

Roll No. ....

3222

B. Tech. 5th Semester (ECE) (Elective-I)  
Examination – December, 2022

LINEAR APPLICATIONS

Paper : PEC-ECE-313-G

Time : Three hours ]

[ Maximum Marks : 75

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Attempt *five* questions in all, selecting *one* question from each Section. Question number 1 is *compulsory*. All questions carry equal marks.

1. Explain the following : 2.5 × 6 = 15

- (a) Cascade configuration of amplifiers
- (b) CMRR
- (c) Current to voltage converter
- (d) Oscillator
- (e) Compensating network
- (f) Active filter

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**SECTION – A**

2. (a) Explain differential amplifier with their types. 8  
(b) Compare ideal and practical characteristics of Op-amp. 7
3. Discuss op-amp and its operating mode. Draw its pin diagram and also give an equivalent circuit for practical op-amp. 15

**SECTION – B**

4. (a) Explain the function of all the basic building blocks of an Op-Amp. 8  
(b) Briefly explain the open and closed loop frequency response of op-amp. 7
5. (a) With neat diagrams explain the types of feedback configurations for amplifier. 8  
(b) Explain frequency response of internally compensative op-amp and non-compensating op-amp. 7

**SECTION – C**

6. (a) Draw and explain the working of operational amplifier as : 7  
(i) Integrator  
(ii) Differentiator
- (b) Explain the working of op-amp as a summing and scaling. 8

3222- (P-3)(Q-9)(22) ( 2 )

7. (a) Explain averaging and instrumentation amplifier. 8  
(b) What is voltage to current converter ? 7

**SECTION – D**

8. Explain following : 5 × 3 = 15  
(a) Universal active filters  
(b) 8038 IC  
(c) Power amplifier
9. (a) What is PLL ? Explain its application. 8  
(b) Explain the astable and monostable operation of IC 555 with necessary waveform. 7
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3222- (P-3)(Q-9)(22) ( 3 )