**kiitlogoSPRING SUPPLEMENTARY MID SEMESTER EXAMINATION-2019**

**Subject: Quality Engineering & Management [ME 3037], Semester: 8th Full Marks: 20 Time: 1.5 Hours**

***Answer any FOUR questions including question No.1 which is compulsory.***

***The figures in the margin indicate full marks.***

***Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.***

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| 1. | (a) | What is the difference between ISO:9000 and ISO:14000? | [1 ] |
|  | (b) | What are the external failure costs of quality? | [1 ] |
|  | (c) | What is Quality circle? | [ 1] |
|  | (d) | Differentiate between producer risk and consumer risk. | [1 ] |
|  | (e) | Discuss the importance of fishbone diagram in quality control | [1 ] |
| 2. | Explain the 14 points of Deming's quality philosophy. | | [5 ] |
| 3. | Define TQM. Explain the principles associated with it | | [ 5] |
| 4. | Discuss the seven problem solving tools of quality | | [5 ] |
| 5. | The following table gives the average and range in kilograms for the tensile test on an improved plastic cord. The sub-group size is 4. Determine the trial central line and control limits. if any points are out of control, assume assignable causes and determine the revised limits and central line. For sample size 4 A2=0.729, D3=0, D4=2.282 | | [ 5] |
|  | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Group |  | R | group  number |  | R | group  number |  | R | | 1 | 476 | 32 | 6 | 496 | 23 | 11 | 490 | 25 | | 2 | 466 | 23 | 7 | 488 | 24 | 12 | 474 | 22 | | 3 | 484 | 32 | 8 | 464 | 24 | 13 | 485 | 29 | | 4 | 470 | 24 | 9 | 484 | 22 | 14 | 469 | 27 | | 5 | 486 | 28 | 10 | 506 | 23 | 15 | 482 | 26 | | |  |
| 6 | Short notes(Any Two) [2\*2.5]  (a) Quality Circle  (b) Juran’s Trilogy  (c) Quality Cost | |  |