Q.P. Code : 22684

[Time: 3 Hours] **[Marks: 80]**

Please check whether you have got the right question paper.

N.B:
1. Questions no. 1 is compulsory solve any three from remaining questions.
2. Solve any three from remaining questions.
3. Assume suitable data if necessary but mention the same.
4. Figures to the right indicate full marks.

1. Answer the following -

a) Explain why open loop configuration is unsuitable for linear applications of OPAMP? Which type of feedback is used for linear applications of OPAMP. **05**

b) Explain in detail one application of comparator. **05**

c) Draw the circuit diagram and explain the operation of Voltage to current converter. **05**

d) Explain specifications of ADC and DAC. **05**

2. a) Design triangular wave generator for Vopp = 7 V, Fo = 2 khz. Use 741 OPAMP with supply voltage = + /- 15 V. **10**

b) Draw the circuit diagram and explain the operation of sample and Hold circuit. State its applications. **10**

3. a) Draw the block diagram and explain the operation of PLL. State its applications. **10**

b) i) Define input offset voltage, slew rate, thermal drift. **06**

ii) A 741 OPAMP is used as an inverting amplifier with Rl = 1 K and R f = 100K. what is the maximum output offset voltage caused by input offset voltage Vios. For 741 OPAMP Vios = 6 mill volts. **04**

4. a) Design the voltage regulator using IC 723 to give Vo = 3 V. **10**

b) Design second order Butterworth low pass filter having upper cutoff frequency = 1 KHz. Sketch its frequency response characteristics. . **10**

5. a) Draw the circuit diagram and explain the operation of astable multivibrator using IC 555. Explain methods to obtain square wave output. **10**

b) i) Calculate output voltage produced by DAC having output voltage range 0-10 V and whose binary number is- 10(for 2 bit DAC), 0110 (for 4 bit DAC), 10101010(for 8 bit DAC) **03**

ii) Explain the operation of successive approximation type ADC. **07**

6. Write short notes on the following (any four). **20**

a) Practical determination of OPAM P parameters
b) Full wave precision rectifier.
c) VCO IC 566.
d) Switching voltage regulator
e) Logarithmic amplifier.
