S.Y. B. SC. (COMPUTER SCIENCE) SEM –IV (CBCS - 2016 COURSE) : SUMMER - 2018

SUBJECT : ANALOG SYSTEMS

Day : **Tuesday** Time : **11.00 A.M. TO 02.00 PM**

Date : **24/04/2018** **S-2018-0824** 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) With neat diagram explain signal conditioning system.
b) What is Band Pass Filter? Describe First Order Active Band Pass Filter with necessary diagram.
c) What is temperature monitoring system? Draw and explain the block diagram of temperature monitoring system using LM35.

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

a) Explain working of Wheatstone's bridge for unbalanced condition.
b) What is a tilt sensor? Explain types of tilt sensors.
c) Draw schematic block diagram of an electrocardiograph instrument and explain it in brief.

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

a) Explain working of ultrasonic sensor with neat diagram.
b) With necessary diagram explain the construction of LVDT.
c) Explain the working of voltage to frequency converter using OPAMP.

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

a) Explain the concept of Active Filter and Passive Filter.
b) Explain the following for sensors:
i) Range **ii)** Accuracy **iii)** Sensitivity **iv)** Linearity
c) Explain PIR sensors in brief.
d) Explain level shifter circuit. State its need in measurement system

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

a) Draw a well-labeled diagram of three OP-AMP instrumentation amplifier.
b) State any three applications of quantum dots.
c) Explain basic structure of LDR.
d) Define sensor and transducer.
e) State the importance of calliberation.
f) How does a pH electrode work? Explain.

* * * *