BACHELOR OF SCIENCE (COMPUTER SCIENCE) (CBCS - 2016 COURSE)
S.Y.B.Sc.(Computer Science) Sem-IV :SUMMER- 2022
SUBJECT : ANALOG SYSTEMS

Day : Wednesday
Date : 13-07-2022

S-14897-2022

Time : 03:00 PM-06:00 PM
Max. Marks : 60

N.B.

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Draw diagrams **WHEREVER** necessary.

Q.1 Answer any **TWO** of the following: **(12)**

a) Draw circuit diagram of instrumentation amplifier using three Op – Amp and derive expression for its gain.
b) Explain the construction and working of LVDT with necessary diagrams.
c) Draw and explain block diagram of temperature monitoring system using LM-35.

Q.2 Answer any **TWO** of the following: **(12)**

a) Explain first order low pass active filter with neat circuit diagram and frequency response.
b) Explain the working of water level indicator system using float switch.
c) Explain principle of operation of ultrasonic sensors. With necessary diagrams.

Q.3 Answer any **TWO** of the following: **(12)**

a) Define the following specifications of sensors:
i) Accuracy ii) Range iii) Linearity iv) Sensitivity v) Resolution vi) Reproducibility
b) Draw the circuit diagram of Op-Amp based voltage to frequency converter. Explain its working.
c) What is Band Pass Filter? Explain first order active band pass filter with necessary diagram.

Q.4 Answer any **THREE** of the following: **(12)**

a) Write a short note on Passive Infrared sensor (PIR)
b) What is electro cardiograph? Draw diagram of normal ECG waveform.
c) Derive an expression for current flowing through galvanometer of an unbalanced Wheatstone's bridge.
d) Explain capacitive type touch sensors.

Q.5 Answer any **FOUR** of the following: **(12)**

a) Explain the need of signal processing.
b) Give three points of difference between active and passive filters.
c) Define: i) transducer ii) Sensor Give one example for each.
d) Draw block diagram of analog electronic system.
e) What is a tilt sensor? State i) its types ii) any two applications.
f) How does a piezoelectric humidity sensor work? Explain in brief.

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