PG/IS/ELC/196/24(Pr.)

M. Sc. 1st Semester Examination, 2024

ELECTRONICS

(Analog Circuit Design Lab)

(Practical)

PAPER – ELC-196

Full Marks : 50

Time : 3 hours

Answer **all** questions

The figures in the right hand margin indicate marks

Perform any **one** of the following experiment selecting by a draw :

1. Design a R-C phase shift oscillator of frequency _____ (to be supplied during examination). Implement the circuit and compare design and theoretical value.

2. Design an integrator circuit using OPAMP. Implement the circuit and find the transfer characteristics.

3. Design a first order active low pass filter with cut-off frequency _____ (to be supplied during examination). Implement the circuit and find cut-off frequency.

4. Design a first order active high pass filter with cut-off frequency _____ (to be supplied during examination). Implement the circuit and find cut-off frequency.

5. Design a second order active low pass filter with cut-off frequency _____ (to be supplied during examination). Implement the circuit and find cut-off frequency.

6. Design a second order active high pass filter with cut-off frequency _____ (to be supplied during examination). Implement the circuit and find cut-off frequency.

(*Continued*)

7. Design and implement a regulated power supply using LM 317. Find load and line regulation.

8. Design a fixed biased transistor circuit. Find I_C, I_B, I_E, V_{BE}, V_{CE}, V_{CB}. Draw the load line. Study the change of load line with change in V_{CC}.

9. Design a self bias transistor circuit with R_E. Study the change in I_C with variation of β of transistor. Study the frequency response.

10. Design a self bias transistor circuit with R_E. Study the change in I_C with variation of β of transistor. Study the frequency response.

11. Design and implement a regulated power supply of _____ volt and _____ mA current (to be supplied during examination). Find load and line regulation.

12. Design a differentiator circuit using OPAMP. Implement the circuit and find the transfer characteristics.

Marks Distribution

Circuit design	– 15 Marks
Implementation	– 10 Marks
Record of data	– 10 Marks
Viva-voce	– 10 Marks
Laboratory Note Book	– 05 Marks
Total :	– 50 Marks