

Roll No. ....

# DD-761

## M. Sc. (Fourth Semester) EXAMINATION, 2020

CHEMISTRY

Paper Fourth (CH-22)

(Environmental and Applied Chemical Analysis)

*Time : Three Hours*

*Maximum Marks : 80*

**Note :** Attempt all the *four* questions, by selecting *one* question from each Unit. All parts of questions should answer in one place. Be precise and to the point in your answers. Figure in right hand side are marks.

### Unit-I

1. (a) Write tolerance limit of  $\text{NO}_x$ ,  $\text{SO}_x$ ,  $\text{PM}_{10}$ ,  $\text{O}_3$ , Pb and Hg. 6
- (b) What are POPs ? Describe application, toxicity and biodegradation of hexochlorobenzene. 8
- (c) What is black carbon ? Discuss its role in the climate change. 6

*Or*

- (a) Explain the following terms : 6  
Haze, Smog and Smoke

- (b) What is Photochemical Smog ? How is it formed in the atmosphere ? 8
- (c) Write a note on significance of air quality standards. 6

### Unit—II

2. (a) Discuss in the brief the environmental impact of steel plant. 6
- (b) Describe in brief the principles of methodology of water treatment method. 8
- (c) Explain the following terms : 6  
Alkalinity, BOD and hardness

*Or*

- (a) Discuss the causes and health hazards of fluorosis. 6
- (b) What are water standards ? Describe the bacteriological and irrigation standards of water. 8
- (c) Write a note on biodegradation of pesticides. 6

### Unit—III

3. (a) What are food additives ? Which chemicals are widely used as food additives ? 6
- (b) Discuss general constituents of foods. What are proximate constituents and how will they analyse ? 8
- (c) Discuss the methodology used for analysis of protein. 6

*Or*

- (a) