

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name: Total Quality Management**Subject Code: 4TE06TQM1****Branch: B.Tech (Automobile, Mechanical)****Semester: 6****Date: 07/05/2018****Time: 02:30 To 05:30****Marks: 70**

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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Q-1**Attempt the following questions:**

14

- 1) Process capability =1 indicates that
(A) Workers are motivated (B) Process is in control (C) There are no random variations
(D) Some fraction of production is outside specifications.
- 2) Vision states
A) Whether we should use SPC (B) Whether we should use inspection (C) Where the company wants to be in the long run (D) That customers are the boss.
- 3) Benchmarking determines
(A) Customer requirements (B) How company is doing relative to others (C) Getting ISO 9000 audit done (D) If management is motivated.
- 4) Statistical process control help to identify the _____ of process problems which are causing defects.
(A) Root cause (B) Nature (C) Person/persons involved (D) All of the above
- 5) The following can be considered to measure quality:
(A) Customer satisfaction (B) Defects (C) Rework (D) All the above
- 6) The term "benchmarking" means
(A) Comparing with past data from your organization (B) Comparing with the results of a market survey (C) Comparing with the results of a customer survey (D) none of the above
- 7) During an inspection, inspectors normally make suggestions on correcting the defects found.
(A). True (B) False
- 8) The practice of ceasing mass inspections and ending awards based on price is credited
(A)Edward Deming (B)Philip Crosby (C)Juran (D)Pareto
- 9) Statistical methods are used to differentiate random variation from
(A) Standards (B) Assignable variation (C) Control limits (D)Specification limits
- 10) A histogram ordered by frequency of occurrence that shows how many results were generated by each identified cause is:
(A) Statistical Histogram (B)Juran Histogram (C)Fishbone Diagram (D)Pareto Diagram
- 11) A tool that analyzes the Input to a process to identify the causes of errors is called:
(A)Cause and effect diagram (B)Scatter diagram (C)Ishikawa diagram (D)a and c
- 12) Poor quality in a design project is likely to directly affect _____ costs.
(A)manufacturing / building (B)advertising (C)overhead (D)A and B
- 13) Which of the following conflict resolution techniques will generate the MOST lasting solution?
(A)Forcing (B)Smoothing (C)Compromise (D)Problem solving



- 14) A series of consecutive points on the same side of the average is called
 (A)Run (B)Trend (C)Outliers (D)Cycle.

Attempt any four questions from Q-2 to Q-8:

- Q-2 a) Discuss the four major categories of quality cost. 07
 b) What are the main aspects of customer's perception of quality? 07
 Q-3 a) Draw and explain Ishikawa diagram considering a suitable example. 07
 b) A typical data on diameter measurements of pins in mm, is given below: 07

Class boundaries	Class mid mark	Frequency
25.65 – 25.85	25.75	1
25.45 – 25.65	25.55	7
25.25 – 25.45	25.35	18
25.05 – 25.25	25.15	14
24.85 – 25.05	24.95	8
24.65 – 24.85	24.75	2

Draw the frequency histogram and less than the class upper boundary ogive curve.

- Q-4 a) Discuss Correlation Coefficient. 07
 b) Describe the benefits of ISO: 9000 series standards. 07
 Q-5 a) List any four different certifying agencies for quality. Highlight the benefits of quality auditing. 07
 b) Discuss the means through which employee involvement can be achieved. 07
 Q-6 a) What is FMEA? Explain the stages of FMEA. 07
 b) Explain normal probability distribution and its applications. 07
 Q-7 a) Define reliability. Given a θ' of 5000 hours and a uniform failure rate, what is the reliability associated with a specified service period of 200 hours? 07
 b) Discuss the six subjects addressed in ISO: 14000 certification. 07
 Q-8 a) Discuss Taguchi quality loss function. 07
 b) Determine the control limits for \bar{X} and R charts if $\epsilon\bar{X} = 357.50$, $\epsilon R = 9.90$, Number of sub groups = 20. It is given that $A_2 = 0.18$, $D_3 = 0.41$, $D_4 = 1.59$ and $d_2 = 3.735$. Also find the process capability. 07

