National Centre for Nanoscience and Nanotechnology (NCNSNT)

University of Madras

Syllabus and model question pattern for M.Sc. Nanoscience and Nanotechnology Entrance Examination

Syllabus: M.Sc. Nanoscience and Nanotechnology is an inter-disciplinary course; hence the entrance examination questions will be asked from the following subjects in basic level.

Physics: Electrostatics - Electromagnetic Waves and Optics - Atomic Physics - Nuclear Physics - Semiconductor devices and applications - Communication systems.

Chemistry: Inorganic, Organic and Physical Chemistry.

Biology: General biology and Biotechnology.

Model Question Pattern — Total Marks = 100

BIOLOGY (30 x 1 = 30 mark)

1. What is the full form of GFP?
   a) Green Fish Protein b) Green Fluorescent Protein
   c) Go for Protein d) Glass of Protein [ ]

2. Which enzyme can be used for bioluminescence?
   a) Luciferase b) Amylase c) Protease d) Lipase [ ]

CHEMISTRY (30 x 1 = 30 marks)

1. The bond order of oxygen molecule is
   a) 2.5 b) 1 c) 3 d) 2 [ ]

2. The migration of colloidal particles under the influence of an electric field is known as
   (a) electroosmosis (b) cataphoresis
   (c) electrodialysis (d) electrophoresis [ ]

NANOSCIENCE AND NANOTECHNOLOGY (10 x 1 = 10 marks)

1. Which ratio decides the efficiency of nanosubstances?
   a) Weight/volume b) Surface area/volume
   c) Volume/weight d) Pressure/volume [ ]

2. The size of a virus is ____ nm.
   a) 2 b) 50 c) 20 d) 2000 [ ]

PHYSICS (30 x 1 = 30marks)

1. Resistivity of a wire depends on
   a) Length b) Material c) Cross section area d) None of the above [ ]

2. Production of heat due to current is related by which law
   a) Ohm's law b) Joule's law c) Kelvin's law d) Maxwell's law [ ]