SNS COLLEGE OF TECHNOLOGY
(An Autonomous Institution)
COIMBATORE-35
DEPARTMENT OF MECHANICAL ENGINEERING

Academic Year 2024-2025 (ODD)
Seventh Semester
(Common to all branches)
19MEO304-3D PRINTING

Question Bank

Q. No.	Questions
1	Define 3 D printing.
2	What is the process of 3D printing?
3	Describe the applications area of 3D printing.
4	What are the causes of 3D printing technology?
5	Define additive manufacturing.
6	List the limitations of traditional manufacturing.
7	Extract about Rapid Prototyping (RP) technologies.
8	Summarize about Filament.
9	Differentiate FFF & FDM.
10	compare the types of powdered materials.
11	Show the advantages of 3D printing.
12	Illustrate the 3D printing software.
13	Produce surface finishing operations of 3D printed part.
14	Point out stereolithography.
15	Prioritize about laser beam in 3D printing process.
16	In which 3D printing technology Liquid Resin can be used?
17	Reframe about Photopolymerization 3D printing technology.
18	Assess about limitations of 3D printing.
19	Sketch the block diagram of 3D printing working process.
20	Compose about Layer in 3D printing.
1	Describe the working principles of 3D printing. (13)
2	Reproduce the details of STL models. (13)
3	Examine the Stereolithography (SL) is widely recognized as the first 3D printing process. (13)
4	State the following i. FDM (6) ii. FFF (7)
5	Describe in details of 3D printing material groups. (13)
6	i. Associate with the diagram and explain the Selective Deposition Lamination. (7) ii. Express the process of The Electron Beam Melting 3D printing technique. (6)
7	Differentiate the additive manufacturing techniques with conventional manufacturing process. (13)
8	Demonstrate the manufacturing process of 3D printing technology. (13)
9	Interpret the following i. Limitations of Traditional Manufacturing process. (6)

4	Explain in details about CAD data formats and their types. (13)
5	Explain in detail on laminated object manufacturing techniques (13)
6	Explain in detail on the principles of Selective laser sintering is an additive manufacturing technology. (13)
7	Compare and contrast on the following i. SLS technology (7) ii. SLM technology (6)
8	Describe in details about Stereo- Lithography techniques with neat diagram (13)
9	How does the STL file format store a 3D model? Explain in details. (13)
10	Comparison between Binder jet and stereo lithography 3D techniques? (13)
11	Analyse the following techniques i. LOM (7) ii. FDM (6)
12	Prioritize on Binder Jet 3D printing technology. (13)
13	Summarize in detail about CAD for additive manufacturing. (13)
14	i. Describe the data formats available in CAD. (7) ii. Explain the concept of data loss. (6)
1	Write down what are the common problems of CAD and DWG files? (15)
2	Explain the 7 types of additive manufacturing techniques. (15)
3	Draw a figure using the following coordinated in CAD Coordinates: (15) A=(100,100), B=(105,100), C=(105,102), D=(109,102),E=(109,104), F=(105,104), G=(105,106), H=(109,106), I=(109,111), J=(100,111), k=(100,109), L=(98,109), M=(98,107), N=(100,107), O=(100,105), P=(102,105), Q=(102,101), R=(100,101).
4	Explain the file formats in CAD and their types. (15)
1	List process parameters in 3D printing.
2	Label steps to be followed before 3D printing of the component.
3	Define vat polymerization
4	List primary types of 3D printing processes.
5	State the use of additive manufacturing.
6	What is the difference between 3D printing and additive manufacturing?
7	Indicate the process of extrusion.
8	Describe on Material Jetting process
9	Tell about the process, in which the input material is in powder form?
10	Express about slicing
11	Relate subtractive vs additive manufacturing
12	Illustrate on binder jetting process.
13	Interpret reverse engineering process.
14	Infer about prototype design process.
15	What are the most commonly used AM technology in aerospace application?
16	Point out about Sintering process
17	Prioritize the Melting process
18	Assess on process selection
19	Write on Electron Beam Melting process

