



Either

1. a) What is OPAMP? Explain the use of OPAMP as inverting & non Inverting amplifier 8(m) **8**
- b) Define & Explain the following parameters of OPAMP. **8**
- i) Input bias current & input offset current.
 - ii) Input offset voltage.
 - iii) CMRR
 - iv) Open Loop gain.

OR

- e) Explain how OPAMP is used as – **8**
- i) Integrator.
 - ii) Differentiator.
- f) What is multivibrator? Explain monostable and as table multivibrators with their time diagrams. **8**

2. Either

- a) What is demodulation? Explain demodulation of AM waves. **8**
- b) What is DSBSC modulation? Explain generation and coherent detection of DSBSC waves. **8**

OR

- e) Discuss Fresnel zone problem and ground reflection with respect to microwave communication. **8**
- f) Explain the atmospheric effect on the propagation of microwaves. Discuss the use of antennas in microwave communication system. **8**

3. Either

- a) What is multiplexer & demultiplexer. Explain the working of 1:4 demultiplexer with suitable example. **8**
- b) What is flip-flop? Explain construction & working of JK flip flop & JK master slave flip – flop with suitable time diagram. **8**

OR

- e) Explain the need of A/D and D/A converters. Explain the working of successive approximation A/D converter with suitable diagram. **8**
- f) Draw the pin diagram of IC 8085 microprocessor & label all pins clearly. **8**

- 4.** Either
- a) What are magnetrons? Explain the principle of operation of magnetrons? **8**
 - b) What are wave modes? Explain the working of Helix travelling wave tubes for the generation of microwaves. **8**

OR

- e) Explain the principle of operation and mode of operation of Gunn diode. **8**
 - f) Write short note on. **8**
 - i) IMPATT diode.
 - ii) TRAPATT diode.
- 5.**
- a) Explain Wein bridge oscillator. **4**
 - b) Explain frequency division multiplexing. **4**
 - c) Explain the operation of stack memory addressing modes. **4**
 - d) Discuss velocity modulation used in microwave generation. **4**
