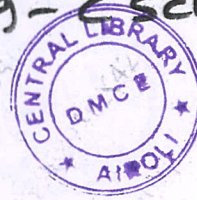E(ELEX.) | SEM-V | LIC | R-19 - Escheme | 09/06/25.

Time: 3 Hours   Max. Marks: 80

NB: 1. Question No. 1 is compulsory and solve any THREE questions from the
        remaining questions
     2. Assume suitable data if necessary
     3. Draw clean and neat diagrams

Q.1 Attempt the following questions.   (20)

   a. Draw block diagram of OPAMP and explain function of each block.   5
   b. Draw circuit diagram and frequency response characteristics of first order Low pass
      filter and explain its operation?   5
   c. Explain why OPAMP is called linear IC?   5
   d. Compare ideal and practical Differentiator circuit?   5

Q.2.a. Design a 2nd order KRC high Pass Filter with a cut-off frequency of 4 kHz and a
        Quality Factor (Q) of 3.   10
    b. Draw and explain the working of a RC PHASE SHIFT Oscillator using an Op-Amp.
        State formula for frequency of oscillation.   10

Q.3.a. Explain with necessary diagrams and waveforms the principle of operation of a
        Astable Multivibrator using IC 555.   10
    b. Design an IC 555 Astable Multivibrator for an output frequency of 1.2 kHz with a
        duty cycle of 60%.   10

Q.4.a. Explain with a circuit diagram the principle of operation of a any one method
        of ADC.   10
    b. With a neat circuit, explain the working of the Weighted resistor type Digital to
       Analog Converter (DAC).   10

Q.5.a. Draw the circuit diagram and explain the operation of a Triangular Wave Generator
        using Op-Amp. Also, describe the modifications required to obtain a Sawtooth Wave
        Output.   10
    b. Explain internal diagram of power amplifier LM 380.   10

Q.6   Write notes on following   20
       i) Peak detector
       Ii) Voltage to current converter.

Program Code :-
1 TO 1135.