Reg. No. : | | | | | | | | | | |

Question Paper Code: 59419

B.E./B.Tech. DEGREE EXAMINATION, SEP 2020

Elective

Electronics and Communication Engineering

15UEC919 - NANOELECTRONICS

(Regulation 2015)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any Six of the following Questions)

1. Which one of the following microscopes can achieve the greatest magnification CO1- R

   (a) Electron microscope (b) Optical microscope

   (c) Scanning tunneling microscope (d) All of the above

2. The conductivity of certain types of nanotubes is significantly __ that of copper. CO1- R

   (a) Greater than (b) Less Than (c) Equal (d) None of the above

3. In which of the following the atoms do not move from each other CO1- U

   (a) Shape memory alloys (b) Nano materials

   (c) Dielectrics (d) Static materials

4. Which of the following is used to make both nano-particles and nano-powders CO2- R

   (a) Chemical vapour deposition (b) Sol-gel technique

   (c) Plasma arching (d) Electro deposition

5. Which of the following are considered techniques that fall within the category called top-down approaches to nanofabrication CO2- R

   (a) X-ray lithography (b) Electron-beam lithography

   (c) Micro-imprint lithography (d) All of the above

6. _____ is the process whereby nuclei (seeds) act as templates for crystal growth CO3- R

(a) Nucleation (b) Clusters (c) Nano crystal (d) None of the above

7. Biosensor is used to detect CO3- R

(a) Chemical species in biological samples (b) Temperature

(c) Pressure (d) All of the above

8. _____are normally defined as those sets of subsystems and components that platform some types of functionality defined role. CO4- R

(a) Systems (b) Assemblies (c) Environments (d) all of the above

9. In a _____the primary value of the product lies with its technology or its functional capability to accomplish some specifc task. CO4- R

(a) User-driven product (b) Technology-driven product

(c) Platform products (d) Process-intensive products

10. _____ is a process used in micro fabrication to pattern parts of a thin film or the bulk of a substrate CO4- R

(a) Optical lithography (b) UV lithography

(c) Photo lithography (d) Both (a) and b)

PART – B (3 x 8 = 24 Marks)

(Answer any Three of the following Questions)

11. Explain the working of XRD analyzer and how it can be used to analyze a crystal CO1- App (8)

12. Explain the principle of carbon nano tube transistors and its three different types. CO2- U (8)

13. Describe the structure and operation of DNA for nano crystals. CO3-U (8)

14. Illustrate nano product form of nano material and explain in detail. CO4-U (8)

15. Explain in detail about characterizing forms and functions in nano technology process. CO4-U (8)