

CBCS SCHEME

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15NT81

Eighth Semester B.E. Degree Examination, July/August 2021 Nano-Electronics

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

- 1 a. Explain quantum electronics, write a note on upcoming electronic devices. (08 Marks)
b. Discuss about quantum cellular automata. (08 Marks)
- 2 a. Write a note on short channel MOS transistor and electron-spin transistor. (08 Marks)
b. Discuss about quantum dot array. (08 Marks)
- 3 a. Explain about quantum dot FET. (08 Marks)
b. Describe about the three structures of CNTs. (08 Marks)
- 4 a. Explain Fin FET. (08 Marks)
b. Write a note on organic FET. (08 Marks)
- 5 a. Describe about the DWNTs. Mention its properties and applications. (08 Marks)
b. Explain the I-V characteristics of P-CNTFET and n-CNTFET. (08 Marks)
- 6 a. Explain about SWNTs, its properties and applications. (08 Marks)
b. List out the importance and applications of nanotubes in FETs. (08 Marks)
- 7 a. With a schematic diagram describe three terminal tunneling diodes. (08 Marks)
b. Discuss about the technology of RTD. (08 Marks)
- 8 a. Write a note on digital circuit based on RTBT. (10 Marks)
b. Give a short note on tunneling diodes and its applications. (06 Marks)
- 9 a. Explain about blockade in quantum dot circuits. (08 Marks)
b. Explain tunneling through potential barrier. (08 Marks)
- 10 a. Briefly explain about tunneling junctions and its applications. (08 Marks)
b. Explain the principle involved in coulomb blockade. Add a note on blockade in nano-capacitors. (08 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.