DU – 074

VIII Semester B.E. (Mech.) Degree Examination, December 2017/January 2018 (2K11 Scheme)
ME-804 : TOTAL QUALITY MANAGEMENT

Time : 3 Hours Max. Marks : 100

Instructions *: a) Use of statistical tables* ***permitted****.*
b) Answer ***5 full*** *questions choosing at least* ***1*** *from* ***each*** *Unit.*

UNIT – 1

1. a) Explain the 7 action steps in Deming recommended action plan. **10**

   b) Explain the 4 ability characteristics that are faced by organisations due to world wide competitions. **10**

2. a) Explain the Juran's contribution to total quality management. **10**

   b) The weight of a component in kgs was recorded as follows :

Range in kgs	29 – 33	34 – 38	39 – 43	44 – 48	49 – 53	54 – 58
Freq.	5	8	19	13	12	5

   i) Determine the mean, median, mode and standard deviation.

   ii) Draw the histogram with frequency polygon. **10**

3. a) What is brain storming ? Explain the steps involved in brain storming session. **10**

   b) The following data are drawn for a component whose specification is 102 ± 2. After taking 20 subgroups of 5 samples each, the data for $\Sigma \overline{X} = 2100$ and $\Sigma R = 80$.

   Determine the control limits for $\overline{X}$ and R charts, process capability and rejections if any. **10**

UNIT – 2

4. a) What are the limitations and advantages of using control charts in SPC ? **10**

P.T.O.

b) Plot a suitable control chart for the following data given and offer your interpretation. **10**

Sample no.	1	2	3	4	5	6	7	8	9	10
No. of items unsold	60	60	60	60	60	60	60	60	60	60
No.of defects	2	0	1	3	6	5	3	6	0	1

5. a) Explain the binomial probability distribution with an example. **10**

   b) Explain the hypergeometric probability distribution with an example. **10**

6. a) Write a note on double sampling plan, with the help of a plot. Explain. **10**

   b) In a single sampling plan, the data is as follows :

   N = 5000 (lot size)

   n = 100 (sample size)

   C = 2 (acceptance no.)

   i) Plot DC curve

   ii) Determine α for AQL = 1.5%

   iii) Determine LTPD for β = 0.2. **10**

UNIT – 3

7. a) What is system reliability ? Explain the reliability testing methods. **10**

   b) Write a note on history of standards in quality. What are the aims of standardization ? **10**

8. Write short notes on **any 4** :

   a) Cause and effect diagram

   b) Histograms

   c) Limits and fits

   d) Multiple sampling plans

   e) Quality circles. **(4×5=20)**