2017

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.

(Communication Laboratory)

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

1. Generate an Amplitude Modulated (AM) signal using a transistor on bread board. Show your result 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.

2. Gnerate a PAM signal using a transistor. Observe the output on a CRO and record the amplitude and time period. Repeat the same for another set. Demodulate the PAM signal using a low pass filter.

3. Design an AM-demodulation circuit with an envelope detector. Plot the demodulated waveform for 60% and 75% modulation. Compare the results.

4. Design a frequency modulation circuit using IC 8038 and implement it on a breadboard. verify the operation of the circuit and calculate the frequency deviation and modulation index.

5. Design and implement a circuit on breadboard to generate PWM signal using IC555. Observe PWM output and record the data with pulses. Plot width of the pulses with time. Repeat this process for another set of modulating signal.

6. Design and implement a circuit Using IC OTA 3080 for amplitude modulation. Record the data for 3 (three) sets of modulating signal amplitude at fixed frequency and calculate the modulation index for each case. Plot the variation of modulation index with modulating signal amplitude.

7. Find the numerical aperture of the given optical fiber. Calculate the acceptance angle for the fibre.

8. Design and implement a circuit for optical conversion of 4-bit signal to its analog form by R-2R ladder network.

9. Measure the dimension of circular aperture by LASER beam. Measure the dimension by another method. Compare the results obtained by the two methods.

10. Generate an amplitude modulated signal using a transistor on a bread board. Calculate the modulation index. Demodulate the AM wave using a suitable envelope detector circuit.

(Turn Over)

11. Generate amplitude modulated signal using a transistor. Observe the output on a CRO for 3 (three) different amplitudes of modulating signal at fixed frequency. For each case, calculate the modulation index. Repeat the process for another fixed frequency. Plot the variation of modulation index with frequency of modulating signal.

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

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