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Total No. of Questions: [09]

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B. Tech ME (Semester – 7th)
ADDITIVE MANUFACTURING
Subject Code: BMECD1713
Paper ID: 18112339

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a) Classify the additive manufacturing processes.
- b) List any four different materials used in additive Manufacturing Technology.
- c) What are the limitations of FDM?
- d) Briefly explain geometrical modelling techniques.
- e) Discuss about photo polymerization.
- f) What are the limitations of SLA process and how are they modified.
- g) How additive manufacturing helps in aerospace and bio medical applications?
- h) What are the indirect methods for rapid tool production?
- i) Brief the post treatments of SLM.
- j) How does jewelry industry make use of rapid tooling applications?

Section – B

(5 marks each)

- Q2. Discuss on why AMT is more advantageous than conventional machining processes for certain applications and vice-versa.
- Q3. What is rapid tooling? What is its need? Compare rapid tooling with conventional tooling.
- Q4. What is Laminated object manufacturing? Explain the working principle and write its advantages and disadvantages.
- Q5. Discuss in detail about the problems associated with STL files used in additive manufacturing.
- Q6. Explain the functioning of FDM process model and how the orientations (any three types) are carried out.

Section – C

(10 marks each)

- Q7. (a) Explain about magics and mimics softwares.
b) Describe newly proposed formats CLI, RPI and the LEAF briefly and contrast their strengths and weaknesses.
- Q8. Define powder bed fusion processes. Discuss the solid-state sintering and chemically induced sintering with suitable examples.
- Q9. Discuss the working principle of 3D printing machine. List out the technical specifications.