PG/IIIS/ELC-306/13(Pr.)

M.Sc. 3rd Semester Examination, 2013

ELECTRONICS

(*Electronics and Optical Communication*)

(Practical)

PAPER – ELC-306

Full Marks : 50

Time : 3 hours

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

The figures in the right hand margin indicate marks

1. 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 two fixed input frequencies individually.
    In each case calculate the values of modulation
    index.

2. Design and implement a circuit on a breadboard to generate PWM signal using IC 555. Observe PWM output using a CRO and record the width of the pulses. Plot width of the pulses with time. Repeat this process for another set of modulating signal.

3. Generate a frequency modulated signal using IC 8038. Test the performance of your circuit using a CRO and calculate the frequency deviation. Find out the modulation index. Repeat this process for a new set of modulating signal.

4. Design a circuit for amplitude modulation using OTA3080 IC. Test its operation for two sets. In each set, keep the frequency of the modulating signal fixed but vary the amplitude of it. Draw graphs showing the variation of modulation index with modulating signal amplitude.

5. Design a circuit to generate PAM signal using a transistor. See the output waveform of the circuit on a CRO. Repeat it for two carrier signal frequencies and for two modulating signal amplitudes. In all cases, note down the amplitude and time period of all the pulses appeared on CRO screen.

6. Design an AM-demodulation circuit using an envelope detector. Plot the demodulated waveform for 50 % and 75 % modulation.

Distribution of Marks

Theory	— 05
Circuit	— 10
Experiment	— 15
Results and Discussion	— 05
Viva-voce	— 10
Laboratory note book	— 05
Total	50