2016

M.Sc.

3rd Semester Examination

ELECTRONICS

PAPER—ELC-306

(Practical)

Full Marks : 50

Time : 3 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

(Electronics and Optical Communication)

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

1. Generate an amplitude modulated (AM) signal using a transistor on bread board. Observe a result using CRO.

Calculate modulation index of the modulator, Demodulate the AM wave using an suitable envelope detector circuit.

2. Design a frequency modulation circuit using IC 8038 and implement it on a bread board. Verify the operation of the circuit with a CRO and calculate frequency deviation and modulation index.

3. Design a circuit to generate PAM signal using a transistor. Draw the output wave form of the circuit on a CRO. Repeat it for two carrier signal frequencies & for two modulating signal amplitudes. In all cases note down amplitude & time period of all the pulses appeared on CRO screen.

4. Design an AM-modulation circuit using an envelope detector. Plot the modulated wave form for 50% and 75% modulation.

5. Design a circuit for amplitude modulation using OTA 3080IC. Test its operation for two sets. In each set keep the frequency

of modulating signal fixed but vary the amplitude of it. Draw graphs showing the variation of modulation index with modulating signal amplitude.

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

7. Generate an amplitude modulated signal using a transistor on a bread board. Observe your results 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.

8. Generate an amplitude modulated signal using a transistor. Observe the output on a CRO and hence calculate the modulation index for different amplitudes at a fixed frequency. Repeat the procedure for another fixed frequency.

9. For two sets of modulating signal, generate FM using IC 8038. Calculate the frequency deviation and modulation index for both sets.

Distribution of Marks

Theory	:	05 Marks
Circuit	:	10 Marks
Experiment	:	15 Marks
Results and Discussions	:	05 Marks
Viva voce	:	10 Marks
Laboratory note book	:	05 Marks
Total	:	50 Marks