

**UNIVERSITY OF PETROLEUM & ENERGY STUDIES  
DEHRADUN**

**End semester Exam (April) – 2018**

**Name of the Program: BBA (LM)+BBA(AM)**

**Semester – VI**

**Subject Name: Total Quality Management**

**Max. Marks: 100**

**Subject Code: BBFC 117**

**Duration: 3 Hrs.**

**This question paper has 4 page(s).**

**This paper has 4 sections.**

**Section A (Attempt all, 2 marks Each)**

**State True or False**

1. Mean time between failure should be low
2. Mean time to repair should be high.
3. Product liability is related to quality
4. Service Quality is measured by tangibles
5. FMEA is after the event reaction.
6. FMEA is not possible for process and Design
7. house of Quality is related to QFD.
8. ISO 14001 is related to environment aspects.
9. ISO standards are applicable to India only

**Fill in the blank.**

10. the three laws governing product liability in India are -----

**Section B Solve Any four (5 Marks Each)**

1. Write objectives of total productive maintenance.
2. Explain different types of warranties.
3. What is product liability ?
4. What is a Quality circle?
5. What are the benefits of control Chart ?

**Section C Solve Any two (15 Marks Each)**

1. What are the rules to identify that process is out of control. Explain with charts
2. Explain Toyota Production System.
3. Explain difference between type I and type II errors for control charts.

**Section D ( 20+ 10marks)**

1. The loading time of truck is noted by an automated MHE. Thirty Samples, each of size 5 are chosen from the process. The data yield an average time of 110 minutes , with the standard deviation of 4 minutes.

Find the  $3\sigma$  control limit for the process.

2. Discuss importance of control charts and tips to manage it .