Code No: 156DK **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, March - 2024
BASICS OF SENSORS TECHNOLOGY
(Common to EEE, ECE, CSE, IT, CSE(AI&ML), CSE(IOT), CSE(N))

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)	What do you mean by sensor and transducer?	[2]
b)	Give the classifications of sensors.	[3]
c)	Define thermal sensor. Classify various temperature sensors.	[2]
d)	Write the differences between active and passive sensors.	[3]
e)	What is an accelerometer?	[2]
f)	What is the principle of timers in the context of velocity measurement?	[3]
g)	Define Co-efficient of viscosity.	[2]
h)	Define density and provide the formula for calculating it.	[3]
i)	What is sensor calibration?	[2]
j)	What are the key considerations when selecting master sensors for calibration purposes?	[3]

PART – B

(50 Marks)

2. Explain the basic structure of LVDT and its operation. Also, give its advantages and disadvantages. [10]

OR

3. Discuss in detail about the resistance strain gauge. Also, compare it with other strain gauges. [10]

4. Explain the practical laws of Thermocouples. [10]

OR

5. List some materials that exhibit the piezoelectric effect and explain their suitability for sensor applications. Also, list its applications. [10]

6. Compare and contrast magnetic and photoelectric pulse counting methods. [10]

OR

7. Explain the density measurement using the strain gauge load cell method and the buoyancy method. [10]

8. Discuss the working principle of sound-level meters and their applications. [10]

OR

9. Draw and explain the industrial consistency meter to measure the consistency. [10]

10. Discuss the methods for interfacing density sensors in industrial applications. [10]

OR

11. With a neat sketch, explain the interfacing of the viscosity sensor. [10]

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