

M.Sc. CHEMISTRY
THIRD SEMESTER
ENVIRONMENTAL POLLUTION & MANAGEMENT (MDC)
MSC-306

Duration: 3 Hrs.

Marks: 70

PART : A (OBJECTIVE) = 20
PART : B (DESCRIPTIVE) = 50

[PART-B : Descriptive]

Duration: 2 Hrs. 40 Mins.

Marks: 50

[Answer question no. One (1) & any four (4) from the rest]

1. i) What do you mean by waste? Explain with examples. (5×2=10)
ii) Describe photochemical smog.
iii) What are biomedical solid wastes (BMW)? What method is employed for the treatment of BMW?
iv) What is greenhouse gas? Give examples.
v) Give major effects of increase of temperature due to greenhouse gases.
2. i) Classify the natural cycles of the earth's environment and explain the hydrological cycle. (5)
ii) What are the different classes of the chemically hazardous substances? Give example of each class. (5)
3. i) What is hydrocarbon? Give examples. What does it mean by combustion of hydrocarbon? (2+2=4)
ii) Give the mechanism for smog forming reaction. What is solid waste? What are the different methods of solid waste disposal and management? (3+3=6)
4. i) What are water reactive and explosive chemical compounds? Give examples. (2)
ii) Explain the carbon cycle. (3)
iii) What is hydrocarbon decay? Explain. (5)
5. i) Give the chemistry of hydrocarbon decay. (2)
ii) Describe one effective method of solid waste disposal and management system. (3)
iii) What is meant by BOD? Explain one effective method of waste water treatment. (2+3=5)

6. i) What are the main sources of soil pollution? Discuss two sources by which soil is getting polluted. (5)
ii) Discuss about the Control measures of soil pollution. (5)
7. i) What are soaps and detergents? How soaps are classified into different types? Explain with examples. (2+3=5)
ii) Give the differences between soaps and detergents. (3)
iii) What do you mean by natural polymers? (2)
8. i) Write a short note on water pollution caused by heavy metals. (7)
ii) Write down the measures to control water pollution. (3)

== *** ==

M.Sc. CHEMISTRY
THIRD SEMESTER
ENVIRONMENTAL POLLUTION & MANAGEMENT (MDC)
MSC-306

[PART-A : Objective]

Choose the correct answer from the following:

1×20=20

- The four segments of the Earth's environment are:
 - Hydrosphere, Biosphere, Ozonosphere, Lithosphere.
 - Biosphere, Ozonosphere, Lithosphere, Atmosphere.
 - Ozonosphere, Lithosphere, Hydrosphere, Troposphere.
 - Atmosphere, Hydrosphere, Lithosphere, Biosphere.
- The protective gas surrounding the earth balances the heat of the earth by absorption and emission of:
 - Visible light radiation.
 - Ultra-violet light radiation.
 - Infra-red radiation.
 - Radio wave radiation.
- Potentially explosive chemicals are:
 - Halides
 - Oxides
 - Carbonates
 - Azides
- Which among the following is an industrial waste?
 - Domestic and trade.
 - Clinical waste.
 - Waste oil.
 - Pesticide residue.
- Which one of the following can cause depletion of ozone layer?
 - NO[•]
 - OH
 - Cl[•]
 - CO₂
- The waste treatment method that occur in presence of aerobic microorganism is:
 - Open burning.
 - Composting.
 - Sanitary landfill.
 - Ploughing in fields.
- Which radiation causes greenhouse effect?
 - UV
 - IR
 - Gama-ray
 - X-ray
- Which of the following waste treatment method is also known as 'Thermal Treatment' method?
 - Composting.
 - Dumping into the sea.
 - Incineration.
 - Sanitary landfill.
- The combustion process needs:
 - Carbon dioxide
 - Nitrogen
 - Oxygen
 - Methane
- Organic azides are explosive because it can easily release:
 - Oxygen
 - Nitrogen
 - Methane
 - Carbon dioxide
- The term BOD is used during the process of:
 - Waste water treatment.
 - Solid waste treatment.
 - Both solid and liquid waste treatment.
 - None of the above.
- Which of the following is the residual product in the formation of soap?
 - Glyceraldehyde
 - Glycerol
 - Glycerine
 - Acrylonitrile
- An advantage of detergent over soap is:
 - Detergents always contain anionic heads.
 - Detergents can be used in hard water.
 - Detergents are biodegradable.
 - Detergents are cheaper to make.
- Hard soaps are formed by the saponification of oils with:
 - NaOH
 - KOH
 - CaOH
 - None of the above



--

15. Which among the following is a synthetic polymer?
 - a. Starch
 - b. Protein
 - c. Rubber
 - d. Nylon

16. The optimum temperature required in thermal treatment method of solid waste is:
 - a. 500-550 °C
 - b. 600-650 °C
 - c. 900-1000 °C
 - d. 450-500 °C

17. Eutrophication mainly occurs in the:
 - a. Lake water.
 - b. Sea water.
 - c. Rain water.
 - d. None of these.

18. Cadmium toxicity results in:
 - a. Bone marrow disorders.
 - b. Hypertension.
 - c. Cancer.
 - d. Skin disease.

19. Fluorosis is observed when concentration of F⁻ ions is:
 - a. >1ppm
 - b. <1ppm
 - c. 1ppm
 - d. In all the cases.

20. Which of the following gas can combine with hemoglobin?

(i) O₂ (ii) NO₂ (iii) CO (iv) CO₂

 - a. i
 - b. Both i and ii
 - c. Both i and iii
 - d. i, iii and iv

= = *** = =

Course :

Semester : Roll No :

Enrollment No : Course code :

Course Title :

Session : 2017-18 Date :

Instructions / Guidelines

- The paper contains twenty (20) / ten (10) questions.
- Students shall tick (✓) the correct answer.
- No marks shall be given for overwrite / erasing.
- Students have to submit the Objective Part (Part-A) to the invigilator just after completion of the allotted time from the starting of examination.

Full Marks	Marks Obtained
10	

Scrutinizer's Signature

Examiner's Signature

Invigilator's Signature