Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

SEVENTH SEMESTER B.TECH. (INSTRUMENTATION AND CONTROL ENGG.)

END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: MULTI SENSOR DATA FUSION [ICE 435]

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ANY FIVE FULL** questions.
- Missing data may be suitably assumed.

1A.	List the imperative conditions of sensor data fusion	**3**
1B.	Compare sensor fusion and data fusion	**3**
1C.	With the block diagram explain the role of data fusion	**4**
2A.	What is sensor observation? Write the sensor observation for ultrasonic liquid level sensor, and blood glucose monitor.	**4**
2B.	Discuss the three distinct information required for design of fusion node.	**3**
2C.	Explain the architecture of fusion node.	**3**
3A.	When is PCA used for sub space analysis? Discuss any two variants of PCA with an application	**4**
3B.	Summarize the functions of different multiple data set generation techniques	**4**
3C.	Distinguish between binary search and kd-tree	**2**
4A.	With an example discuss the technique of mutual information spatial alignment	**3**
4B.	For an application of video denoising using data fusion what type of CRF should be applied and why?	**3**
4C.	Illustrate with an application the use of co-association matrix for semantic alignment	**4**
5A.	Describe the working of revised JDL framework	**4**
5B.	Enumerate the challenges of merging data fusion and resource management	**4**
5C.	Why is the process of validation of estaben necessary?	**2**
6A.	With an application discuss the process of command and control.	**3**
6B.	Sketch a data fusion framework for the application of structural health monitoring, indicating the various techniques involved	**5**
6C.	Identify three reasons for considering data filters for data fusion process	**2**