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15ME82

Eighth Semester B.E. Degree Examination, June/July 2019
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. With a neat sketch explain the working of hydraulic piston motors.   (08 Marks)
   b. With a simple pneumatic circuit explain the supply air throttling system.   (08 Marks)

OR

4 a. Classify Direct Current motors. With a neat sketch, explain the working of a DC motor.
                                                                                      (08 Marks)
   b. Explain the working of diode in a circuit with neat sketches.   (08 Marks)

Module-3

5 a. How polymers are classified?   (02 Marks)
   b. Explain polydispersity and molecular weight distribution in polymers.   (06 Marks)
   c. Write a short note on compression moulding of polymers with a neat sketch.   (08 Marks)

OR

6 a. List out the mechanical methods of powder production systems. Explain any one with a neat
      sketch.   (08 Marks)
   b. What are the stages of liquid phase sintering? Explain any one stage.   (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. List out the advantages of CNC machines over NC machines. **(08 Marks)**
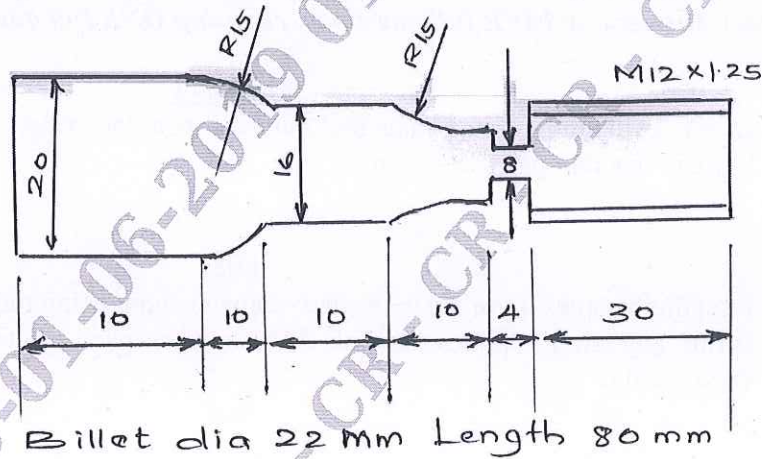   b. Write a part programming for the component shown in the Fig.Q9(b). **(08 Marks)**

Fig.Q9(b)

OR

10 a. Write down the benefits of automation. **(08 Marks)**
   b. Explain the different levels of automation with examples. **(08 Marks)**

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