



B.E DEGREE EXAMINATIONS: MAY 2015

(Regulation 2009)

Sixth Semester

MECHATRONICS ENGINEERING

MCT 113: Sensors and Signal Processing

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Resolution of transducer depends on
 - a) Material of wire
 - b) Length of wire
 - c) Diameter of wire
 - d) Excitation voltage
2. The capacitance microphone is used for the detection of
 - a) Heart rate
 - b) Blood flow
 - c) Heart sound
 - d) Foot pressure
3. Application of occupancy sensors is well suited for ____.
 - a) night based controllers
 - b) movement or noise detector in room space
 - c) day light based controllers
 - d) motor controllers
4. Which of the following remote sensing technologies uses sound?
 - a) Radar
 - b) Sonar
 - c) Microwave
 - d) Thermal
5. An ac signal conditioning system is normally used for
 - a) Piezoelectric transducer
 - b) Resistive transducer
 - c) Inductive and capacitive transducer
 - d) All three
6. Another name for a multiplexer is
 - a) Scanner
 - b) Signal converter
 - c) Comparator
 - d) Linearizer
7. The digitizer used in data logging system is
 - a) Digital panel meter
 - b) Digital voltmeter
 - c) Buffer
 - d) Multiplexer
8. A analog transducer has range 0-10V .Calculate bits of an A/D converter ,if the resolution is 5mv

(OR)

b) With necessary illustrations, explain the working of flash ADC and successive approximation type ADC.

24. a) Explain various data logging systems and explain how digital data are logged and programmed for various applications.

(OR)

b) Which are the basic elements of a data acquisition system and explain its types? Clearly distinguish between signal, information and data.

25. a) Mention the different methods of displaying techniques and explain about CRT display devices with application.

(OR)

b) Compare analog recorders and digital recorders. Explain the different recording and operations of magnetic tape recorders.
