

MASTER OF TECHNOLOGY (NANO TECHNOLOGY) (CBCS- 2015 COURSE)
M. Tech. (Nano Technology) Sem-II :SUMMER- 2022
SUBJECT : ENERGY, ENVIRONMENT, SAFETY & COMMERCIALIZATION FOR
NANOTECHNOLOGY

Day : Wednesday

Time : 10:00 AM-01:00 PM

Date : 3/8/2022

S-14249-2022

Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Draw neat diagram **WHEREVER** necessary.
- 4) Answer to both the sections should be written in **SEPARATE** answerbook.

SECTION - I

- Q.1** Renewable energy sources are prospective alternative for sustainable development. **(10)**
Explain how Nanotechnology can help to realize the effectiveness of this fact.

OR

Explain the construction and working of a Hydrogen fuel cell.

- Q.2** Describe the Energy Supply chain along-with each influencing parameter. **(10)**

OR

State the usefulness of Hydrogen storage. Describe how Hydrogen storage can be undertaken with use of metal hydrides.

- Q.3** Explain the working of a bio-sensor. Add a note on how it can monitor **(10)**
contaminations in environment.

OR

Describe the construction and working of NEMS. State which materials are used for its fabrication.

SECTION - II

- Q.4** Discuss '*Ecotoxicology*'. State in details how it can influence environmental **(10)**
policies.

OR

Give an overview about recommended energy and regulatory controls needed while handling nanomaterials at lab level.

- Q.5** Describe the toxic health aspects involved with the exposure of '*polychlorinated biphenyls*' (PCBS). State the preventive measures to be undertaken for the same. **(10)**

OR

Explain how chronic exposure to CNTs poses risk to human health. State the measures to be undertaken to minimize the risk.

- Q.6** Explain steps in nano-product development. Discuss its effectiveness. **(10)**

OR

Write brief note on

- a) Sensitivity analysis
- b) Guidelines for risk assessment challenges

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