

Government College of Engineering, Aurangabad

(An Autonomous Institute of Government of Maharashtra)

M.E. Production (P.T.Rev)

End Semester Examination Nov – 2016 - Semester-I

ME 589: Collaborative Engineering

Time: Three Hours

Max. Marks: 60

“Verify the course code and check whether you have got the correct question paper”

N.B.: -

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Assume suitable data if necessary and state it clearly.
4. Use of Non-programmable Calculator is allowed.

Q.N.1. Attempt any Two 12

- i) Explain concept of product life cycle? Explain the stages of PLC to manage optimize & control product life? Explain the world class model for PLC
- ii) Explain the procedure of design for ‘Casting’? Explain design against defects in Casting?
- iii) Explain ‘Design for Assembly’ with flow chart? Explain DFA Complexity, Complexity factors, Complexity targets for design of ‘Car Muffler’?

Q.N.2. Attempt any Two 12

- i) Explain ‘Design for Welding’ on basis of speed, joint preparation, backing bar design for similar and dissimilar metals?
- ii) Explain the “Cross Functional Team”? Give process to develop ‘Computer Chair’ by CFT on basis design for use, design for quality and design for maintenance?
- iii) Explain the procedure of design for ‘Metal Forming’? Explain design against tolerances & defects in Metal Forming’ with flow diagram?

Q.N.3. Attempt any Two 12

- i) Explain of “Design for Manufacturing” by a diagram? Explain DFM on basis of minimum number of parts, process, handling & cost
- ii) Explain How the QFD (Quality functional Deployment) applied for planning, designing and production with neat diagram for design of ‘Sport Bicycle’

- iii) Define "*Design for Reliability*"? Explain the major guide lines? Explain with diagrams how it affects on performance, cost and profit of organization?

Q.N.4. Attempt any Two 12

- i) Explain concept of "*Eco Design*"? Explain design of "*Air Conditioner*" on basis of safety, maintenance and environmental design conditions? Explain with flow diagrams?
- ii) Explain the general '*Ergonomic considerations*' in product design? How the work station of '*Milling Machine*' design on the basis of Ergonomic?
- iii) Explain essential factors new product design and Innovation? Give product design tree for '*Machine tool Gear train Design*' on basis of physical realization, economy, feasibility and design criterion

Q.N.5. Attempt any Two 12

(Write detail notes on following with flow chart, diagrams, graphs, analysis and example)

- a) World Class Product Life Cycle Model
- b) Data Vault and Document Management
- c) Design for Reliability
- d) Web based Collaborations
- e) Distributed Product Data Management