

MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL

A Constituent Institution of Manipal University

SIXTH SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.) END SEMESTER EXAMINATIONS, JUNE 2017

SUBJECT: ADVANCED SENSOR TECHNOLOGY [ICE 4009]

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- ✤ Use neat diagrams where ever needed.

1A.	What do you understand by the concept of modular sensor?	3
1 B .	What were the drawback of available sensing system?	4
1C.	What are the key factors that needs to be addressed in design of advanced sensor techniques?	3
2A.	Describe the internal structure of optical fiber. What are parameters on which a sensor is classified as intrinsic or extrinsic?	4
2B.	How an optical sensor be used for temperature measurement. Explain.	3
2C.	List the constrains to be taken into consideration while measurement of strain using optical sensors	3
3A.	With a neat diagram explain the working of capacitive accelerometers.	3
3B.	Discuss the design technique of mine detector using flux gate sensor	3
3C.	Explain the flow measurement technique using hall effect sensor. List the disadvantageous of the same	4
4A.	With a neat diagram, explain how RVDT can be used for detection of gear tooth faults	3
4B.	Deliberate the functioning of catalytic sensors	4
4C.	What are CHEMFET's? List its advantageous in chemical analysis	3
5A.	Explain the functioning of SAW sensors.	3
5B.	When do we label a sensor as bio-sensor? Explain.	2
5C.	Analyze the effects of vortex flow sensors for fuel flow measurements in automobiles.	5