SRI KRISHNADEVARAYA UNIVERSITY

B.Sc. Degree Examination

(Examination at the end of Semester - III)

MARCH 2022

Part II : ELECTRONICS

Analog Circuits And Communication

Time : 3 Hours] [Max : 75 Marks

Section A (5 × 5 = 25 Marks)

Answer any **Five** *questions. Each question carries* **5** *marks*

1. Draw the block diagram of Op-Amp and explain the function of each block.
2. Define CMRR and Slew rate of an Op-Amp.
3. Explain the working of Op-Amp voltage regulator.
4. Draw the block diagram of IC 555 timer.
5. What is modulation ? Why modulation is needed ?
6. Explain the working of Diode Detector.
7. Define the following terms (i) Frequency Deviation (ii) Carrier Swing, (iii) Modulation Index, (iv) Deviation Ratio and (v) Percent Modulation.
8. Draw the block diagram of AM transmitter and explain each block.

Section B (5 × 10 = 50 Marks)

Answer **All** *questions. Each question carries* **10** *marks*

9. (a) Draw the circuit diagram of inverting and non-inverting amplifiers and explain their operation. Derive expressions for their voltage gain.

(*Or*) (b) Explain how Op-Amp can be used as a (i) Differentiator and (ii) Integrator.

10. (a) Draw the circuit diagram of a square wave generator using Op-Amp and explain its working.

(*Or*) (b) Explain the working of Instrumentation amplifier.

11. (a) Define amplitude modulation and obtain an expression for the amplitude modulated wave.

(*Or*) (b) Explain the working of a simple amplitude modulator with relevant circuit.

12. (a) Explain the working of a reactance modulator with the help of circuit diagram.

(*Or*) (b) What are the advantages of FM over AM ? Derive the expression for the frequency modulated wave.

13. (a) Explain the radio broadcasting and reception principles with block diagrams.

(b) Draw the block diagram of super heterodyne receiver and explain the function of each block.