CBCS SCHEME

USN | | | | | | | | | |

15ME82

Eighth Semester B.E. Degree Examination, June/July 2024
Additive Manufacturing

Time: 3 hrs. Max. Marks: 80

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Briefly explain the process chain of additive manufacturing. **(08 Marks)**
b. Explain discrete particle system. **(08 Marks)**

OR

2 a. Explain the steps involved in property enhancement using thermal techniques. **(08 Marks)**
b. Write any eight applications of AM in Aerospace, Automobile, Medical and general engineering. **(08 Marks)**

Module-2

3 a. Explain the types of D.C. motors with field coils with neat sketches. **(08 Marks)**
b. Explain briefly with neat diagrams the following : i) Thyristors ii) Triacs. **(08 Marks)**

OR

4 a. Compare hydraulic and pneumatic systems. **(06 Marks)**
b. Write a note on shape memory alloys. **(10 Marks)**

Module-3

5 a. List out the polymers used for AM process. Explain Dry spinning technique of polymer processing. **(08 Marks)**
b. Write a note on : i) Biopolymer materials
ii) History of powder metallurgy (PM) process. **(08 Marks)**

OR

6 a. Sketch and explain Powder Extrusion process. **(08 Marks)**
b. Define Sintering process and explain Microwave Sintering process with neat sketch. **(08 Marks)**

Module-4

7 a. Explain the bottom up and top down methods of synthesis. **(08 Marks)**
b. Explain the mechanical grinding methods of creating nano structures. **(08 Marks)**

OR

8 a. With a neat sketch, explain the working of transmission electron microscopy. **(08 Marks)**
b. Explain the working principles of Atomic force microscopy. **(08 Marks)**

Module-5

9 a. Write a note on classifications of CNC machine tools. **(08 Marks)**
b. Explain the NC words used in manual part programming. **(08 Marks)**

OR

10 a. Define automation. Explain the levels of Automation. **(08 Marks)**
b. Write a note on Continuous and Discrete control. **(08 Marks)**

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