20	Write the Benefits of 3D printing for Automotive
1	Describe the stages of 3D printing process with illustrative diagram (13)
2	Write a short note on i. Process parameters (6) ii. Additive manufacturing process (7)

3	Illustrates and explain in detail about Process Selection for various applications (13)
4	Recognize the role of 3D printing process and design for the following application domain i. Aerospace (7) ii. Automotive (6)
5	Explain the following process parameters in detail i. Dimensional tolerance (5) ii. Shrinkage/Wrapping (4) iii. Support requirements (4)
6	Explain in detail the use of additive manufacturing process in Health care domain. (13)
7	Express the following application domain of Additive manufacturing i. Electronics (7) ii. Machine Tools (6)
8	i. Discuss about 3D printer characteristics in Material extrusion process (7) ii. Write a short note about Additive Manufacturing Application Trends? (6)
9	How 3D printing design can be used in Constructions. Explain the technology implemented with illustration. (13)
10	Illustrate the industries where the amazing capabilities of additive manufacturing have transformed production? (13)
11	Sketch with neat classification diagram to select the right 3D printing process based on materials. (13)
12	Categorize the types post processing options for FFF technology. (13)
13	i. Explain Additive Manufacturing applications within Food industry? (7) ii. Write the actual overview and future opportunities of food domain in additive manufacturing? (6)
14	Explain the short note on 3D printing process in Defense and machine tools (13)
1	Explain the role of Additive Manufacturing process in various application domain in detail. (15)
2	Write a case study on 3D print fuel nozzles for jet engines and its advantage over conventional design. (15)
3	Write in detail on setting process parameters. (15)
4	Tabulate the classification of process with 3D printing technologies and sketch with diagram. (15)
Q. No.	**Questions**
1	Label five types of materials.
2	Identify the material which gives finest surface finish in RP?.

2	Explain the materials used for Binder jetting technology in detail. (15)
3	Explain the features and advantages of Ceramic, Metal, plastic and wax material used in powder bed fusion. (15)
4	What is polymer? Explain in detail about their properties. (15)
1	Define bonding Mechanism in additive manufacturing
2	List the most common process parameters
3	Define build orientation
4	List the post processing techniques
5	Define Extrusion temperature.

6	Define product quality in additive manufacturing process
7	Define and estimate the unit of measures of printing speed
8	Differentiate raster width and airgap with illustrative diagram
9	Express the advantages of process equipment.
10	Define Curing
11	List out the issues with flexible filament materials
12	Illustrate three types of infill patterns with neat sketch
13	Interpret product features
14	Prioritize the design rule
15	Infer the manufacturing process for Glass blowing
16	Pont out post processing in additive manufacturing.
17	Write the check list to troubleshoot the process of "out of filament".
18	Determine how the process parameters influences dimensional accuracy
19	How to overcome the defect of "Nozzle too close to Print Bed".
20	When the air gap parameter is said to be negative.
1	Explain in detail about Design Rules of CAD modelling and STL file preparation. (13)
2	Write a short note on add form feature of pocket, ribs, channels and holes in data preparation. (13)
3	Explain in detail about data preparation in design process. (13)
4	Explain in detail about post processing requirements and techniques. (13)
5	Explain in detail about bonding mechanism in additive manufacturing. (13)
6	Explain the troubleshooting mechanism in design process in detail (13).
7	Explain in detail on defect related to pre data processing (13).
8	Illustrate on Part building defects in 3D Printing process (13)
9	Classify and explain the process parameter that influences the dimensional accuracy. (13)
10	Compare the quality in design and manufacturing. (13)
11	Sketch the neat diagram and explain about Quality control system for large production. (13)
12	List two aspects that affect the quality control explain in detail (13)
13	Explain in detail about design process parameters (13)
14	Describe the following i. A control chart (7) ii. Acceptance sampling (6)