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BBB-003-0491102 Seat No. _____

B. Sc. / M. Sc. (Applied Physics) (Sem. X) (CBCS) Examination

June / July - 2021

Nanotechnology and Environment : Paper - XIV

(New Course)

Faculty Code : 003

Subject Code : 0491102

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions : (1) Attempt Any Five questions.

(2) Numbers in the right margin indicate marks

1 Answer the following questions : **14**

(1) What do you mean by Global warming?

(2) What are nanocatalysts?

(3) Which are the existing technologies used for energy harvesting ?

(4) Give any two importance of biodiversity

(5) What are the advantages of single walled carbon nanotubes?

(6) Explain Cytotoxicity of TiO2 nanoparticles in short.

(7) Which are the non-point source pollutions ?

2 Answer the following questions : **14**

(1) Which are the major pollutants in the environment?

(2) Write in brief "Green Technology".

(3) What are the effects of CeO2 nanoparticles?

(4) What are Quantum dots? Give some examples.

(5) Why it is necessary for organisms to sequester iron in a non-toxic form?

(6) Name the compound which can be utilized as catalytic desulfurization

(7) State some of the pressure driven membrane process used for treatment of waste water.

3 Answer the following questions : **14**

(1) Explain the approach of energy harvesting through solar roadways and wireless charging from electric vehicles.

(2) Write a detailed note on Ocean acidification

4 Answer the following questions : **14**

(1) Write short notes on (i) Smog and Pollution (ii) Ozone layer depletion

(2) Explain the major benefits of green technology

5 Answer the following questions : **14**

(1) Explain the toxic effects of Iron oxide nanoparticles.

(2) Write a detailed note: Ecotoxicological Impacts of Nanomaterials.

6 Answer the following questions : **14**

(1) Explain the applications of Quantum dots in detail.

(2) Explain: Nanomaterial Interaction with Microbial Cell Components

7 Answer the following questions : **14**

(1) Write a detailed note: Membrane fabrication using nanomaterials.

(2) Write a note: Reactivity, Fate and Lifetime of Nanoparticles used for ground water remediation.

8 Answer the following questions : **14**

(1) Write a detailed note: Nanomaterial based adsorbents for water and waste water treatments.

(2) Write a note: Fullerene based membranes.

9 Answer the following questions : **14**

(1) Write a short note on Process emission control with the approach of nanotechnology.

(2) How Non-point source pollution can be controlled by nanofiltration process

10 Answer the following questions : **14**

(1) (a) Write a short note on Process emission control with the approach of nanotechnology **5**

(b) State some of the pressure driven membrane process used for treatment of waste water. **2**

(2) Describe the mechanism of microbial desulfurization
