No. of Printed Pages : 4

BME-007

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING) / B.Tech. AEROSPACE ENGINEERING (BTAE)

Term-End Examination

00562

December, 2017

BME-007 : QUALITY ENGINEERING

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. (a) Describe the roles of management and suppliers to ensure quality of the product.

(b) How does modern quality management differ from the 'Inspection' approach ? Explain. *2×5=10*

2. (a) What is Total Quality Management (TQM) ? What are the principal objectives of TQM ?

(b) What is Quality Audit ? Name and describe the various types of quality audits. *2×5=10*

3. (a) What do you understand by zero-defect concept ? How can zero-defect concept be implemented ?

(b) Differentiate between price of conformance and price of non-conformance with the help of suitable examples. *2×5=10*

4. (a) The total number of failures is 106. The total number of maintenance hours used to correct the 106 failures is 646. Calculate the maintainability for 2 hours.

(b) What is the objective of ISO 9000 certification ? Explain in brief the procedure for obtaining ISO 9000 certification. *2×5=10*

5. (a) What is six-sigma concept ? Define Quality in terms of quality loss function as suggested by Taguchi.

(b) Define Quality Function Deployment (QFD). Discuss the application of QFD and house of quality in a company producing plastic products. *2×5=10*

6. (a) Determine the reliability of the following system :

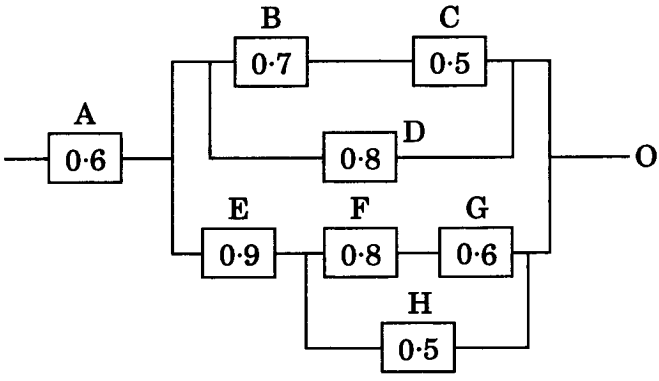

Figure 1

(b) Define Customer Value. How do customer values affect the performance of the company ? Explain. *2×5=10*

7. (a) What are the key concepts that underline the construction and interpretation of control charts ?

(b) Determine availability for each of these cases :

(i) MTBF = 50 days,

average repair time = 5 days

(ii) MTBF = 400 hours,

average repair time = 09 hours *2×5=10*

8. (a) Discuss the following :

(i) Cost of failure

(ii) Cost of prevention

(iii) Cost of appraisal

Explain why cost of prevention should increase if the other two reduce.

(b) Define Customer. Describe different types of customers with suitable examples. $2 \times 5 = 10$

9. (a) Why should a firm have a quality cost system ? Discuss.

(b) Explain how the cause-and-effect (fishbone) diagrams are used in problem solving. $2 \times 5 = 10$

10. Write short notes on any ***four*** of the following : $4 \times 2\frac{1}{2} = 10$

(a) PDCA Cycle

(b) Quality Circles

(c) Failure Rate and Reliability

(d) Acceptance Sampling

(e) Kaizen