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AR-18

Total Number of Pages : 2

M. Sc

M. Sc 3<sup>rd</sup> SEMESTER REGULAR EXAMINATIONS, NOV/DEC 2019-20

Subject code: CHE-507

Subject: CHEMISTRY AND ENVIRONMENT

Time: 3 Hours

Max Marks: 80

The figures in the right hand margin indicate marks.

### SECTION A

Q.1 Answer any four of the following:

[ 4 X4 =16]

- a What do you mean by environment? Explain about the important components of environment.
- b Explain the degradation of environment by plastic contamination.
- c What are different kinds of environmental pollution and explain how it is monitored at different levels
- d Explain the soil formation due to chemical weathering of rocks
- e Explain how the photochemical smog formation is controlled by the reformulation of petrol.
- f Explain the role of PCBs in the environmental degradation.

OR

2. Answer all questions from the following

[8 x 2 =16]

- a What is secondary particulate matter? Explain with examples.
- b Write the mechanism of black snow formation.
- c What is montreal protocol?
- d What do you mean by lagooning of industrial waste water?
- e Explain how Oxygen and Phosphorus cycles both are interlinked.
- f What is a biological Nitrogen fixation and how it occurs?
- g Explain the environmental hazards due to oil shales.
- h Write the different causes of depletion of ground water.

### SECTION-B

3. Answer all Questions:

[4 x 16 =64]

- a (i)What is nuclear winter? Discuss its effect on environment.  
(ii)What is sloughing? Discuss Trickling filter for biological filtration of sewage.

OR

- b (i)Explain the Chronic effect of nuclear radiation on human health at molecular level.  
(ii) What are the different sources of thermal pollution and how it is controlled?



- 4.
- a (i) Explain the different steps of Sulphur cycle with flow diagram and how the  $H_2S$  gas produced is immobilized into the organic molecules.  
(ii) Discuss about the classification of the environment.
- OR
- b (i) Explain the various steps of Phosphorus cycle with flow diagram and explain why in acidic condition the availability of phosphate and calcium from soil to plant increases.  
(ii) Discuss the general aspects of the factors affecting environmental degradation by waste plastic debris.
- 5.
- a (i) Explain the impact of deforestation in climate change and soil fertility  
(ii) Discuss about the biodegradation of organic matter for producing organic component of the soil.
- OR
- b (i) Discuss about the cause of soil erosion and Explain how it impacts the agricultural productivity.  
(ii) Discuss about renewable energy and non-renewable energy sources with suitable examples.
- 6.
- a (i) What is acid rain? Write its cause and potential impact on soil fertility, forest and vegetation.  
(ii) Discuss the chemistry of sulphurous smog formation in the troposphere.
- OR
- b (i) Write the mechanism of ozone depletion and its effect on environment.  
(ii) Explain the global warming potential of green house gases.