

Total No. of Questions: 6

Total No. of Printed Pages:3

Enrollment No.....



Faculty of Engineering
End Sem (Odd) Examination Dec-2019
ME3EI07 TQM & SQC

Programme: B.Tech.

Branch/Specialisation: ME

Duration: 3 Hrs.

Maximum Marks: 60

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. While setting Quality objective, _____ to be considered. **1**
(a) Material quality (b) Customer need
(c) Market demand (d) All of these
- ii. Which of the following is responsible for quality objective? **1**
(a) Top level management (b) Middle level management
(c) Frontline management (d) All of these
- iii. Total Quality Management (TQM) focuses on **1**
(a) Employee (b) Customer
(c) Both (a) and (b) (d) None of these
- iv. According to Deming, Quality problems are **1**
(a) Due to management (b) Due to method
(c) Due to machine (d) Due to material
- v. The control chart used to monitor the proportion of non-confirming units in a sample is called **1**
(a) U chart (b) C chart (c) P chart (d) R chart
- vi. Is there any relationship between specification limits and control limits of \bar{x} and R charts? **1**
(a) Yes, Specification limits = Control limits
(b) Yes, Control limits = Specification limits/2
(c) No
(d) Yes, Control limits * 0.5 = Specification limits
- vii. A tolerance diagram is also called ____ **1**
(a) Scatter diagram (b) Defect concentration diagram
(c) Histogram (d) Tier chart

P.T.O.

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- viii. Tollgate reviews are presented to managers and “owner” of a process, _____ in the six-sigma organizations. **1**
 (a) The project champions and the black belts not working directly on the project
 (b) Industrial engineering team
 (c) Quality control manager
 (d) Developers of the factory
- ix. Quality Circle is basically an idea based on: **1**
 (a) American Synthesis on Japanese Idea
 (b) Japanese Synthesis of American Idea
 (c) German Synthesis on Japanese Idea
 (d) American Synthesis on German Idea
- x. When the auditor is an employee of the organization being audited (auditee), the audit is classified as an _____ quality audit. **1**
 (a) Internal (b) External
 (c) Compliance (d) Both (a) and (b)
- Q.2 i. Discuss the need of quality management. **4**
 ii. Describe the quality cost and its components. **6**
- OR iii. Identify the major dimensions of quality. Give an example of product or service in which each of these characteristics is important. **6**
- Q.3 i. Discuss the evolution of TQM. **4**
 ii. Explain the key principles of TQM. **6**
- OR iii. Identify the barriers to implementing TQM. **6**
- Q.4 i. What are the two types of control charts for variables? **4**
 ii. What are the different types of control charts? **6**
- OR iii. Discuss the funnel marble experiment, **6**
- Q.5 i. Brief discussion on Six sigma concept. **4**
 ii. Discuss the flow charts, scatter diagram, constructions and applications. **6**
- OR iii. Explain the Quality Function Deployment (QFD). **6**

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- Q.6 Attempt any two:
- i. Define the acceptance sampling and operational characteristics curve (OC curve). **5**
- ii. Explain the Quality circle. **5**
- iii. Discuss quality audits and its types. **5**

Marking Scheme
ME3EI07 TQM & SQC

| | | | |
|-----|-------|---------------------------------------------------------------------------------------------------------------------------------|----------|
| Q.1 | i. | While setting Quality objective, _____ to be considered. | 1 |
| | | (b) Customer need | |
| | ii. | Which of the following is responsible for quality objective? | 1 |
| | | (a) Top level management | |
| | iii. | Total Quality Management (TQM) focuses on | 1 |
| | | (b) Customer | |
| | iv. | According to Deming, Quality problems are | 1 |
| | | (a) Due to management | |
| | v. | The control chart used to monitor the proportion of non-confirming units in a sample is called | 1 |
| | | (c) P chart | |
| | vi. | Is there any relationship between specification limits and control limits of x and R charts? | 1 |
| | | (c) No | |
| | vii. | A tolerance diagram is also called _____ | 1 |
| | | (d) Tier chart | |
| | viii. | Tollgate reviews are presented to managers and “owner” of a process, _____ in the six-sigma organizations. | 1 |
| | | (a) The project champions and the black belts not working directly on the project | |
| | ix. | Quality Circle is basically an idea based on: | 1 |
| | | (b) Japanese Synthesis of American Idea | |
| | x. | When the auditor is an employee of the organization being audited (auditee), the audit is classified as an _____ quality audit. | 1 |
| | | (a) Internal | |
| Q.2 | i. | Need of quality management | 4 |
| | | At least four points 1 mark for each (1 mark * 4) | |
| | ii. | Quality cost | 6 |
| OR | | Its components | |
| | iii. | Major dimensions of quality | 6 |
| | | Example of product or service | |
| Q.3 | i. | Evolution of TQM. | 4 |
| | | Definition | |
| | | Stepwise evolution | |

| | | | | |
|-----|------|--------------------------------------------------|--------------|----------|
| OR | ii. | Key principles of TQM | | 6 |
| | | At least six principle 1 mark for each principle | (1 mark * 6) | |
| | iii. | Barriers to implementing TQM | | 6 |
| | | At least six barriers 1 mark for each barriers | (1 mark * 6) | |
| Q.4 | i. | Two types of control charts for variables | | 4 |
| | | Definition | 1 mark | |
| | | Two types | 3 marks | |
| | ii. | Types of control charts | | 6 |
| | | Definition | 2 marks | |
| | | Types | 4 marks | |
| OR | iii. | Funnel marble experiment | | 6 |
| | | Definition | 2 marks | |
| | | Roles | 4 marks | |
| Q.5 | i. | Six sigma concept | | 4 |
| | | Definition | 1 mark | |
| | | Discussion | 3 marks | |
| | ii. | Flow charts | 1 mark | 6 |
| | | Scatter diagram | 1 mark | |
| | | Constructions | 2 marks | |
| OR | | Applications | 2 marks | |
| | iii. | Quality Function Deployment (QFD) | | 6 |
| | | Definition | 2 marks | |
| | | Steps to build | 4 marks | |
| Q.6 | | Attempt any two: | | |
| | i. | Acceptance sampling | 2 marks | 5 |
| | | Operational characteristics curve (OC curve) | 3 marks | |
| | ii. | Quality circle | | 5 |
| | | Definition | 1 mark | |
| | | Discussion | 4 marks | |
| | iii. | Quality audits definition | 1 mark | 5 |
| | | Its types | 4 marks | |
