PG/IIIS/ELC-306/18(Pr.)

M.Sc. 3rd Semester Examination, 2018

ELECTRONICS

(Communication Laboratory)

(Practical)

PAPER – ELC-306

Full Marks : 50

Time : 3 hours

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

The questions are of equal value

1. Design and implement a circuit using IC OTA 3080 for amplitude modulation. Record the data for 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.

2. 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.

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

4. Generate pulse amplitude modulated(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.

5. Generate an amplitude modulated (AM) signal using a transistor on breadboard. 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.

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

7. Design a frequency modulation circuit using IC8038 and implement it on a breadboard. Verify the operation of the circuit and calculate the frequency deviation and modulation index.

8. Measure the dimension of circular aperture by LASER beam.

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

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

Distribution of marks

Theory	: 05 Marks
Circuit	: 10 marks
Experiment	: 15 Marks
Result and discussions	: 05 Marks
Viva voce	: 10 Marks
Laboratory Note Book	: 05 Marks
	Total = 50 Marks