Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 18

B.Tech. (Mechanical Engineering) (Sem.–5)

MANUFACTURING PROCESS

Subject Code : BTME-503-18

M.Code : 78249

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

Answer briefly :

1) Enlist the parameters on which solidification time depends in metal casting.

2) What are the specific merits of cold working over hot working?

3) Define the term surface integrity.

4) Differentiate between Trimming and shaving shearing operations.

5) Distinguish between brazing and soldering.

6) What is meant by rapid tooling?

7) Briefly explain about FDM used in additive manufacturing.

8) Discuss the effect of amplitude and frequency of vibration on surface finish obtainable in ultrasonic machining.

9) List reasons for the development of unconventional machining processes.

10) What should be the properties of maskants?

SECTION-B

11) What are the essential conditions that are to be kept in mind while designing risers? Compare the modulus method with that of Caine's method of fixing riser dimensions.

12) What are the types of cutting tool wear patterns observed in single point tools? How do they affect the metal cutting performance? How do you define the tool life? Explain the parameters that control the tool life of a single point cutting tool.

13) What is meant by liquid-state welding? Explain the basic principle of arc welding processes. Why is the quality of submerged arc welding very good? Why is the flux not needed in tungsten-arc welding?

14) Describe briefly the factors that influence the quality of cut in Plasma Arc Machining (PAM). Discuss the process capabilities of Electron Beam Machining (EBM).

15) What is the difference between jig and fixture? What are different types of fixtures? Enumerate the different applications for jigs and fixtures.

SECTION-C

16) a) a. Describe briefly about cluster rolling mill. What is the advantage of tandem rolling? What factors contribute to spreading in flat rolling? Explain some defects that can be present in rolled products.

b. Why is investment casting process capable of producing fine surface detail on castings? Explain with suitable sketch.

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17 a) a. What is meant by solid-state welding? Explain the principle underlying the seam welding process. What are the faying surfaces in solid-state welding processes?

b. Discuss in detail the principles and other important parameters need to be considered during forging die design.

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b. Discuss in detail the principles and other important parameters need to be considered during forging die design.

18) What is the principle of electrochemical machining (ECM)? Describe the chemistry involved in the ECM process. Enlist the elements of ECM process with a suitable sketch. What are the materials commonly used for making a tool for use in this method? What are the functions of an electrolyte?

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.