

3222

B. Tech (ECE) (Elective-I) 5th Semester (G-Scheme)

Examination, November-2023

LINEAR IC APPLICATIONS

Paper-PEC-ECE-313-G

*Time allowed : 3 hours]*

*[Maximum marks : 75*

*Note : Question no. 1 is compulsory. Attempt five questions in all selecting one question from each section.*

1. Explain the following : 6×2.5=15
- (a) Current mirror
  - (b) Input offset current and slew rate
  - (c) Voltage to current converter
  - (d) Differentiator
  - (e) High frequency op-amp
  - (f) Active filter

**Section-A**

2. (a) Draw the circuit diagram of differential amplifier using FET and derive an expression for an a.c. analysis for single input balanced output differential amplifier. 8
- (b) Explain pin diagram of an op-amp. 7

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Or

3. (a) Give an ideal and practical characteristics of Op-amp. 8
- (b) Discuss level translators in details. 7

**Section-B**

4. (a) Give the frequency compensation techniques adopted in operational amplifiers. 8
- (b) Explain in detail about voltage series feedback and voltage shunt feedback differential amplifiers. 7

Or

5. (a) Explain block diagram representation of feedback amplifier. 7
- (b) Discuss about the open and closed loop frequency response of op-amp. 8

**Section-C**

6. (a) Describe the working of operational amplifier as a summing and averaging amplifier. 7
- (b) Explain current to voltage converter. 8

Or

7. (a) Explain the following : 8
- (i) DC & AC amplifier
  - (ii) Integrator
- (b) What is peaking amplifier ? Draw its circuit diagram. 7

**Section-D**

8. Explain following : 15
- (a) 555 Timer
  - (b) PLL
- Or
9. Write a short note on : 15
- (a) Power amplifier
  - (b) 8038 IC