



QP CODE: 25050698



Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION DECEMBER 2025

First Semester

M.Sc APPLIED ELECTRONICS

Core Courses - EL020101 - ANALOG ELECTRONIC CIRCUITS

2019 Admission Onwards

E0D8B1B7

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Explain phototransistor with necessary diagram.
2. What is an opto-isolator?
3. Describe the transistor hybrid model.
4. Why power amplifiers are called large signal amplifiers.
5. What is CMOSFETs? What are its special characteristics and features?
6. Distinguish between voltage feedback and current feedback in amplifier circuit.
7. In a Phase shift oscillator $R_1=R_2=R_3=400\text{K}\Omega$ and $C_1=C_2=C_3=50\text{pf}$. Determine the frequency of oscillation.
8. Draw the circuit of a difference amplifier.
9. Explain the working and design of a triangular wave generator circuit with necessary diagrams.
10. With examples describe various coding and numbering schemes of semiconductor devices

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Explain the operational difference between avalanche and schottky diode.
12. What is tuned amplifier? What are the various types of tuned amplifiers?
13. Sketch the cross sectional view of an enhancement mode MOSFET .Explain its operation and characteristics.
14. Explain the effects of negative feedback on a c characteristics of an amplifier.





15. Write short note on L C oscillators and R C oscillators.
16. Draw the block diagram of an op-amp and describe its various blocks.
17. Mention some of the linear applications of op amp.
18. Describe the applications of PLL.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain any two special purpose diodes with their constructional details and VI characteristics.
20. Sketch and explain the structure of an N-Channel JFET.
21. Design a Wien bridge oscillator with $R_1=R_2=110\text{ k ohm}$ and $C_1=C_2=1600\text{ pF}$. Also derive the frequency of oscillation.
22. Draw the schematic of a first order High-pass filter and explain its operation. Also Plot the frequency response.

(2×5=10 weightage)

