R18

Time: 3 Hours   **Max. Marks: 75**

Answer any five questions
All questions carry equal marks
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1.a) Explain non inverting op-amp with neat circuit diagram.
 b) Design an inverting amplifier with a gain of -10 and input resistance of 10kΩ.   [8+7]

2.a) Explain differential amplifier using one op-amp.
 b) Define slew rate and CMRR.
 c) How an op-amp can be used as a voltage follower?   [7+4+4]

3.a) Explain the operation of Op-Amp as an Integrator and Differentiator.
 b) Sketch Schmitt trigger using Op-Amp and explain its characteristics.   [7+8]

4.a) Explain the operation of a current to voltage converter.
 b) With neat circuit diagram, explain the working principle of IC 723 voltage regulator.

                                                                                               [7+8]

5.a) Draw the circuit of a triangular-wave generator; explain its operation and derive
      expressions for frequency of oscillations?
 b) Design a first order low pass filter so that it has a cut off frequency of 2 kHz and pass
      Band gain of '1'.   [8+7]

6.a) Design quadrature type oscillator using op-amp and derive the necessary expression.
 b) Design a second order Butterworth HPF operating at a frequency of 4 KHz.   [8+7]

7.a) Construct an astable operation of IC555 with necessary waveforms and explain in detail.
 b) Draw the block diagram of IC565 and explain its operation.   [8+7]

8.a) Draw and explain the circuit diagram of parallel comparator type ADC.
 b) Draw and explain the operation of an ladder type R-2R DAC.   [8+7]

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