

2101112

**BACHELOR OF VOCATION**  
**Tool and Die Manufacturing**  
**Subject: Non-Conventional Machining Processes**  
**Subject Code: CBME-303**  
**Semester: Fifth**  
**January 2021**  
**Theory (External): 35 Marks**  
**Time: 03 Hours**

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**Instructions to the Students**

1. This Question paper consists of two Sections. All sections are compulsory.
2. Section A comprises 10 questions of objective type in nature. All questions are compulsory. Each question carries 1 mark.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 5 marks.
4. Read the questions carefully and write the answers in the answer sheets provided.
5. Do not write anything on the question paper.
6. Wherever necessary, the diagram drawn should be neat and properly labeled

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**SECTION -A (SHORT/OBJECTIVE TYPE QUESTIONS)**  
**(10x1=10 Marks)**

- A In mechanical machining, material is removed by \_\_\_\_\_
- a) Erosion                                  b) Corrosion  
c) Abrasion                                 d) Vaporization
- B Which of the following process comes under mechanical machining?
- a) USM                                        b) EDM  
c) LBM                                        d) PAM
- C Which of the following is an example of hybrid machining?
- a) Ultrasonic Machining  
b) Electron Beam Machining  
c) Ultrasonic assisted electrochemical machining  
d) Laser Beam Machining
- D Which the following is true for Electrical Discharge machining (EDM)?
- (i)The metal removal takes place due to erosion  
(ii)Any electrical conductor can be machined by this method.  
(iii)Some light oil like transformer oil or kerosene oil is used as dielectric.
- a) Only i                                        b) i & ii  
c) i,ii & iii                                    d) ii & iii
- E In Electron beam machining, as the electrons strikes the work piece
- a) Their kinetic energy is converted into heat  
b) They get scattered  
c) Mechanical erosion in work piece takes place  
d) Electro-chemical etching takes place

- F The cathode filament is heated to a temperature of \_\_\_\_\_ in case of Electron beam machining
- a) 1200°C
  - b) 1700°C
  - c) 2000°C
  - d) 2500°C
- G Which of the following processes is generally applied for dentistry work like to drill fine holes of particular shape in teeth?
- a) Electrical Discharge Machining (EDM)
  - b) Electron Beam Machining (EBM)
  - c) Laser Beam Machining (LBM)
  - d) Ultrasonic Machining (USM)
- H Tools and carbide tips are sharpened by
- a) Electrical discharge Machining
  - b) Electrochemical grinding
  - c) Electrochemical Machining
  - d) Ultrasonic Machining
- I PBM is the only process which works faster in \_\_\_\_\_ steel than \_\_\_\_\_ steel.
- a) Stainless, mild
  - b) Mild, stainless
  - c) Remains same all
  - d) All of the mentioned
- J Which method mentioned below is used for drilling of large size holes?
- a) Direct drilling
  - b) Drill and ream
  - c) Trepanning
  - d) All of the mentioned

**SECTION –B (ESSAY TYPE QUESTIONS)**  
**(5x5=25 Marks)**

- Q1 Explain the need for the use of unconventional machining processes compared to the conventional ones.
- Q2 Briefly explain the flushing techniques used in Electric Discharge Machining (EDM) giving their applications.
- Q3 Describe the factors that should be considered in selecting an electrolyte in Electro - Chemical machining (ECM).
- Q4 Briefly explain the step involved in chemical machining.
- Q5 Write principle and applications of Laser Beam machining (LBM).
- Q6 Explain the application of the following electrode materials in EDM : (a) Copper (b) Graphite.
- Q7 Explain the principal of Plazma Arc Machining (PAM) and write the applications of the technique.
- Q8 Compare the different (any three) unconventional processes in terms of process, material removal rate and applications.

**\*\*\*\*\*END OF THE PAPER\*\*\*\*\***

