

**2014**

**M.Sc.**

**3rd Semester Examination**

**ELECTRONICS**

**PAPER—ELC-306**

**(PRACTICAL)**

*Full Marks : 50*

*Time : 3 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

**(Electronics and Optical Communication)**

Answer any one question, selecting it by a lucky draw.

1. Generate an FM wave using IC 8038. Test the performance of the circuit on a CRO and calculate the frequency deviation. Find out the modulation index. Repeat the process for a new set of modulating signal.
2. Design a circuit to generate PAM signal using a transistor. See the output wave-form of the circuit on a CRO. Repeat it for two carrier signal frequency and two modulating signal amplitude. In all cases note down the amplitude and time period of all the pulses appeared on CRO screen.

*(Turn Over)*

3. Generate an amplitude modulated signal using a transistor on a breadboard. Observe your result using a CRO for different amplitudes with a fixed frequency of the modulating signal. Repeat it for another fixed input frequency. In each case calculate the values of modulation index.
4. Design a PWM circuit using IC555 and plot a graph of signal voltage vs. pulse width for two different carrier frequencies.
5. Generate an amplitude modulated signal using a transistor on a breadboard. Observe your result using a CRO for different amplitudes with a fixed frequency of the modulating signal. Calculate the values of the modulation index and draw graph of modulating signal vs. modulation index using the circuit.
6. Design an AM-demodulation circuit using an envelope detector. Plot the demodulated waveform for 60% and 75% modulation.
7. Design and implement a circuit to generate a PWM signal using IC555. Observe the output on a CRO & record the width with respect to time,  $t$ . Repeat the process for another set of modulating signal.

### **Distribution of Marks**

Theory	05 Marks
Circuit	10 Marks
Experiment	5 Marks
Result & Discussions	07 Marks
viva-voce	10 marks
Laboratory note book	5 Marks
<b>Total</b>	<b>42 Marks</b>