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**Reg. No. :**

**Question Paper Code: 4904B**

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

Elective

Electronicsand Communication Engineering

14UEC921- NANO ELECTRONICS

(Regulation 2014)

Duration: Threehours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The size of nanoparticles is between \_\_\_\_\_ nm.

(a)100 to 1000 (b)0.1 to 10 (c)1 to 100 (d)0.01 to 1

2. Greeks and Romans had used nanoparticles in the manufacture of

(a)Cosmetics for eyes (b)Medicines (c)Metal articles (d) Hair-dye

3. The largest cluster of carbon atoms in Bucky balls known till today consists of \_\_\_\_

carbon atoms.

(a)60 (b)75 (c)180 (d)540

4. The smallest cluster of carbon atoms in Bucky balls known till today consists of \_\_\_\_

carbon atoms.

(a)75 (b)60 (c)20 (d) 15

5. Fullerene or bucky ball is made up of \_\_\_\_ carbon atoms.

(a)100 (b)20 (c)75 (d) 60

6. Carbon atoms make \_\_\_\_ type of bond with other carbon atoms.

(a)Covalent (b)Ionic (c)Metallic (d)Hydrogen

7. The width of a typical DNA molecule is \_\_\_\_ nm.

(a)1 (b)2 (c)5 (d)10

8. \_\_\_\_ resins are produced by the condensation polymerisation of formaldehyde with

urea or melamine.

(a)Epoxy (b)Phenolic (c)Alkyd (d) Amino

## 9. Which antennas are renowned as patch antennas especially adopted for space craft

## applications?

(a)Aperture (b)Microstrip (c)Array (d) Lens

10. The efficiency of the solar cell is about

(a)25 % (b)15 % (c)40 % (d)60 %

PART - B (5 x 2 = 10 Marks)

11. Define Crystallography.

12. What is Photo fragmentation?

13. Define Carbon Nanotubes.

14. What is OFET? How the OFETS are formed?

15. List out the applications of Photonic band Gap Antenna.

PART - C (5 x 16 = 80 Marks)

16. (a) Discuss briefly about the crystal structure and face centered cubic nano particles. (16)

Or

(b) Elucidate in detail about the microscopy and configuration and also summarize

the types of microscopy with neat diagrams. (16)

17. (a) With the help of a neat diagram explain the construction and working of

Geometric and Electronic Structure. (16)

Or

(b)Describe the significance of Molecular and Superfluid Clusters with one

illustration for each. (16)

18. (a) Dramatize the principles of Structure of C60 and its Crystal and also illustrate

with suitable diagram. (16)

Or

(b) Demonstrate in detail about the Field Emission and Shielding with its neat

diagram. (16)

19. (a) Explain in details about MOSFET and OFETS design and its function. (16)

Or

(b) Elucidate the principles and operations of Nano Structure studies for Advanced Sensors and its applications. (16)

20. (a) Reconstruct the working principle ofMicrostrip Patch Antenna with necessary

diagram. (16)

Or

(b) Explain the working principle of Organic and Green Solar Cell. (16)