

QP CODE: 25019624

B.Sc DEGREE (CBCS) REGULAR/ IMPROVEMENT/ REAPPEARANCE / MERCY CHANCE /MERCY CHANCE EXAMINATIONS, FEBRUARY 2025

Fourth Semester

B.Sc Physics Model II Applied Electronics

Vocational Course - AE4VOT07 - LINEAR INTEGRATED CIRCUITS

2017 Admission Onwards

E16E5663

Time: 3 Hours

Max. Marks : 60

Part A

Answer any **ten** questions. Each question carries **1** mark.

- 1. Draw the block diagram of operational amplifier.
- 2. Define output impedance of Op-amp.
- 3. Explain open loop voltage gain.
- 4. What is the condition for a summing amplifier to become an averaging amplifier?
- 5. What are the applications of comparator?
- 6. What is high impedance voltmeter?
- 7. What is crystal oscillator?
- 8. Distinguish between passive and active filters.
- 9. What are the applications of 555 Timer?
- 10. What are the three states of PLL?
- 11. Draw the fin, fout and Vdc wave forms of exclusive phase detector.
- 12. Compare lock range and capture range.

(10×1=10)

Part B

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



- 13. Draw the circuit symbol of Op-amp. Explain what is mean by inverting input and noninverting input?
- 14. What is frequency response curve? Draw the frequency response curve of an open loop op-amp and mark the break frequency.
- 15. Draw a non-inverting amplifier using Op-amp and derive expression for its output voltage.
- 16. For the subtractor circuit using an Op-amp input voltages are V1=2V and V2=3V and R1=10k α and R2 = Rg = Rf =20k α respectively. Calculate the output voltage.



- 17. Explain how an operational amplifier can be used as an integrator.
- 18. With the help of circuit diagram explain the working of Band pass filter.
- 19. Explain the use of IC-555 timer as a pulse stretcher.
- 20. Draw the circuit diagram and explain the working of a Voltage controlled oscillator using IC555.
- 21. Draw the functional block diagram of monolithic PLL and explain.

(6×5=30)

Part C

Answer any **two** questions. Each question carries **10** marks.

- 22. Explain the working of Op-amp Inverting amplifier. Derive the expression for voltage gain.
- 23. Explain the Wein bridge oscillator in detail.
- 24. With the help of a circuit diagram and associated wave forms describe the working of basic triangular square wave generator using Op-amps.
- 25. Draw the block diagram and explain the working of an Astable multivibrator using 555 timer.

(2×10=20)

