	8	9	10
Mean, $\bar{X}$	177	177	176	176	174	177	175	176	176	174
Range, R	3	5	3	8	2	8	5	7	3	2

Assuming the process to be control, establish the capacity of process and compute it with the stipulated specification. Take for subgroup of 5 items $d_2 = 2.326$.
