**NTK/KW/15 – 5872**

# Fourth Semester B. Sc. Examination

## ELECTRONICS

## Paper - II

## (Electronic Instrumentation)

Time : Three Hours ] [ Max. Marks : 50

N. B. : (1) All the five questions are compulsory and carry equal marks.
(2) Draw neat and well labelled diagram wherever necessary.

**EITHER**

1. (A) Explain an electronic system using suitable block diagram. 6

Describe any two of its characteristics with examples. 4

**OR**

(B) Define the following electronic systems by giving suitable examples of each of the following

(i) Analog and digital

(ii) Real and virtual

(iii) Dedicated and versatile. 10

**EITHER**

2. (A) Explain the construction and working of piezoelectric transducer. 6

Define sensor and actuator. Give examples. 4

**OR**

(B) Explain the construction and working of thermistor. 6

Draw characteristics at PTC and NTC thermistor. 4

**EITHER**

3. (A) Explain the construction and working of Lux meter using LDR. 6

Describe the principle of operation of colorimeter using LDR. 4

**OR**

(B) Explain the measurement of temperature using LM 35. State its advantages over thermistor. 6

Explain the principle of operation of insect repellent transducer. 4

**EITHER**

4. (A) Draw the block diagram of ECG and explain the function of each block. 6

Explain the typical signal recorded by ECG with neat sketch. 4

**OR**

(B) Explain the block diagram of EEG. 6

List different types of brain waves and state its ranges. 4

5. Answer any **ten** of the following :—

(a) What is stand alone system ?

(b) What do you mean by Calibration ?

(c) List different standards used for calibration.

(d) What is Phototransistor ?

(e) Define the properties of Thermistor.

(f) Define response time of a transducer.

(g) Draw the characteristic of LDR.

(h) What is Piezobuzzer ?

(i) State the use of colorimeter.

(j) What is meant by EMG ?

(k) Write any two precautions in biomedical instrumentation.

(l) What is Biopotential ? 1×10