R-19

Code: 4305/R

Faculty of Science

B.Sc (Electronics) III-Year, CBCS –IV Semester

Regular Examinations –June/July, 2022

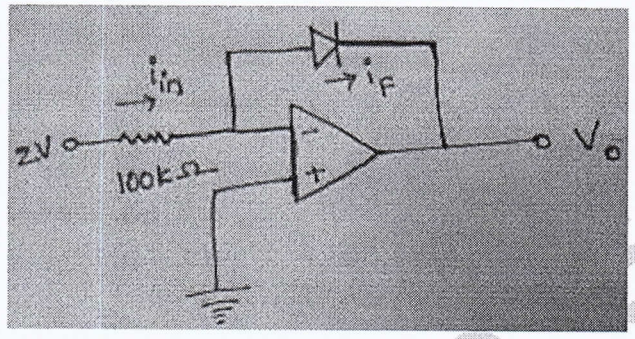
PAPER: Linear Integrated Circuits and Basics of Communication

Time: 3 Hours | Max Marks: 80

Section-A

I. Answer any *eight* of the following (8x4=32 Marks)

1. Mention the characteristics of an ideal Op-Amp.
2. Write a short note on Op-Amp as a voltage amplifier.
3. A differential amplifier has a voltage gain of 150 and a CMRR of 90db. The input signals are 50m V and 100m V with 1m V of noise on each input. Find (i) output signal (ii)the noise on the output.
4. Obtain output voltage using Logarithmic Amplifier using Diode.
5. Discuss Op-Amp as a Shunt Regulator.
6. Determine the output voltage of the circuit



7. Explain Modulation index.
8. Draw the block diagram of High level AM transmitter and explain.
9. An audio signal of 12 KHz is used to modulate a carrier of 1000KHz in AM modulator. Determine side band frequencies.
10. Explain the working of FM radio receiver.
11. What is the difference between PPM and PWM.
12. A 100MHz carrier wave frequency is modulated by a 50KHz.Sinusoidal modulating signal. If the maximum frequency deviation is 150Hz, determine the modulation factor?

Section-B

II. Answer the following questions (4x12=48 Marks)

13. (a) Discuss the construction of closed-loop inverting amplifier with a neat circuit and explain its frequency response.

(OR)

(b) With the help of a neat circuit diagram explain how Op-Amp is used as an Inverting summing amplifier. Discuss how the same circuit may be modified to work as an averaging amplifier.

14. (a) What is multivibrator? With the help of a neat circuit diagram explain how Op-Amp is used as mono stable multivibrator.

(OR)

(b) With the help of a neat circuit diagram explain how 555 timer is used as an Astable multivibrator. And obtain frequency and duty cycle.

15. (a) Explain the frequency spectrum of amplitude modulation and discuss the operation of balanced modulator with a circuit.

(OR)

(b) What are the essentials of demodulation of a AM wave. Explain the working of a diode detector.

16. (a) How FM waves are generated? Describe the working of simple frequency modulator.

(OR)

(b) Discuss the Pulse-Amplitude Modulation(PAM) and Pulse-Code Modulation(PCM) with neat diagram.

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