

--	--	--	--	--	--	--	--	--	--

B. TECH
(SEM VII) THEORY EXAMINATION 2022-23
ADDITIVE MANUFACTURING

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20
- Differentiate between additive manufacturing and CNC machining.
 - What is 3D printer?
 - What are the 8 steps in additive manufacturing?
 - Define the need of CAD technology for additive manufacturing.
 - Name the two DED systems.
 - Define Reaction Rates for photopolymers.
 - How additive manufacturing helps in aerospace and biomedical applications?
 - What are the various materials used in material jetting?
 - What is self customization?
 - How additive manufacturing processes can benefit the jewellery industry?

SECTION B

2. Attempt any *three* of the following: 10x3 = 30
- Explain the nomenclature of Additive manufacturing machines.
 - What is the hybrid technologies used in AM process?
 - Describe the Powder Bed Fusion (PBF) process of additive manufacturing. Also give its advantages and disadvantages.
 - What are the various functions that other software systems include to assist AM?
 - Discuss in brief the intellectual property issue related to AM machines.

SECTION C

3. Attempt any *one* part of the following: 10x1=10
- Mention the various types of additive manufacturing technologies.
 - Write a short note on Direct and Indirect Processes in Additive manufacturing.
4. Attempt any *one* part of the following: 10x1=10
- Explain in brief the other associated technology that has been developed along with AM?
 - Explain how metal-based AM system is different from polymer-based AM system?
5. Attempt any *one* part of the following: 10x1=10
- Explain WEAVE and STAR-WEAVE scan patterns in Additive manufacturing.
 - What are the various powder handling challenges in AM?
6. Attempt any *one* part of the following: 10x1=10
- Give a brief description about the potential of AM.
 - How Am based manufacturing technology meets the requirement of customization?
7. Attempt any *one* part of the following: 10x1=10
- How additive manufacturing leads to efficient product development?
 - Write short notes on secondary rapid prototyping processes?