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Question Paper Code: 59043

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Elective

Electronics and Communication Engineering

15UEC919 - NANO ELECTRONICS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

- Kind of electron microscope which is used to study internal structure of cells is
 - scanning electron microscope
 - Transmission electron microscope
 - light microscope
 - Compound microscope
- _____ conceptualized carbon nano-tubes?
 - Richard Smalley
 - Albert Einstein
 - Issac Newton
 - Richard Feynman
- Who introduced the term 'Nucleic acids'?
 - Meisher
 - Robert Brown
 - Lipmann
 - Altmann
- Which of the following is an example of bottom-up approach for the preparation of nano materials?
 - Etching
 - Dip pen nano-lithography
 - Lithography
 - Erosion
- The size of a quantum dot is ____ nm.
 - 5
 - 10
 - 50
 - 100

PART - B (5 x 3 = 15 Marks)

- What is the working principle of Raman Spectroscopy.
- Give any two excellent properties of carbon nanotubes.
- What is meant by DNA computer?

9. What is the process of photolithography?

10. List the applications of quantum dots.

PART - C (5 x 16 = 80 Marks)

11. (a) Explain the importance of considering higher angle(2θ) reflections while analyzing the XRD patterns. (16)

Or

(b) Explain the various steps involved in sample preparation route for TEM. (16)

12. (a) Discuss in detail about Carbon Nanotube Fabrication, Structure and Properties. (16)

Or

(b) With neat sketch explain the applications of Carbon Nanotubes. (16)

13. (a) Discuss the fundamental advanced silicon MOSFET concepts in nanoelectronics. (16)

Or

(b) With neat sketch, design and explain the working of OLED. (16)

14. (a) Explain in detail about Modular design approaches for product development. (16)

Or

(b) Briefly discuss about the concepts of photolithography. (16)

15. (a) Explain the concepts of CVD. (16)

Or

(b) Describe in detail about Giant and Colossal magneto resistance. (16)