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**GIET UNIVERSITY, GUNUPUR - 765022**  
**M. Tech (Second Semester) Examinations, May - 2024**  
**MPCMT2020 - Advanced Manufacturing Processes**  
**(Manufacturing Technology)**

Time: 3 Hrs

Maximum: 70 Marks

(The figures in the right hand margin indicate marks.)

**PART – A****(2 x 10 = 20 Marks)**

Q.1. Answer all questions

|   | CO# | Blooms<br>Level |
|---|-----|-----------------|
| a. Define Lost wax Pattern.   | CO1 | K1              |
| b. Explain the term fettling.                                       | CO1 | K1              |
| c. Explain the different types of defects found in casting process. | CO1 | K1              |
| d. Explain the phenomenon of surface jetting observed during EXW.   | CO2 | K2              |
| e. Name the different types of Laser used in Laser Beam Welding.    | CO2 | K1              |
| f. How slag inclusions in welding can be avoided?                   | CO3 | K1              |
| g. Define the characteristics of HAZ.                               | CO3 | K1              |
| h. Define perforating.  | CO4 | K1              |
| i. Write down the classification of bending operations.             | CO4 | K1              |
| j. Write any two advantages of hydro mechanical forming             | CO4 | K1              |

**PART – B****(10 x 5=50 Marks)**Answer ANY FIVE questions

|  | Marks | CO# | Blooms<br>Level |
|--|-------|-----|-----------------|
| 2. a. List the types of moulding sand. Discuss the desirable properties of moulding sand.  | 10    | CO1 | K1              |
| 3.a. Draw a schematic diagram showing the start and end of freezing along the mould well and the centerline of the casting, with time for M – C steel. Define the center – line freezing resistance, freezing rates and casting yield.   | 10    | CO1 | K3              |
| b. Explain nucleation? Explain types of Nucleation with neat sketches.   | 5     | CO1 | K1              |
| 4. a. With the help of neat sketch explain the working principle of LBM, mention its advantages and disadvantages.   | 5     | CO2 | K2              |
| b. Calculate the machining rate and the electrode feed rate when iron is electronically machined, using copper electrode and NaCl solution (Specific resistance = 5.0 ohms - cm). The power supply data of the ECM machine used are: Supply voltage 18 V DC; Current 5000 amp; A tool – work gap of 0.5 mm may be assumed. | 5     | CO2 | K3              |
| 5.a. With neat labeled sketch explain Plasma Arc Welding. Write its advantages and disadvantages.  | 10    | CO3 | K2              |
| 6. a. Describe Heat Affected Zone (HAZ)? Explain the parameters affecting HAZ.   | 5     | CO3 | K1              |
| b. Discuss the sequence of operations in friction welding.   | 5     | CO3 | K1              |
| 7.a. Explain form block method of stretch forming.   | 5     | CO4 | K1              |
| b. Explain the working principles of rubber pad forming.   | 5     | CO4 | K1              |
| 8. a. Explain electro hydraulic forming process with a neat sketch.  | 10    | CO4 | K2              |

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