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2107007

**BACHELOR OF VOCATION**  
**Robotics and Automation**  
**Subject: Micro Electro Mechanical System**  
**Subject Code: DBME-306**  
**Semester: Sixth**  
**July 2021**  
**Theory (External): 70 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 2 marks.
3. Section B comprises 8 essay type questions out of which students need to do any 5. Each question carries 10 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 labelled

Roll Number									

**SECTION –A (SHORT/OBJECTIVE TYPE QUESTIONS)**  
(10x2=20 Marks)

- A. Define the function of Micro gripper
- B. Discuss the applications of Micro motor
- C. Discuss meaning of diffusion
- D. Define meaning of oxidation
- E. Define the function of etching process
- F. Define the function of wire bonding
- G. Define the function of surface bonding
- H. Describe MEMS materials
- I. What do you meant by fabrication?
- J. Discuss Micro Engineering

**SECTION –B (ESSAY TYPE QUESTIONS)**  
(5x10=50 Marks)

- 1. Explain Micro fabrication techniques with suitable industrial applications.
- 2. Explain construction and working of different types of Micro sensors with suitable diagram and industrial applications.
- 3. Describe the working of Micro actuator with neat and clean diagram along with industrial applications.
- 4. Explain the concept of photolithography with suitable example and its industrial applications.
- 5. Differentiate between surface micro machining and Bulk Micro Manufacturing with suitable example.
- 6. Explain different types of Packaging Techniques with suitable examples and their Industrial applications.
- 7. Explain the role of reliability in Micro electro Mechanical system with suitable example.
- 8. Describe the concept of assembly of Micro systems with suitable examples.

==END OF PAPER==