Hall Ticket No | | | | | | | | | | | Question Paper Code: AME019

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

B.Tech V Semester End Examinations (Regular) - November, 2018

Regulation: IARE – R16

INSTRUMENTATION AND CONTROL SYSTEMS

Time: 3 Hours **(ME)** **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

UNIT – I

1. (a) What are the different standard inputs for studying the dynamic response of a system? **[7M]**
   (b) Sketch and explain generalized measurement system and its functional elements. **[7M]**
2. (a) List the different types of errors of measurements and explain gross errors in detail. **[7M]**
   (b) Explain zero-order instrument in detail with neat diagram. **[7M]**

UNIT – II

3. (a) Briefly explain thermocouple with a neat diagram. **[7M]**
   (b) With a neat sketch explain bourdon type pressure tube. **[7M]**
4. (a) Explain capacitive sensors with neat diagram. **[7M]**
   (b) Draw a neat diagram of capsule and bellows type sensors. **[7M]**

UNIT – III

5. (a) List the different types of level measurement system and briefly explain principle involved. **[7M]**
   (b) Explain capacitive level measurement system theory with neat diagram. **[7M]**
6. (a) With an example draw and explain ultrasonic flow measurement device. **[7M]**
   (b) Brief about the principles of seismic instruments. **[7M]**

UNIT – IV

7. (a) Name the different types of strain gauges used in practice and explain how the selection of a strain gauge affect the measurement of strain. **[7M]**
   (b) How resistive strain gauges are calibrated? **[7M]**
8. (a) Explain sling psychrometer with a neat sketch. **[7M]**
   (b) List few instruments used for force measurement and explain any one instrument working with a neat diagram. **[7M]**

UNIT – V

9. (a) Distinguish between open loop and closed loop systems. **[7M]**

   (b) An automobile driver uses a control system to maintain the speed of the car at a prescribed level. Sketch a block diagram to illustrate this feedback system. Explain various functional elements of this system. **[7M]**

10. (a) Describe with neat sketch the open loop speed control system. **[7M]**

    (b) Illustrate with example the working of a closed loop temperature control system. **[7M]**

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