



# CBGS SCHEME

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17ME82

## Eighth Semester B.E. Degree Examination, Jan./Feb. 2023 Additive Manufacturing

Time: 3 hrs.

Max. Marks: 100

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. (10 Marks)  
b. Distinguish between additive manufacturing and CNC machining. (10 Marks)

OR

- 2 a. Sketch and explain solid sheet system process. (10 Marks)  
b. Discuss additive manufacturing applications. (10 Marks)

### Module-2

- 3 a. With a neat sketch, explain DC compound motors. (10 Marks)  
b. Sketch and explain hydraulic piston motor. (10 Marks)

OR

- 4 Write note on following actuators:  
i) Solenoids  
ii) Relays  
iii) Diodes  
iv) Thyristors. (20 Marks)

### Module-3

- 5 a. List and explain polymers used in additive manufacturing process. (10 Marks)  
b. Explain dry spinning technique of polymer processing. (10 Marks)

OR

- 6 a. Explain mechanical methods of powder production systems. (10 Marks)  
b. Define sintering process and explain micro wave sintering process with neat sketch. (10 Marks)

### Module-4

- 7 a. What are nano materials? Discuss challenges in nanotechnology. (10 Marks)  
b. Explain flame assisted ultrasonic spray pyrolysis. (10 Marks)

OR

- 8 a. Explain the working of scanning electron microscope with neat sketch. (10 Marks)  
b. Explain the working principles of atomic force microscopy. (10 Marks)

### Module-5

- 9 a. Discuss classifications of CNC machine tools. (10 Marks)  
b. Explain different components of CNC machine tools. (10 Marks)

OR

- 10 a. Explain levels of automation with examples. (10 Marks)  
b. Write a note on continuous and discrete control. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.