(23) SEAT No._____ No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY
S.Y.B.Sc IVth Semester Examination, (under CBCS)
USO4CINS01
(Signal Conditioning Systems)
Saturday, (7th April 2018)
10.00 am to 01.00 pm.

MARK :70

Q.1 Multiple choice questions. [10]

(1) The simplest type of ADC is_____ type.
(a) counter (b) flash (c) successive (d) dual slope

(2) The degree of clones to the true value of the quantity under measurement is called_____.
(a) Error (b) Accuracy (c) Precession (d) Mean

(3) Maxwell's bridge quality factor range is _____.
(a) 1-3 (b) 1-4 (c) 1-10 (d) 1-5

(4) The gain of the Op- Amp is_____.
(a) zero (b) infinite (c) high (d) low

(5) _____bridge is used to measure high factor Q values.
(a) Maxwell's (b) Kelvin (c) Wein (d) Wheatsone

(6) The Wagner's ground is used to measure _____.
(a) capacitive (b) resistive (c) inductive (d) stray capacitances

(7) The simple bridge consists of _____ arms.
(a) two (b) three (c) four (d) five

(8) The most reliable substitutes for electromechanical chopper are _____.
(a) diode bridge modulator (b)transistor chopper
(c) both (a)& (b) (d) none of above

(9) The counter type ADC is also known as _____ADC.
(a) digital ramp (b) analog ramp (c) both (a)&(b) (d) none of above

(10) The signal conditioner receives the signal from _____.
(a) power supply (b) amplifier (c) transducer (d) oscillator

(PTO)

Q.2 **Short answer types question (Any Ten)** **[20]**

(1) Difference between AC and DC bridge.
(2) Enlist limitations of Wheatsone bridge.
(3) Classify different types of errors.
(4) Enlist important features of an instrumentation amplifier.
(5) Enlist parameter of DAC.
(6) Draw a block diagram of typical OP AMP.
(7) Define: Modulator.
(8) A certain 12 bit BCD DAC has a full scale output of 19.98V. Determine converter step size.
(9) Explain in brief limiting errors.
(10) Draw the block diagram of 4 bit DAC using digital input.
(11) What are the precautions to be taken while using bridge?
(12) What is the need of A/D & D/A converters in controlling a process?

Q.3 (a) Show a diagram and discuss the current to voltage converter. **[6]**
(b) Write a short note on Op- Amp summing amplifier. **[4]**

OR

Q.3 (a) Discuss the non-inverting amplifier, also obtain an expression for the closed loop voltage gain of it. **[6]**
(b) Write a short note on comparator using Op- Amp. **[4]**

Q.4 (a) What do you mean by significant figures? Giving suitable examples explain it. **[6]**
(b) Define: Systematic error. **[4]**

OR

Q.4 (a) Explain the difference between accuracy & precision in detail. **[6]**
(b) What do you mean by statical analysis? Discuss it **[4]**

Q.5 (a) Discuss the Maxwell bridge in detail. **[6]**
(b) Write a short note on Hay bridge with necessary diagram. **[4]**

OR

Q.5 (a) Discuss the Wein bridge circuit and also give its diagram. **[6]**
(b) Discuss the capacitance comparison bridge. **[4]**

Q.6 Write a note on counter type analog to digital converter. **[10]**

OR

Q.6 Explain successive approximation type ADC. **[10]**