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15NT81

Eighth Semester B.E. Degree Examination, June/July 2019
Nano Electronics

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1   a.   Explain quantum electronics. Write a note on upcoming electronic devices.   (08 Marks)
    b.   Discuss about FET versus SET with neat sketch.   (08 Marks)

OR

2   a.   Write a note on short channel MOS Transistor and Electronic – spin transistor.   (08 Marks)
    b.   Enumerate the applications of SET in modern electronic devices in detail.   (08 Marks)

Module-2

3   a.   Explain about Carbon nanotubes with properties.   (08 Marks)
    b.   Explain Quantum dot FET with neat sketch.   (08 Marks)

OR

4   a.   Explain Fin FET with neat sketch.   (08 Marks)
    b.   Enumerate the applications of CNTs.   (08 Marks)

Module-3

5   a.   With the neat sketch explain SWNTS. Mention their properties and applications.   (08 Marks)
    b.   Write a note on memory cell using CNTFET.   (08 Marks)

OR

6   a.   Explain the IV – characteristics of P-CNTFET and N-CNTFET in detail.   (08 Marks)
    b.   List out the applications and importance of Nanotubes in FETs.   (08 Marks)

Module-4

7   a.   Give a short note on Tunneling diode. Mention its applications.   (06 Marks)
    b.   Explain RTD with a neat sketch.   (10 Marks)

OR

8   a.   Write a note on digital circuit based on RTBT with a neat sketch.   (08 Marks)
    b.   With the neat sketch describe three terminal tunneling diode.   (08 Marks)

Module-5

9   a.   Explain tunneling through potential barrier.   (08 Marks)
    b.   Explain about blockade in quantum dot circuits.   (08 Marks)

OR

10   a.   Discuss about hot electron effects in MOSFETS.   (08 Marks)
     b.   Briefly explain about tunneling junction. Mention applications of tunneling.   (08 Marks)

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