PAPER ID-411532

Roll No:

BTECH
(SEM III) THEORY EXAMINATION 2021-22
SENSOR AND INSTRUMENTATION

Time: 3 Hours   *Total Marks: 100*

Note: **1.** Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1.   **Attempt *all* questions in brief.**   **2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Define the term Transducer.	2	1
b.	Define the parameter measured with a Strain Gauge.	2	1
c.	What is an RTD used for?	2	2
d.	Explain level sensors and their applications.	2	2
e.	Define the term instrumentation.	2	3
f.	What are clusters and graphs?	2	3
g.	What is a timer? Explain with an example.	2	4
h.	What are the applications of a data socket?	2	4
i.	Define the term sensors.	2	5
j.	What is an autonomous robot?	2	5

SECTION B

2.   **Attempt any *three* of the following:**

a.	Define different categories of sensors and the process to select a sensor for any process.	10	1
b.	Define different types of Proximity sensors.	10	2
c.	Elaborate on different techniques used for Graphical Programming.	10	3
d.	Define the basic block diagram of a Data Acquisition System.	10	4
e.	What is an intelligent sensor? Define different components associated with intelligent sensors.	10	5

SECTION C

3.   **Attempt any *one* part of the following:**

a.	What is an LVDT and how it is arranged for measuring pressure?	10	1
b.	What is a piezoelectric sensor? Define one application of the piezoelectric sensor.	10	1

4.   **Attempt any *one* part of the following:**

a.	What is Hall Effect and how it is used for measuring position?	10	2
b.	Define different sensors used for measuring temperature.	10	2

5.   **Attempt any *one* part of the following:**

a.	What is industrial instrumentation? Define different software tools used for automation.	10	3
b.	What is virtual instrumentation? Define different advantages of virtual instrumentation.	10	3

6.   **Attempt any *one* part of the following:**

a.	Explain different types of Analog-to-Digital Converters.	10	4
b.	What are Input-Output (I/O)? Define different types of I/O.	10	4

7.   **Attempt any *one* part of the following:**

a.	Define the characteristics associated with Intelligent Sensors: Self-calibration, Self-testing & self-communicating.	10	5
b.	Define the process and techniques associated with Automobile Engine Control.	10	5