

**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 Mean, 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