

2015

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 amplitude modulated signal on a breadboard using a transistor. 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.* calculated modulation index.
2. Design and implement a circuit on a breadboard to generate a PWM signal using IC555. Observe PWM output using a CRO & record the width of the pulses. Plot width of the pulses with time. Repeat this process for another set of modulating signal.

(Turn Over)

3. Generate an FM wave using IC 8038. Test the performance of the circuit on a CRO. Calculate the frequency deviation and the modulation index. Repeat the process for a new set of modulating signal.
4. Design and implement a circuit to generate PAM signal on a breadboard using a transistor. Observe the PAM output using a CRO and record the amplitude and the time period of each pulses. Repeat this process for another set of modulating signal.
5. Design and implement a circuit to demodulate an AM signal on a breadboard using an envelope detector. Give a comparative plot of the demodulated waveforms for 50% and 70% modulation.
6. Generate an amplitude modulated signal using a transistor on a breadboard. Observe your result using a CRO. Calculate modulation index of the modulator. Demodulate the AM wave using a suitable envelope detector circuit.
7. Design and implement a PWM circuit using IC555 and plot a graph of signal voltage vs. pulse width for two different carrier frequencies.

Distribution of Marks

Theory	:	05 Marks
Circuit	:	10 Marks
Experiment	:	15 Marks
Result & Discussions	:	05 Marks
Viva-voce	:	10 Marks
Laboratory note book	:	05 Marks
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Total	:	50 Marks