QP CODE: 21002074

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Reg No : .....

Name : .....

M Sc DEGREE (CSS) EXAMINATION, NOVEMBER 2021

First Semester

M Sc PHYSICS

CORE - PH010104 - ELECTRONICS

2019 ADMISSION ONWARDS

24BE28BA

Time: 3 Hours Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1. Define the characteristics of an ideal op-amp.
2. What is feedback? List the different type of feedback.
3. What are the difference between input offset voltage and input offset current?
4. Explain CMRR ratio.
5. How does the high frequency model of OP-AMP differ from the equivalent circuit of an OP-AMP.
6. Define break frequency and unity gain bandwidth.How they are related?
7. What are the characteristics of buttorworth filter?
8. What is the difference between a basic comparator and the Schmitt trigger?
9. What is AGC?
10. What are the advantages of stereo FM reception?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11. Derive the voltage gain of a differential amplifier with two op-amp.
12. A peaking amplifier has the following values. $R_1 = 10K\Omega$, L= 50mH with 30Ω internal resistance $C=0.01 \mu F, R_F = 6.8 K\Omega$ and $R_L = 10 K\Omega$. Determine the peak frequency and gain of the amplifier.
13. Explain voltage to current converter with grounded load.

14. Draw first order high pass filter and obtain the frequency of high pass filter.

15. Draw the circuit diagram of triangular wave generator using a square wave generator and integrator. Obtain the output waveforms

16. Explain the D/A converter with R-2R network.

17. List the important features of the IC555 timer.

18. Explain the working of a super heterodyne receiver.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain the working of a voltage shunt feedback amplifier. Obtain expression for voltage gain,input resistance and output resistance with feedback.

20. Explain the difference between integrator and differentiator and give one application each.

21. What do you mean by oscillator? Draw the circuit diagram of RC phase shift oscillator and explain its working with the help of output wave forms.

22. Explain the working of a V/F converter.

(2×5=10 weightage)