



- Notes :
1. All questions are compulsory.
  2. All questions carry equal marks.
  3. Draw neat and labelled diagrams wherever necessary.
  4. Use of log Table/Calculator is allowed.

**1. Either**

- a) What is biasing? Explain the importance of stabilization of operating point. 5+5  
Explain the working of potential divider method of biasing.

**OR**

- b) What are h-parameters? Draw hybrid equivalent circuit for CE amplifier. 5+5  
Derive equations for voltage gain and input resistance using h-parameter.

**2. Either**

- a) Explain the graphical representation of class A, class B and class C amplifier. 5+5  
With suitable diagram, Explain the working of Transformer coupled amplifier? State its advantages and disadvantages

**OR**

- b) Explain the working of single stage RC-coupled amplifier? 5+5  
What is distortion? Explain amplitude and frequency distortion in amplifier.

**3. Either**

- a) Explain the need of two power supply in Difference amplifier? 5+5  
Draw the circuit diagram of difference amplifier and explain single ended and double ended output.

**OR**

- b) What is Op-Amp? State the characteristics of ideal Op-Amp. What is CMRR? 5+5  
Draw the block diagram of operational amplifier and explain the function of each.

**4. Either**

- a) Draw the circuit diagram and explain the working of inverting amplifier using Op-Amp. 5+5  
Explain the concept of virtual ground in inverting amplifier? State the limitations of inverting Op-Amp.

**OR**

- b) Explain the working of Op-Amp as an adder. 5+5  
Draw the diagram of Op-Amp as an integrator and prove that

$$V_0 = -\frac{1}{RC} \int V_{in} \cdot dt$$

- 5.**
- a) Define stability factor and Explain its importance. 2½
  - b) Draw the frequency response curve of RC coupled amplifier and explain it. 2½
  - c) Explain the offset adjustment in Op-Amp. 2½
  - d) Draw circuit diagram for Op-Amp as Schmitt trigger and give its characteristics. 2½

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