

**Common Instructions to Candidates :**

- 1) This is a question cum answer paper booklet.
- 2) Space is provided to write answers below each question. Answer should be written within the space provided.
- 3) This question paper has 9 questions.
- 4) Candidate should not write the answer with pencil. Answer written with pencil will not be evaluated. (Except graphs, diagrams & maps).
- 5) In case of multiple choice, fill in the blanks and matching questions, scratching, rewriting & marking is not allowed. Answers with such errors will not be evaluated.

1. Fill in the blanks with the appropriate word(s) by selecting from the choices given in the brackets. [10 x 1 = 10]

- a) The base or radix of a decimal systems is \_\_\_\_\_  
(6, 8, 10).
- b) Two diodes are employed in \_\_\_\_\_ rectifier.  
(Full wave, half wave, bridge).
- c) VLSI is a \_\_\_\_\_ scale integrated circuit.  
(small, very small, very large).
- d) NOT gate has one input and \_\_\_\_\_ output.  
(two, one, zero).
- e) When a pentavalent impurity is added to a pure semiconductor is called \_\_\_\_\_  
semi conductor.  
(N - type, P - type, PN - type).
- f) A \_\_\_\_\_ can retain its output state after the inputs are removed.  
(shift register, transistor, flip-flop).
- g) An oscillator requires \_\_\_\_\_ circuit.  
(feedback, tank, turned).

- h) The electric power consumption in a integrated circuit is \_\_\_\_\_.  
(high, medium, low).
- i) A \_\_\_\_\_ is used for storage and transfer of binary information in a digital system.  
(shift register, register, buffer register).
- j) Op-Amp is amplify \_\_\_\_\_ input signals.  
(a.c, d.c, both a.c. & d.c.).
2. a) With a neat circuit diagram explain the working of P-N junction diode in reverse bias condition.
- b) List the difference between P-type and N-type semiconductor.
- c) What is dooping?
3. a) Define a transistor. Draw a structure and symbol of PNP transistor.
- b) What are the applications of transistor?
- c) Define FET.
4. a) Name the types of electron emissions.
- b) What is amplifier?
- c) Draw a neat circuit diagram of Simple Common Emitter (CE) transistor amplifier using NPN transistor.
5. a) List the application of logic gates.
- b) Draw a neat symbol of exclusive NOR gate and explain briefly.
- c) Write the truth table of OR gate.

6.
  - a) What do you understand an integrated circuit?
  - b) How the I.C.'s are classified?
  - c) Write the advantages of I.C.'s.
  
7.
  - a) Define Shift register.
  - b) Draw a block diagram of Op-Amp.
  - c) List the application of Op-Amp.
  
8.
  - a) Convert 23 into binary number.
  - b) Convert 101001 into decimal number.
  - c) Convert 56231 into hexadecimal number.
  
9. Write short notes on :
  - i) Oscilloscope.
  - ii) LCD.
  - iii) Counters.
  - iv) Microprocessor.