

National Institute of Technology Hamirpur
Department of Mechanical Engineering
End Semester Examination (Dec. 2020)

M. Tech. (Manufacturing) 1st Semester

Time: 02 hrs.

Sub.: Additive Manufacturing Technologies (ME-726)

Instructions: 1) All questions are compulsory and carry equal marks.

1. Explain in brief **pointwise** the effect of preheat and layer thickness on the product quality manufacturing using selective laser melting (SLM) process.
2. What are the latest innovations done in an extrusion-based AM technology? Explain in brief with schematic diagram.
3. What do you mean by laser cladding process? Write at least three examples of this process describing these in short.
4. Explain in brief about the staircase effect with the schematic diagram. How this effect can be minimised?
5. A group of engineers wants to develop a flying drone with camera. Discuss the details of the steps used in this project with the block diagrams.
6. What are important challenges in India to implement Industry 4.0?
7. Define Rapid prototyping. How RP is helpful in reducing the product development cycle time?
8. List down and explain in brief about the important barriers in integration of AM techniques in Indian industries.

All the Best