

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2022  
(Fifth Semester)

Branch – BIOCHEMISTRY

NANO BIOLOGY

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

1. Nanomaterials are the materials with at least one dimension measuring less than
  - (i) 1nm
  - (ii) 10nm
  - (iii) 100nm
  - (iv) 1000nm
2. The diameter of hydrogen atom is
  - (i) 0.1nm
  - (ii) 1nm
  - (iii) 0.01nm
  - (iv) 10nm
3. The melting point of particles in nano form
  - (i) Increased
  - (ii) Decreased
  - (iii) Remains same
  - (iv) Increased then decreased
4. Which of the process of materials was not described as nanotechnology?
  - (i) Separation
  - (ii) Processing
  - (iii) Creation
  - (iv) consolidation
5. Nanoemulsions are otherwise called as
  - (i) Oil in water emulsion
  - (ii) Mini emulsion
  - (iii) Sub micro emulsion
  - (iv) Both (ii) and (iii) answers
6. Explain XRD
  - (i) X- Ray
  - (ii) X-Ray diffraction
  - (iii) X-Ray diode
  - (iv) X-Ray dot
7. ....is a suspension of particles in the range from 1nm to 1 micrometer in size
  - (i) Emulsion
  - (ii) Suspension
  - (iii) Hydrosol
  - (iv) Colloid
8. The field that permits the modeling and stimulation of complex nanometer scale
  - (i) Wet Nanotechnology
  - (ii) Dry Nanotechnology
  - (iii) Computational Biotechnology
  - (iv) Computational Biology
9. What type of nano material has antioxidant properties?
  - (i) Nanowires
  - (ii) Nanotubes
  - (iii) Fullerenes
  - (iv) Bucky balls
10. Which metal is used with nanoparticles for Antibiotic Delivery?
  - (i) Silver
  - (ii) Gold
  - (iii) Titanium
  - (iv) Zinc

**SECTION - B (35 Marks)**

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 7 = 35)

- 11 a Briefly explain about the nano system in biology.

**OR**

- b Write in details about the morphology of nanoparticles.

Cont...

12 a Explain in details the concept of quantum dots and quantum wells.

**OR**

b Discuss in detail about the nanofabrications.

13 a Compare the work of Scanning Electron Microscope and Transmission Electron Microscope.

**OR**

b Outline the FTIR characterization of nanoparticles.

14 a Write in detail about the Biomimetic robots.

**OR**

b Discuss the advantages of nanomedicine.

15 a Enlist the applications of nanoparticles.

**OR**

b Explain the applications of nanotechnology in spinal cord treatments.

**SECTION - C (30 Marks)**

Answer any **THREE** Questions

**ALL** Questions Carry **EQUAL** Marks

(3 x 10 = 30)

16 Discuss in detail with examples nanomaterials of different size and shape.

17 Describe the working of Atomic Force Microscope. What are the precautions required while operating AFM.

18 Explain the method of Nanoparticles preparations and discuss the any two characterization of nanoparticles.

19 Enlist the applications of nanorobots in immune system.

20 Explain the concept of nanobiosensors.

Z-Z-Z

END