Q. P. Code: 35354

(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
a) Explain the construction of n-channel JFET   5
b) List the ideal Characteristics of Op-amp   5
c) What is modulation in communication?What is the need for modulation?   5
d) Compare TDM and FDM   5

Q.2. A. Explain Barkhausen Criteria for Oscillation. Calculate the frequency of oscillations
of Colpitt's oscillator with $C_1 = C_2 = 500$ pF and L=1mH   10
B. Derive the equations for Zi,Zo,Av for common source configuration using
voltage divider network   10

Q.3. A. Explain how op-amp can be used as averaging amplifier in inverting configuration   10
B. Explain generation of SSB using phase shift method.   10

Q.4. A. Explain Superheterodyne reciever in detail and show waveforms at each stage   10
B. State and proof Sampling theorem for Low pass Signal.   10

Q.5. A. Discuss Delta Modulation and Adaptive Delta Modulation   10
B. Write short note on TDM-PCM System   10

Q.6 . Write Short note on
a) PLL   10
b) Op-amp as Comparator   10

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