

(3 Hours)

[Total Marks : 80]

- N.B. : 1. Question **ONE** is **Compulsory**.  
 2. Solve any **THREE** out of remaining.  
 3. **Draw** neat and **clean** Diagrams.  
 4. Assume suitable **data** if required

- Q.1. Attempt the following
- Explain the concept of virtual ground in op-amp 5
  - Explain block diagram of PCM 5
  - Compare FET and BJT 5
  - What is ZCD? 5
- Q.2. A. Explain the construction and working of n-channel JFET with help of characteristic curves. 10  
 B. Explain op-amp as integrator 10
- Q.3. A. List down various parameters of op-amp with their practical values and ideal values for IC741. 10  
 B. Explain working of PLL as frequency as frequency multiplier with diagram. 10
- Q.4. A. Explain Superheterodyne Receiver along with waveforms at each stage . 10  
 B. What are power amplifiers .what are the types of power amplifiers .Explain class C power amplifiers. 10
- Q.5. A. Derive the equations for  $Z_i$ ,  $Z_o$ ,  $A_v$  for common source configuration using voltage divider network 10  
 B. Discuss Delta Modulation and Adaptive Delta Modulation
- Q.6. Write short note: 20
- TDM-PCM System
  - Generation of FM
  - Comparators.
  - op-amp as summing amplifier

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