

QP CODE: 22001489



Reg No : .....

Name : .....

**M Sc DEGREE (CSS) EXAMINATION, JULY 2022**

**First Semester**

**CORE - PH010104 - ELECTRONICS**

2019 ADMISSION ONWARDS

57098978

Time: 3 Hours

Weightage: 30

**Part A (Short Answer Questions)**

*Answer any **eight** questions.*

*Weight **1** each.*

1. Explain the characteristics of noninverting op-amp.
2. What is feedback? List the different type of feedback.
3. What is meant by total output offset voltage?
4. Explain CMRR ratio.
5. Define frequency response of an OP-AMP. Draw frequency response of 741C.
6. Define slew rate. Mention the causes of slew rate.
7. How does the roll off the Second Order LP Filter compare to that of the First Order LP Filter. Draw a graph of each on the same axis noting the cutoff frequencies and the slope in the stop band.
8. What is a zero crossing detector.
9. What are the limitations of an OP-AMP as comparators.
10. What is the difference between D/A and A/D converters?

(8×1=8 weightage)

**Part B (Short Essay/Problems)**

*Answer any **six** questions.*

*Weight **2** each.*

11. Compare the characteristics of non-inverting and inverting op-amp with feedback.
12. Explain a peaking amplifier with a diagram.
13. Explain low voltage dc voltmeter.
14. Draw the circuit diagram of phase shift oscillator. Obtain the expression for oscillating frequency.
15. Draw the circuit diagram of triangular wave generator using a comparator and integrator. Obtain the output waveforms





16. Explain the operation of IC 555 timer as a monostable multivibrator
17. When a super heterodyne receiver is tuned to 55 KHz, its local oscillator provides the mixer with an input at 1010 KHz. What is the image frequency? Antenna of this receiver is connected to the mixer via a tuned circuit whose loaded Q is 40. What will be the rejection ratio for calculated image frequency?
18. Explain stereo FM receiver.

(6×2=12 weightage)

### **Part C (Essay Type Questions)**

*Answer any **two** questions.*

*Weight 5 each.*

19. Explain the closed-loop differential amplifiers configuration with one op-amp and two op-amps, Derive its voltage gain and input resistance.
20. Explain the difference between integrator and differentiator and give one application each.
21. Explain the working of first and second order high pass filter.
22. Explain the working of a V/F converter.

(2×5=10 weightage)

