

8 DEC. 2025 EXTC SEM-IV C SCHEME LIC QP CODE: 10095468

Time : 3 Hours

Marks : 80

- N. B.**
- 1. Q.1 is compulsory.**
 - 2. Answer any three out of the remaining five questions.**
 - 3. Figures to the right indicate marks.**
 - 4. Answer to the questions should be grouped and written together.**

- Q1. Solve **Any Four** out of five
- Explain the various specifications of IC 555 **5**
 - Explain VCO IC 566 in brief. **5**
 - Explain Op-Amp as a peak detector. **5**
 - Define the following parameters for Operational Amplifier 741 **5**
 - Input resistance
 - CMRR
 - Slew Rate
 - Explain the Virtual ground concept of Operational Amplifier. **5**
- Q2 a. Explain Astable Multivibrator using IC 555 with the help of functional block diagram. Design the same for 1ms time period and 50% duty cycle. **10**
- b. Explain the working of Op-Amp as Schmitt Trigger. **10**
- Q3 a. Explain the open loop and closed loop configuration and characteristics of Op-Amp. **10**
- b. Draw and explain the RC-phase shift oscillator using Op-Amp. Derive the expression for the output frequency. **10**
- Q4 a. Generate triangular waveform using the Op-Amp. **10**
- b. Draw and explain the rectification of signal using Op-Amp
- Q5 a. Draw and explain the functional block diagram of IC 723. Design the same for 2.5V of regulated supply voltage. **10**
- b. Design and explain Op-Amp as adder and subtractor. **10**
- Q6 **Write short notes on (Any Four)**
- Instrumentation Amplifier **5**
 - 78XX series fixed voltage regulator **5**
 - Op-Amp as differentiator **5**
 - Second order Butterworth Filter **5**
 - FSK Demodulator using PLL **5**