Printed Pages : 8

H-7227

M.Sc. (Semester-II) Examination, July - 2022

ENVIRONMENTAL SCIENCE

(Waste Management)

Time Allowed : Three Hours

Maximum Marks : 70

Minimum Passing Marks : 28

Note : This question paper is divided into **four** Sections. Attempt questions of all four sections as per given direction. Distribution of marks is given in each section.

SECTION-A

(Objective Type Questions)

Note : Attempt **any ten** questions. Each question carries **1** mark. [10×1=10]

1. (A) Multiple Choice Questions (Any five) :

(i) Waste removal system was established for the first time in which of the following cities?

(a) Athens

(b) Lahore

(c) Paris

(d) London

(ii) Which of the following solid wastes describe the term 'Municipal Solid Waste'?

(a) Toxic

(b) Hazardous

(c) Non-toxic

(d) Non-Hazardous

(iii) Why it is difficult to recycle plastics?

(a) It is very hard

(b) It comes in different sizes

(c) It is adhesive

(d) It contains different type of polymer resins

(iv) Which of the following is done on an individual level?

(a) Burining

(b) Disposal

(c) Recycling

(d) Source reduction

(v) Why re-cycled paper is banned for use in food containers ?

(a) It creates lot of spaces

(b) It creates contamination

(c) Paper is very thick and can't cover the food containers well

(d) It can only be used for one time

(vi) The organic material of the solid waste will decompose.

(a) by the flow of water

(b) by the soil particles

(c) by the action of micro-organisms

(d) by oxidation process

(B) Fill in the blanks (Any five) :

(vii) The process of burning municipal solid wastes under suitable temperature and conditions in a specific furnace is called _____.

(viii) The burning of solid waste is not recommended because ____.

(ix) When the organic matter present in the sanitary landfill decomposes, it generates_____.

(x) The oldest and most common method used to dump solid wastes is termed as _____.

(xi) There are ____ main components in integrated waste management process.

(xii) The number of functional components of solid waste management is _____.

SECTION-B

(Very Short Answer Type Questions)

Note: Attempt **any ten** questions. Each question carries **02** marks. (word limit **25-30** words) [10×2=20]

2. (i) Define Biofilm.

(ii) Define activated sludge.

(iii) What is imhoff tank?

(iv) What are Grit-chambers?

(v) What are screen chambers?

(vi) What are trickling filters?

(vii) What are settling tanks?

(viii) What is septic-tank?

(ix) What is meant by vacuum filtration?

(x) What is belt press?

(xi) Define hazardous waste with examples.

(xii) Define non-hazardous waste with examples.

SECTION-C

(Short Answer Type Questions)

Note: Attempt **any five** questions. Each question carries **04** marks. (word limit **250** words) [5×4=20]

3. (i) Disinfection

(ii) Filtration

(iii) Sedimentation

(iv) Flocculation

(v) Aeration

(vi) Coagulation

(vii) Recycling of waste materials

SECTION-D

(Essay Type Questions)

Note: Attempt **any two** questions. Each question carries **10** marks. (word limit more than **500** words) [2×10=20]

4. (i) Explain the types, sources and generation of wastes, their characterization chemical composition and methods of disposal.

(ii) Explain the process of removal of nutrient from waste water.

(iii) With schematic diagram, explain the role of microorganisms in nutrient removal.

(iv) Explain the different methods of disposal and management of solid wastes.

(v) Explain the concept of solid waste alongwith their source, generation, characterization , chemical composition and classification.

----x----