B.TECH.
THEORY EXAMINATION (SEM–VIII) 2016-17
SIX SIGMA METHOD AND APPLICATION

Time : 3 Hours   *Max. Marks : 100*

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION – A

1. **Attempt the following:**   **10 x 2 = 20**
    (a) What is the service?
    (b) What is the product?
    (c) What do you understand by histogram?
    (d) Define the Medium, Range, and kurtosis.
    (e) What is the master black belt?
    (f) Write the role of Six Sigma in industry.
    (g) What is the black and green belt in Six Sigma?
    (h) What is the binomial distribution?
    (i) What is the six sigma rating?
    (j) What is meant by defect?

SECTION – B

2. **Attempt any five of the following questions:**   **5 x 10 = 50**
    (a) What do you mean by quality improvement? Write diagnostic methods to test theories of management controllable problems.
    (b) What are service-processes and explain "Six Sigma Services" challenge?
    (c) Explain the role of Master Black Belts, Black Belts and Green Belts in a six sigma organization
    (d) What is DMAIC? Explain DMAIC Team Life Cycle Phases.
    (e) What are QFD and FMEA? How to perform FMEA?
    (f) Explain various graphical analyses of Minitab plots.
    (g) Briefly write the Six Sigma Success Story of General Electric.
    (h) Explain the concept of six sigma system.

SECTION – C

Attempt any two of the following questions: **2 x 15 = 30**

3   What are the various softwares developed for Six Sigma? Explain Minitab.

4   Define defect and explain sporadic condition and approach for handling sporadic problems.

5   What is hypothesis testing? Write the procedure for testing hypothesis. A single-cavity moulding press has been producing insulators with mean impact strength of 5.15 Nm and with standard deviation of 0.25 Nm. A new lot shows the following data from 12 specimen (Table-1):—
        Is the new lot from which the sample of 12 was taken different in mean impact strength from the past performance of the process, considering type-I error of 5%. Given z-score of -1.96 for proportion area of 0.0250 under normal distribution curve.

Specimen No.	Strength
1	5.02
2	4.87
3	4.95
4	4.88
5	5.01
6	4.93
7	4.91
8	5.09
9	4.96
10	4.89
11	5.06
12	4.85

Table-1