



- Notes : 1. All questions are compulsory.
2. Draw neat and well labelled diagrams wherever necessary.

Either:

1. a) What is junction field effect transistor? Explain the construction and working of a N channel JFET with the help of proper diagrams. **8**
- b) Explain the construction and working of SCR. Discuss the characteristics of SCR. State the applications of SCR. **8**

OR

- e) Discuss the construction and working of UJT. State its applications. **6**
- f) Explain the construction and voltage ampere characteristics of a p-n photo diode. **6**
- g) Write a note on Solar Cell. **4**

Either:

2. a) Draw a circuit diagram of TTL based OR and AND gate and explain its working . **8**
- b) Explain the construction of Hartley Oscillator. Obtain an expression for the frequency of oscillator. **8**

OR

- e) What is the use of coupling in amplifier? Draw a circuit diagram of RC coupled transistor amplifier. Also explain its frequency response graph. **8**
- f) What is the difference between an amplifier and an oscillator? Explain the Colpitts Oscillators in detailed. **8**

Either:

3. a) What is a EXCLASIVE OR gate? Explain the use of XOR gate as a Half Adder and Full Adder. **8**
- b) What is the race around condition? Describe the construction and working of JKMSFF. **8**

OR

- e) Explain the construction and working of JKFF. **8**
- f) What is a multivibrator? Explain the construction and working of astable multivibrator. **8**

Either:

4. a) What is a Magnetron? Describe the principle, construction and working of a Magnetron. **8**
- b) Explain IMPATT Diode in detail. State its advantages & disadvantages. **8**

OR

- e) Explain microwave transmission in detail & What are the advantages and disadvantages of Microwave transmission? **8**
- f) Explain the construction and working of TRAPATT Diode. **8**
5. Attempt all of the followings.
- a) Draw the circuit to study the characteristics of n-p-n transistor in CE mode. Explain the input and output characteristics of it. **4**
- b) Describe the working of common source JFET Amplifier. **4**
- c) Explain the use of OP AMP as an adder. **4**
- d) What are Transferred Electron Devices? Give its example explain it. **4**
