Q.P. Code: 23885

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.	**5**
	B. Explain the ideal characteristics of op-amp	**5**
	C. With neat circuit diagram explain the use of PLL in frequency demodulation.	**5**
	D. Explain detection of pulse code modulation.	**5**
Q. 2	A. Explain various biasing techniques used in case of JFET.	**10**
	B. Explain how op-amp can be used as differentiator.	**10**
Q. 3	A. Explain the concept of virtual ground in operational amplifier.	**5**
	B. State and explain Barkhausens criteria for oscillations.	**5**
	C. Explain any one pulse modulation technique of your choice.	**5**
	D. Determine the magnitude of g_m for a JFET with I_{DSS} = 6 mA and V_P= −3 V at V_{GS}= −0.5 V and also at V_{GS}= −1.5 V.	**5**
Q. 4	A. Explain the generation of DSBSC using balanced modulator.	**10**
	B. With neat diagram and waveforms explain the operating principle of PLL.	**10**
Q. 5	A. With block diagram describe the principle of analog communication system.	**10**
	B. Explain phase modulation in detail.	**10**
Q. 6	A. What is Nyquist Criteria? What is its significance?	**5**
	B. Discuss Class C power amplifier.	**5**
	C. Write short note on generation of FM by Armstrong method	**5**
	D. Mention important specifications of ADC and DAC required for communication.	**5**