T2224 / T1103   APPLICATION OF INTEGRATED CIRCUITS

Q.P. Code :18507

[Time: Three Hours]   [Marks:100]

Please check whether you have got the right question paper.

N.B:
1. Question.No.1 is compulsory.
2. Attempt any three questions from the remaining five.
3. Assume suitable data wherever necessary.

Q.1
a) Explain the need of dual power supply in OP-AMP.   04
b) What is the difference between normal rectifier and precision rectifier? Explain half wave precision   04
   rectifier.
c) Compare IC 78XX with IC 723.   04
d) State various methods to achieve analog to digital conversion.   04
e) Implement $v_o = 3v_a - 5v_b - 6v_c$ 04

Q.2
a) Design a 2nd order KRC low pass filter with a cutoff frequency fo=1 KHz and Q=5.   10
b) Derive the output frequency relation for RC phase shift oscillator.   10

Q.3
a) Explain R/2R ladder DAC.   10
b) Design voltage regulator using IC 723 for V_o=10V and I_L=200 mA.   10

Q.4
a) Explain monostable multivibrator using IC 555. Hence design it for a output delay of 10 ms.   10
b) Explain PLL and VCO. What are their applications?   10

Q.5
a) Explain triangular wave generator using OPAMP.   10
b) How are filters classified? Explain a second order infinite gain band pass filter and derive the 10
   relation of its cut off frequency.

Q.6
a) Explain IC 723 with the help of its functional block diagram. What are the different modes in which 10
   a voltage regulator using IC 723 can be designed?
b) Explain 3 OPAMP instrumentation amplifier. List its applications.   10