

S.Y. B. SC. (Computer Science) SEM –IV (CBCS - 2016 COURSE) :

SUMMER - 2019

SUBJECT : ANALOG SYSTEMS

Day : Wednesday

Time : 11.00 AM TO 02.00 PM

Date : 08/05/2019

Max. Marks : 60

S-2019-1101

N.B.:

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw diagrams **WHEREVER** necessary.
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Q.1 Answer **ANY TWO** of the following: [12]

- a) Explain signal conditioning system with a neat block diagram.
- b) Explain the following with reference to sensors:
 - i) Accuracy iii) Linearity v) Resolution
 - ii) Range iv) Sensitivity vi) Reproduction
- c) Draw and explain the block diagram of temperature monitoring system using LM35.

Q.2 Answer **ANY TWO** of the following: [12]

- a) Explain the working of LDR with appropriate diagram. Also draw its symbol.
- b) Draw the circuit diagram of first order active low pass filter and explain its working.
- c) Explain the passive infrared sensors.

Q.3 Answer **ANY TWO** of the following: [12]

- a) Derive expression for voltage gain of three-OPAMP instrumentation amplifier.
- b) Explain working of LVDT with appropriate diagram.
- c) Explain the working of Wheat Stone's bridge for balanced condition.

Q.4 Answer **ANY THREE** of the following: [12]

- a) Give the classification of sensors.
- b) Differentiate between active and passive filters.
- c) What is meant by electrocardiogram? Give analysis of ECG signal.
- d) Write a short note on Piezoelectric humidity sensor.

Q.5 Solve **ANY FOUR** of the following: [12]

- a) List any three applications of PIR sensor.
- b) What is meant by Notch filter? Draw frequency response of notch filter.
- c) What is meant by touch sensor? State any two types of touch sensor.
- d) Define instrumentation and calibration.
- e) State any three features of AD 590.
- f) Calculate the current through galvanometer of an unbalanced Wheatstone's bridge with excitation voltage 12V and $R_1 = 1k\Omega$, $R_2 = 4k\Omega$, $R_3 = 3k\Omega$, $R_4 = 8k\Omega$ and $R_g = 600\Omega$.

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