

**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.