

B. Sc. Semester-III (Honours) Examination 2020

Subject- Electronic Science

Paper- CC VI (Digital Electronics and Verilog/VHDL)

Full Marks- 40

Time- 2 hours

Candidates are required to give their answers in their own words as far as practicable.

Answer any eight of the following questions (all questions carry equal marks): $5 \times 8 = 40$

1. What are different representation schemes of signed decimal integers in binary? Discuss with examples.
2. Design OR, NOR and EX-OR gates using minimum number of NAND gates.
3. What is a MUX? How do realise a three variable logic function using a MUX?
4. What are the special features of a JK-FF? Explain the merits of MSJK-FF.
5. Show with suitable example that SOP and POS representations of logic functions are equivalent.
6. What is a ring counter? Design a 4-bit ring counter using D-FFs.
7. What is ROM? What are the differences between ROM and RAM? Describe the design concept of ROM. Name a few types of ROM.
8. Compare between Verilog and VHDL. How can you describe a typical hardware circuit using VHDL? Answer with suitable example.
9. How is sequential processing done in VHDL? Explain sequential statements LOOP, NEXT and EXIT>
10. Write notes on any two of the following:
 - (a) Fan-in and Fan-out
 - (b) Binary subtraction circuit
 - (c) Hexadecimal number.