

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER– VIII (New) EXAMINATION – WINTER 2019****Subject Code: 2181921****Date: 02/12/2019****Subject Name: Design For Manufacturing And Assembly****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Enlist the steps to be followed for implementing DFMA concept in Design. **03**  
(b) What is Geometrical Tolerance? Draw the Symbols used for Form tolerance & Orientation tolerance. **04**  
(c) Suggest the appropriate material and manufacturing process for the following product with justification. (1) Crank-shafts (2) Gear Box Housing (3) Lead screw of lathe. **07**
- Q.2** (a) Enlist the basic Rules for Design of welding. **03**  
(b) Explain the Design for Accessibility. **04**  
(c) Explain the Design for Recyclability with suitable example. **07**
- OR**
- (c) Discuss Design Recommendation For Parts Generated by machining process. **07**
- Q.3** (a) Enlist the factors to be considered for good quality forged components. **03**  
(b) Explain role of computers in DFMA. **04**  
(c) Discuss the Influence of materials on form design. **07**
- OR**
- Q.3** (a) Enlist various casting defects. **03**  
(b) Suggest the methods to minimize the core requirements in casting product. **04**  
(c) Suggest the design rules to produce cost effective casting component. **07**
- Q.4** (a) Enlist the design features for machining for drilling and milling operations. **03**  
(b) Suggest the methods to minimize the machining area requirements in machined product. **04**  
(c) Discuss the selection criterion of selection of manufacturing process with respect to metal casting and metal forming? Justify your answer. **07**
- OR**
- Q.4** (a) Application of group technology in DFMA. **03**  
(b) Explain in brief the Design for clampability and disassembly with respect to machining process. **04**  
(c) Explain the Design for economy with respect to machining process. **07**
- Q.5** (a) Enlist the different Stages of Product Life Cycle. **03**  
(b) Explain the Design for energy efficiency with suitable example. **04**  
(c) Explain product's entire life cycle and related environmental issues influencing product design with neat sketch. **07**
- OR**
- Q.5** (a) Enlist the hazardous material used in product and their impact in environment. **03**  
(b) Suggest the practices to be followed in designing with hazardous materials. **04**  
(c) What is design for environment? List Basic DFE methods and its applications. **07**