Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Total Quality Management **Semester: V**
Program: B. Tech ADE **Time 03 hrs.**
Course Code: MECH 3005 **Max. Marks: 100**

Instructions: Answer all the necessary questions precisely (Please do not write the answers in paragraphs)

SECTION A

S. No.		Marks	CO
Q 1	Illustrate the Dimensions of the Quality.	**5**	**CO1**
Q.2	State the various tools used for collecting the customer complaints.	**5**	**CO2**
Q.3	Briefly explain the employee motivation & empowerment.	**5**	**CO2**
Q.4	Discuss the requirement of the customer retention.	**5**	**CO2**

SECTION B

Q.5	Explain the various types of Benchmarking with an example. Also discuss the various steps involved in benchmarking.	**10**	**CO3**
Q.6	Interpret the PDCA (PDSA) cycle. How PDSA cycle is an effective tool for continuous improvement?	**10**	**CO2**
Q.7	Describe the procedural steps in conduction a Failure Mode Effect Analysis with a suitable example.	**10**	**CO3**
Q.8	Explain in detail the concept and requirement of ISO 14000. **OR** Describe the Auditing Process and role of external Agency.	**10**	**CO4**

SECTION C

Q.9	A new industrial oven has just been installed at the Piatt Bakery. To develop experience regarding the oven temperature, an inspector reads the temperature at four different places inside the oven each half hour. The first reading, taken at 8:00 A.M., was 340 degrees Fahrenheit. (Only the last two digits are given in the following table to make the computations easier.) **Reading** **Time** **1** **2** **3** **4** 8:00 A.M. 40 50 55 39 8:30 A.M. 44 42 38 38 9:00 A.M. 41 45 47 43 9:30 A.M. 39 39 41 41 10:00 A.M. 37 42 46 41 10:30 A.M. 39 40 39 40 (a) Based on this initial experience, determine the control limits for the mean temperature. Determine the grand mean. Plot the experience on a chart. (b) Interpret the chart. Does there seem to be a time when the temperature is out of control? (c) Based on this initial experience, determine the control limits for the range. Plot the experience on a chart. (d) Does there seem to be a time when there is too much variation in the temperature?	**20**	**CO3**
Q.10	An investor believes there is a 50-50 chance that a stock will increase in price on a particular day. To investigate this idea, for 30 consecutive trading days the investor selects a random sample of 50 stocks and counts the number whose prices increased. The number of stocks in the sample whose prices increased is reported below. 14 12 13 17 10 18 10 13 13 14 13 10 12 11 9 13 14 11 12 11 15 13 10 16 10 11 12 15 13 10 Develop a percent defective chart and write a brief report summarizing your findings. Based on these sample results, is it reasonable that the odds are 50-50 that a stock's price will increase? What percent of the stocks would need to increase in a day for the process to be "out of control"?	**20**	**CO3**
	OR Assess the following Quality tools for the productivity improvement in industrial application: **1)** Six Sigma **2)** 5S **3)** TPM **4)** Kaizen		**CO2**