



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 140855**

Roll No.

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## B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15  
**SIX SIGMA METHODS & APPLICATIONS**

Time : 3 Hours]

[Total Marks : 100

- 1 Attempt any **four** of the following questions : **5×4=20**
- What are the differences between 'services' and 'products' ? How can we think of controlling quality in each of the two cases?
  - Briefly write the Six Sigma success story of General Electric.
  - What is inferential statistics? Define median, range, standard deviation and kurtosis.
  - Explain Normal distribution.
  - What is histogram? How is it constructed?
  - A lot of some product has 2% fraction defective. What is the probability that sample drawn of 100 units will have no more than 2 defective units?

- 2** Attempt any TWO of the following questions : **10×2=20**
- Explain the concept of six sigma system, with a case study
  - Explain the role of Master Black Belts, Black Belts and Green Belts in a six sigma organisation.
  - What is meant by defects? Explain how you will classify defects in qualitative measurements case. Also explain the importance of having 'sigma' as a metric in denoting performance of a product, service or system.
- 3** Attempt any TWO of the following questions : **10×2=20**
- What is DMAIC? Explain DMAIC Team Life Cycle Phases.
  - Explain the philosophy of DFSS, with an example.
  - Explain three basic approaches for implementing six sigma.
- 4** Attempt any TWO of the following questions : **10×2=20**
- Why is the measurement system analysis carried out? Also explain how it is done?
  - What are QFD (Quality function deployment) and 'Failure Modes and Effects Analysis' (FMEA)? How to perform FMEA ?
  - What is Process Map and how it is created?
- 5** Attempt any TWO of the following questions : **10×2=20**
- How to sustain six sigma improvements ?
  - Discuss the role of communication plan in successful implementation of six sigma culture across the organisation.
  - What are the various softwares developed for six sigma ? Explain MINITAB.