Sem-V ETRX (CBGS) 17/5/16.
Design with linear Integrated Circuit

QP Code : 31088

(3 Hours) **[Total Marks : 80**

N. B. : (1) Question No. 1 is **compulsory**.
(2) Solve any **three** out of remaining questons.
(3) Assume suitable data if necessary.

1. (a) Explain behaviour of op-amp in linear and saturation region with neat graphs. **20**
(b) Explain non-inverting comparator with suitable example.
(c) State various methods to achieve analog to digital conversion.
(d) Explain 78XX series voltage regulator.
(e) Implement y = 3 va – 5 vb + 7 vc using op-amp, where y is output and va, vb & vc are inputs.

2. (a) Derive expression for voltage gain of inverting amplifier and hence design the same for voltage gain = 20. **10**
(b) Design a 2nd order KRC low pass filter with a cutoff frequency fo = 1 KHz and Q = 5. **10**

3. (a) Draw the circuit diagram of an inverting type schmitt trigger circuit. Design such a circuit to meet UTP = + 2.5 V & LTP = – 1 V Assume ± vsat = ± 12 V, for an input of 8sinwt, plot the graph of vo and vin. **10**
(b) Explain working of Wien bridge oscillator and hence design for fo = 5 KHz. **10**

4. (a) Explain R/2R ladder type DAC **10**
(b) Design Mono stable multivibrator using IC 555 to generate output delay of 10 msec. **10**

5. (a) Design voltage regulator using IC 723 for Vo = 10 V and I_L = 200 mA. **10**
(b) Explain internal diagram of power amplifier LM 380 **10**

6. Write short notes on :– **20**
(a) Sample and Hold circuit
(b) V-I converter
(c) Applications of IC 555
(d) Switching mode voltage regulator

FW-Con. 10269-16.