

BE Semester- VII
(Instrumentation & Control Engg)
Question Bank

(IC 705-Elective I MEMS (Micro Electro Mechanical System))

All questions carry equal marks (10 marks)

Q.1	What are MEMS? Explain its role in instrumentation & control engg.
Q.2	Define the role of transducers and actuators in the context of MEMS.
Q.3	Discuss the properties of materials used in MEMS fabrication.
Q.4	Explain various fabrication techniques in detail.
Q.5	Discuss the Deposition methods used in fabrication of MEMS devices.
Q.6	Explain the process of lithography etching with its merits.
Q.7	Discuss the process of surface micromachining in detail.
Q.8	Describe the procedure of Wafer Bonding, Thick-Film Screen Printing in detail.
Q.9	Explain the Electroplating LIGA technique in detail
Q.10	Discuss the Porous Silicon and Electrochemical Etch Stop methods.
Q.11	Describe the Focused Ion Beam Etching and Deposition process in detail.
Q.12	Discuss the role Simulation and Design Tools for MEMS devices.
Q.13	State the significance of Behavioural Modelling Simulation Tools.
Q.14	List out the Finite Element Simulation Tools and discuss its role in MEMS.
Q.15	Explain different types of mechanical sensor packaging in detail.
Q.16	What is the method of electrical interconnection in sensor packaging?
Q.17	Discuss different methods of die attachment.
Q.18	Describe various Sealing Techniques MEMS Mechanical Sensor Packaging
Q.19	Explain the process of protection of the Sensor from Environmental Effects and Protecting the Environment from the Sensor.
Q.20	List out the methods of mechanical isolation of sensor chips with its significance.

Q.21	Define piezo-resistive. Explain the process of piezo electricity.
Q.22	Explain capacitive type transducers.
Q.23	Describe the optical type of mechanical transducers.
Q.24	Explain the vibration excitation and detection mechanism.
Q.25	Discuss the electrostatic piezoelectric transducer in detail.
Q.26	Explain thermal type mechanical transducer.
Q.27	Describe magnetic transducer.
Q.28	What is smart sensor? Explain with its important characteristic.
Q.29	State the role of MEMS as Secondary Storage in Computer System.
Q.30	Explain Optical Applications of MEMS devices
Q.31	Enumerate the Biomedical Application of MEMS.