

S.E.(COMPUTER)(Sem III) (CBSGS) / 49302 - ELECTRONIC CIRCUITSQ. P. Code: 35354
AND COMMUNATION FUNDAMENTALS

(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 $C_1 = C_2 = 500 \text{ pF}$ and $L = 1 \text{ mH}$ 10
B. Derive the equations for Z_i, Z_o, A_v 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 receiver 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 10
a) PLL 10
b) Op-amp as Comparator 10
