19102137

Reg No : ....

Name : ....

B.Sc. DEGREE (CBCS) EXAMINATION, OCTOBER 2019

Third Semester

CORE COURSE - EL3CRT07 - ANALOG ICS AND APPLICATIONS

(Common to B.Sc Electronics and Computer Maintenance Model III& B.Sc. Electronics Model III)

2017 Admission Onwards

1EE44C62

Maximum Marks: 80   Time: 3 Hours

Part A

Answer any ten questions.

Each question carries 2 marks.

1. Explain Tail current.

2. What do you mean by slew rate?

3. Draw the equivalent circuit of an op-amp.

4. Draw the circuit of a non-inverting op-amp and give the expression for gain.

5. What is a voltage follower?

6. What are the limitations of an ideal integrator? How they are overcome in a practical circuit?

7. Briefly explain frequency stability of oscillators

8. What is a sine wave oscollator?

9. What is a triangular wave generator?

10. Briefly explain about 555 timer IC.

11. What are the types of voltage regulators available?

12. What is an adjustable voltage regulator?

                                                                                                        (10×2=20)

Part B

Answer any six questions.

Each question carries 5 marks.

13. Why dual supplies are commonly used for Op-amps? Draw the circuit for setting a dual power supply using a single power supply.

14. What is a level shifter? Explain the circuit of a typical level shifter circuit.

15. Define the common-mode rejection ratio (CMRR) and explain the significance of a relatively large value of CMRR.

16. Explain the circuit of a scaling amplifier. What are its applications?

17. Explain the circuit and applications of a volage to current converter.

18. Draw the circuit of a square wave generator using op-amp

19. Explain the circuit of a voltage controlled oscillator. Mention its applications.

20. Draw the circuit of an astable multivibrator using 555 timer

21. Explain any one application of PLL.

(6×5=30)

Part C

Answer any two questions.

Each question carries 15 marks.

22. What are integrated circuits? Explain different scale of integration of ICs and IC package types.

23. Explain open-loop op-ampconfigurations – inverting amplifier, non-inverting amplifier and differential amplifier.

24. Explain the working of closed-loop inverting amplifier and obtain the expression for its voltage gain, input resistance, output resistance, bandwidth, total output offset voltage.

25. Explain op-amp based Wien bridge oscillator. Design a Wien bridge oscillator with frequency of oscillation 3 kHz.

(2×15=30)