

**R18**

Code No: 156DK

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, July - 2023

BASICS OF SENSORS TECHNOLOGY

(Common to EEE, ECE)

Time: 3 Hours

Max. Marks: 75

- Note:** i) Question paper consists of Part A, Part B.  
ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.  
iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A****(25 Marks)**

- 1.a) Differentiate between analog and digital sensors. [2]
- b) Mention various types of passive sensors. [3]
- c) What is thermoelectric effect? [2]
- d) Define a self-generating sensor and mention few examples of it. [3]
- e) Differentiate between translational and rotational velocity. [2]
- f) What are the various types of accelerometers? [3]
- g) Mention different units of viscosity. [2]
- h) What are the various sound level meters and give applications? [3]
- i) Define interfacing and what is the need of it? [2]
- j) Mention the applications of variable frequency drive. [3]

**PART – B****(50 Marks)**

- 2.a) What are the various methods of correction for modifying inputs.
  - b) Explain the differences between variable and differential capacitive sensors. [5+5]
- OR**
- 3.a) Give a brief overview of a measuring system's inputs and outputs configuration.
  - b) Explain about Linear Variable Differential Transformers (LVDTs). [5+5]
4. Explain the working of piezoelectric type sensor and mention the applications. [10]
- OR**
- 5.a) Explain the principle and working of thermocouple.
  - b) Describe cold junction compensation in thermocouples using bridge method. [5+5]
6. Provide a clear illustration of the Rotating Vane Consistency Meter and describe its features. [10]
- OR**
- 7.a) Describe how density can be measured using air pressure balance method.
  - b) Explain about vibrating probe method. [5+5]

- 8.a) Discuss briefly about capillary viscometer.  
b) Write a short note on industrial consistency meter. [5+5]

**OR**

9. Explain the operation of microphone with a neat block diagram. [10]

- 10.a) Write a short note on calibration of sensors.  
b) Discuss briefly about interfacing of pressure sensor. [5+5]

**OR**

- 11.a) Explain about calibrate a flow meter.  
b) Discuss about interfacing of velocity sensor. [5+5]

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used paper July/Aug-2023