

Time: 3 Hour

Max. Marks: 80

- Note:** 1. Question No. 1 is compulsory.
2. Attempt any three questions from the remaining.
3. Assume suitable data, if required.

- Q1. Solve any four out of five. 05**
- State drawbacks of traditional methods for jewelry making over 3D printing method.
 - Explain DFAM briefly.
 - List the modal values of compact Bone for Ultimate tensile strain, Compressive strength, Bending strength and Fatigue life at 0–100 MPa tension.
 - Explain Pixels and Voxels briefly.
 - Explain the term Anthropology.
- Q2. 10**
- With suitable example, explain the applications of additive manufacturing in the domains of Engineering, Analysis and Planning.
 - Illustrate the working principle of any one 3D Printing Processes involved for Jewellery Designing. Also differentiate between 3D printing and traditional method used in Jewellery industries.
- Q3. 10**
- Illustrate the fundamentals of 3D printing and explain the process of creating 3D-printed medical models.
 - Illustrate the working principle of Investment Casting with schematic diagram.
- Q4. 10**
- Differentiate between Prosthetics and Orthotics with suitable example. And explain the preoperative planning with surgical models in medical 3D printing.
 - Illustrate the working principle of any one 3D Printing techniques used in Toy industry.
- Q5. 10**
- List down the different methods of Rapid tooling and explain any two of the methods in details with suitable example.
 - Illustrate the working principle of any one 3D Printing techniques used in Un-manned Aerial Vehicles (UAV) industry.
- Q6. Write short note on 05**
- Non-Destructive Evaluation in Aerospace Industries
 - Curing Process
 - Topology optimization for additive manufacturing
 - Customized Surgical Implants in additive manufacturing