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**BT-5 / D-17**

**LINEAR IC APPLICATIONS**

Paper–ECE-307 E

Time allowed : 3 hours]　　　　[Maximum marks : 100

*Note :- Attempt any five questions by selecting at least one from each unit.*

### Unit–I

1. With suitable circuit diagram explain the DC and AC analysis of Dual input, balanced output differential amplifier.　　20

2. Draw the equivalent circuit of an Op-Amp and explain its ideal characteristics. Also write short note on: Offset voltage adjustment range, Supply voltage rejection ratio, Differential input resistance, Slew rate.　　20

### Unit–II

3. Derive the expression for closed loop voltage gain, internal resistance and output resistance of voltage series feedback differential amplifier.　　20

4. Write short note on frequency response of internally compensative op-amp and non compensating op amp.　　20

### Unit–III

5. (a) With suitable block diagram and equations explain the working of Op Amp as

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　　(i) Inverter　　(ii) Integrater　　(iii) Phase shifter

　　(iv) Summing Amplifier　　20

(b) Draw the circuit of current to voltage converter. Explain its operation.　　20

6. (a) Draw and explain the prototype for a high pass active filter section of

　　(i) First order　　(ii) Second order and　(iii) Third order.

(b) What is meant by wave shaping circuits? Explain the application of Op-Amp as Oscillator.　　20

### Unit–IV

7. With suitable diagram explain Astable operation of 555 Timer.　　20

8. Write short note on (i) PLL (ii) Power amplifier.　　20

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