



SE-7389

B. E. IV (Sem - VIII) (ECC) Examination
April / May - 2011
Electronic Instrumentation

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृशायेव निशानीवाणी विगतो उत्तरवही पर अवश्य लपवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. E. 4 (Sem - 8)

Name of the Subject :
Electronic Instrumentation

Subject Code No. : 7 3 8 9 Section No. (1, 2,.....): Nil

Seat No. :

Student's Signature

- (2) Assume suitable data wherever necessary.
(3) Figures to the right indicate full marks.
(4) Use of scientific calculator CASIO FX 82/83 FX-100 or equivalent of other companies is allowed.

- 1 (a) Do as directed : 10
(1) What is the use of sample and hold method ?
(2) What is ideal value of CMRR ? Why ?
(3) Why current transmission ranges not start from the 0 mA ?
(4) What is the use of instrumentation amplifier ?
(5) Why voltage to current conversion required ?
(b) Explain any method of linearization by processing output. 5
(c) Design R to V convertor for the 5
(a) $R = 500 \Omega$ to $1 K\Omega$
(b) $V = 1V$ to $5V$
- 2 (a) Explain active power measurement method. 8
(b) Explain differential amplifier using two op amp. 7

OR

- 2 (a) Explain reactive power measurement method. 8
 (b) Explain differential amplifier using three opamp. 7
- 3 Answer any **three** question : 15
 (1) Explain sample and hold method in detail.
 (2) Explain SR flip flop lead and lag detector.
 (3) Phase angle measurement using the analog multiplier.
 (4) Voltage to frequency convertor.
 (5) Explain modified howland circuit.
- 4 (a) Answer following questions :
 (1) What are the basic requirements of Transducers ? 2
 (2) N bit D/A converter is scaled down to 5V 2
 reference voltage to produce a resolution of 0.01V.
 Find out N.
 (3) Define : 4
 (a) Sampling time
 (b) Dynamic error
 (c) Sensitivity
 (d) Resolution
 (4) Write down the principle of thermister. 2
- (b) Explain principle of piezoelectric transducer & its 5
 equivalent circuit.
- (c) Write short note on dual slope integrating type DVM. 5
- 5 (a) Explain spectrum analyzer with neat sketch. 7
 (b) Narrate hall effect principle. Also discuss hall effect 8
 angular displacement transducer.
- OR**
- 5 (a) Write short note on Ramp type DVM. 7
 (b) Explain application of hall effect sensor for power 8
 measurement.
- 6 Write short notes : (any **three**) 15
 (a) Strain gauges
 (b) Ink-jet printer
 (c) Generalized DAS
 (d) Applications of LVDT
 (e) Programmable gain amplifier