

42

SF - sem - III - CBGS - COMPS - ECLF

18/5/16

QP Code : 30607

Time:-3 Hrs

Marks: 80

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

- Q. 1. A. Justify that JFET can be used as a Voltage Variable Resistor
B. With neat diagram explain any one application of Zero-Crossing Detector
C. With neat block diagram explain how PLL can be used to generate large number of frequencies from a single reference frequency.
D. Explain with suitable example what do you understand by signal multiplexing?
- Q. 2 A. Derive an expression for trans-conductance for JFET.
B. List down various parameters of Opamp along with their typical values for IC741. Also explain what the significance of CMRR and Slew Rate is?
- Q. 3 A. Explain how operational amplifier can be used for taking average of three signals.
B. Explain fly wheel effect in Class C amplifier.
C. Explain Nyquist criteria.
D. Determine the magnitude of g_m for a JFET with $I_{DSS} = 8 \text{ mA}$ and $V_p = -4 \text{ V}$ at dc bias points $V_{GS} = -0.5 \text{ V}$ and also at $V_{GS} = -2.5 \text{ V}$.
- Q. 4 A. Explain generation of SSB using phase shift method.
B. Explain the use of PLL as FM detector.
- Q. 5 A. Explain super heterodyne receiver in detail along with the waveforms at each stage.
B. Explain the concept of amplitude modulation.
- Q. 6 A. Write short note on generation of FM by Armstrong method.
B. Mention important specifications of ADC and DAC required for communication.
C. Explain the necessity and significance of modulation in communication.
D. Compare n-channel and p-channel JFET with respect to their device features and voltage-current characteristics.

FW-Con. 10510-16.

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