PAPER ID-310388

Roll No: | | | | | | | | | | | | | |

B. TECH
(SEM-VII) THEORY EXAMINATION 2020-21
QUALITY MANAGEMENT

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	State the guiding principles of Total Quality Control.
b.	Write short notes on MTTF.
c.	Compare random sampling and stratified sampling.
d.	Differentiate between variables and attributes with reference to control charts.
e.	What is Quality Audit? List different type.
f.	What is meant by MTTR?
g.	Which control charts can be used for variable sample size and why?

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. Explain the basic principles and concept of achieving quality in design. Also explain the procedure of review of design.

b. Mean values and ranges of data from 20 samples (sample size = 4) are shown in the table below. Construct the R chart and Chart. Also calculate Process Capability.
(For sample size of 4, take d_2= 2.059, A_2= 0.729, D_3=0 and D_4=2.282)

S.N (Sample)	Mean of Sample	Range	S.N (Sample)	Mean of Sample	Range
1	10	4	11	12	5
2	15	4	12	13	4
3	12	5	13	12	4
4	11	4	14	12	3
5	9	5	15	11	3
6	11	6	16	15	4
7	11	4	17	12	4
8	9	4	18	15	3
9	10	4	19	11	3
10	11	6	20	10	4

c. Explain construction and analysis of C- charts and P- charts.

d. Describe “Fault Tree Analysis” briefly with a suitable example.

e. Explain ISO 14000 in brief highlighting similarities and differences with respect to ISO 9000.

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SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	What do you understand by internal customer? Explain also review of design.
(b)	Explain objective of TQM.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	What is meant by process capability? How will you determine the same?
(b)	Explain Economics of quality value and its contribution. How quality is cost optimization done?

5. Attempt any *one* part of the following: 7 x 1 = 7

(a)	How does the acceptance sampling by variables differ from that by attributes? Explain.
(b)	Explain CL, UCL and LCL.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a)	A small manufacturer of television equipment has been inspecting all the raw materials he receives. His operations are expanding and there is now some question concerning the economies of the present inspection system. It costs 3 paise to inspect one unit of raw material and if a unit of defective raw material is allowed to get production it will cost him 25 paise to repair the damage done to the equipment it is used in. What level of quality makes the present inspection system economical?
(b)	Define reliability. Explain how reliability can be controlled during manufacturing. Discuss problems encountered in reliability testing along with three different test approaches used for evaluation of reliability.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a)	What is Taguchi Quality? What are the various steps in Taguchi's loss function? Explain them in detail.
(b)	Describe the basic organizational structure of Quality Circles.