

2025

M.Sc. 1st Semester Examination

ELECTRONICS

Paper : ELCC401X8

[Analog Circuits and Systems]

(Practical)

Full Marks : 25

Time : Two Hours

Answer any *one* question through lucky draw.

1. Design a 2nd order active Low Pass Filter (LPF) with cut-off frequency and gain Draw frequency response curve and find the cut-off frequency. Find roll off rate. (Frequency and gain to be supplied during examination)
2. Design an active 2nd order High Pass Filter (HPF) with cut-off frequency and gain = Draw frequency response curve and find cut-off frequency, roll off rate. (Frequency and gain to be supplied during examination)

3. Design a 1st order active High Pass Filter (HPF) with cut-off frequency and gain = Draw the frequency response curve and find the cut-off frequency and roll-off rate.

4. Design a 1st order active Low Pass Filter (LPF) with cut-off frequency and gain = Draw the frequency response curve and find the cut-off frequency and roll-off rate.

5. Design a Fixed Bias Circuit for a Q-point at $I_C = \dots$ mA & $V_{CE} = \dots$ voltage. Find I_B & V_{CE} . Draw a load line curve. (I_C & V_{CC} to be supplied during examination).

6. Design a Fixed Bias Circuit for a Q-point at $I_C = \dots$ mA & $V_{CE} = \dots$ volt. Draw a load line curve. Find the variation of output current with the change of β of a transistor. (I_C & V_{CC} to be supplied during examination)

(3)

7. Design an Integrator circuit using OPAMP. Draw the transfer characteristic curve.
8. Design a differentiator circuit using OPAMP. Draw the transfer characteristic curve.
9. Design a regulated power supply using LM 317.
(Current and Voltage to be supplied during examination)
10. Design a regulated power supply using power transistor.
(Current and voltage to be supplied during examination)
11. Design a RC phase shift oscillator of frequency =
(Frequency to be supplied during examination)

12. Study the frequency response of voltage divider biasing circuit. Find mid band gain and bandwidth.

Marks distribution :

Practical Notebook	5
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Viva-voce	5
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Examination	15
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Total	25
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