Subject Code: KCE056

PAPER ID-311107

Roll No: | | | | | | | | | | | | | |

BTECH
(SEM V) THEORY EXAMINATION 2023-24
SENSOR AND INSTRUMENTATION TECHNOLOGIES FOR CIVIL ENGINEERING APPLICATIONS

TIME: 3 HRS **M.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
a.	What is sensor?	2
b.	What is the application of instrumentation technologies in civil engineering?	2
c.	Write a short notes on physical variables.	2
d.	What is sensor selection?	2
e.	What do you understand by Data Analysis?	2
f.	What is sensors specific?	2
g.	Define Piezometer.	2
h.	Write a short notes on Most frequently occurring value.	2
i.	What is Analysis covering?	2
j.	Explain Frequency Domain Signal Processing.	2

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a.	Write in detail about various types of sensors with their function.	10
b.	Describe the order and methodology for sensor installation.	10
c.	Explain the need for frequency domain analysis and its principles.	10
d.	Draw conclusions about physical processes based on analysis of sensor data	10
e.	Write the short notes of the following: i)Time domain signal processing ii) Discrete signals	10

SECTION C

3. Attempt any *one* part of the following: 10x1=10

a.	Explain Combine signals in a meaningful way to gain deeper insight into physical phenomena.	10
b.	Write the short notes of the following: i)Approach to Planning Monitoring Programs ii) Measurement uncertainty	10

4. Attempt any *one* part of the following: 10x1=10

a.	Explain the various types of instrumentation in detail.	10
b.	Write in detail about data reduction and data interpretation.	10

5. Attempt any *one* part of the following: 10x1=10

a.	Differentiate between permanent installations and temporary installations.	10
b.	Write in detail about Fourier Transform and Fast Fourier Transform.	10

PAPER ID-311107

Roll No: | | | | | | | | | | | | |

BTECH
(SEM V) THEORY EXAMINATION 2023-24
SENSOR AND INSTRUMENTATION TECHNOLOGIES FOR CIVIL ENGINEERING APPLICATIONS

TIME: 3 HRS **M.MARKS: 100**

6. Attempt any *one* part of the following: 10x1=10

a.	Differentiate between types of sensors and their modes of operation and measurement.	10
b.	What are the basic concepts in frequency domain signal processing and analysis?	10

7. Attempt any *one* part of the following: 10x1=10

a.	How will you predict the response of sensors to various inputs?	10
b.	Write the short notes of the following: i) Strain gauge ii) Inclinometer	10