

**M. TECH.-III (MECHANICAL CAD/CAM) (CBCS – 2015
COURSE) : SUMMER - 2018**

SUBJECT : ELECTIVE – I : MICRO-ELECTRO MECHANICAL SYSTEMS

Day : **Tuesday** **S-2018-3117**
Date : **29/05/2018**

Time : **11.00 AM TO 02.00 PM**
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

Q.1 What are MEMS? Write list of established MEMS applications and explain (10)
any two applications in detail.

OR

List five features of Radio frequency MEMS components. Give an examples of an R.F. MEMS component and outline its operation.

Q.2 Explain how the microsystems are designed and fabricated. (10)

OR

Explain the process of chemical vapor deposition with neat figures, compare between silicon and GaAs as materials for MEMS device fabrication.

Q.3 Define Piezo electric effect. With schematic diagram explain piezo (10)
electrometer and its advantages, limitation and applications

OR

Explain working principle of MEMS piezo resistive pressure sensor

Q.4 List the various levels of micro system packaging and explain them in detail. (10)

OR

Explain in detail design constraints and selection of materials in micro system design.

Q.5 List the methods for producing carbon nanotubes and explain any one of the (10)
method with a neat sketch.

OR

Classify Nano structured materials. Briefly narrate the history of nanomaterials.

Q.6 With suitable sketch, explain magnetorheological finishing process. (10)

OR

What is Nano electromechanical systems (NEMS)? Explain global status of NEMS.

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