

7/22

2/33

**1905E717**  
**M.Sc. (Sem.-III) Examination**  
**503 Environmental Science**  
**May-2017**

Candidate's Seat No : .....

**Time : 3 Hours]**

**[Max. Marks : 70**

**Note: Draw the diagram where ever required.**

**Q.1 Answer the following in detail: [14]**

- a) Justify "In deep sea, entire ecosystem results from the presence of sulfur and iron"  
**OR**  
a) Write a note on (i) Marine Biology and Oceanic GHG emission (ii) Ocean Anoxia.  
b) Explain salinity and ionic strength in complex medium called sea water.  
**OR**  
b) Describe the Marine Sulfur Cycle and the Charlson Hypothesis.

**Q.2 Answer the following in detail: [14]**

- a) Describe the oceanic flow of Uranium in detail.  
**OR**  
a) Draw and explain schematic diagram of oceanic input and cycle of U-Th isotopes.  
b) Give a brief account on (i) cosmogenic radionuclides (ii) Role of particles.  
**OR**  
b) Elaborate on the source and sink of radium in marine environment.

**Q.3 Answer the following in detail: [14]**

- a) Give comprehensive coverage on oil slicks in marine environment.  
**OR**  
a) Elaborate on overview of marine pollution.  
b) Justify "Protection of the marine environment is to be aided by economic factor".  
**OR**  
b) Write a note on the impact of litter and debris in an ocean.

(P.T.O)

E 717-2

**Q.4 Answer the following in detail:**

**[14]**

- a) Discuss the challenges involved in developing a drug from sea.  
**OR**
- a) Give a brief account on promising anti-cancer drugs emerging from ocean.
- b) Justify: "secondary metabolites acts as antifeedants".  
**OR**
- b) Explain the future prospects of pharmaceutical drugs from sea.

**Q.5 Answer the following in short (each carry one mark):**

**[14]**

- a) What is used to estimate age of water mass ?
- b) State the limitation of Debye-Huckle equation.
- c) Name the oil tanker which caused spill in Southwest England.
- d) What is short life of radon ?
- e) Which are the natural sources of chlorine?
- f) Write the acronym of MARPOL and LDC.
- g) Enlist non-point source pollution contributing to ocean chemistry.
- h) What is Debris?
- i) When was Radium discovered?
- j) Define: *El Nino*.
- k) Construct the diagram of feedback loop involving climate and planktonic production of DMS.
- l) Explain the term: Radioactivity.
- m) Name the first person who measured thorium.
- n) Enlist chronically debilitating human diseases.

**Note: Draw the diagram where ever required.**

**Q.1 Answer the following in detail:** [14]

- a) Define: Composting and explain various phases of the composting process.  
OR  
a) Elaborate on the generation and composition of landfill gases.
- b) Describe the various steps used for the protection and control from radiation.  
OR  
b) Write note on segregation, storage and transportation of medical and hospital waste.

**Q.2 Answer the following in detail:** [14]

- a) Elaborate on (i) Less tangible costs of Environment management.  
(ii) Future and Long-term liability costs of Environment management.  
OR  
a) Explain the construction and working of Precoat drum filter.
- b) What are the initiatives taken by government to stimulate source reduction ?  
OR  
b) Discuss wide array of government policy options used to promote reduction in toxicity of trash.

**Q.3 Answer the following in detail:** [14]

- a) Explain hierarchy of scrap tyre recycling in detail  
OR  
a) Discuss composition and environmental impacts of major types of batteries.
- b) Explain in detail the recycling process of PVC.  
OR  
b) Give a brief account on magnetic separation system used with shredded solid waste.

(P.T.O)

E 674-2

**Q.4 Answer the following in detail:**

**[14]**

- a) Explain intrusive and non-intrusive types of field sampling methods.
- OR
- a) Elaborate on different types of hazardous waste storage tanks and impoundments.
- b) Write a note on biological and physical treatment of hazardous waste.
- OR
- b) Describe various hazardous waste minimization methods.

**Q.5 Answer the following in short (each carry one mark):**

**[14]**

- a) Name two major methods used for recycling of used oil.
  - b) Differentiate between primary and secondary cell batteries.
  - c) Classify the major methods used for landfilling of MSW.
  - d) Name the principal landfill gas constituents.
  - e) Define: Baling.
  - f) State the uses of zinc air batteries.
  - g) Which materials are used to form the precoat bed?
  - h) State various elements of integrated solid waste management.
  - i) What is tolerance dose for protection from radiation?
  - j) Which two factors determine the success/failure of centrifugation?
  - k) Name various types of non-intrusive field sampling methods.
  - l) Give the acronym of ICRP.
  - m) What is front ending processing in recycling?
  - n) Name four main types of eddy-current separators.
-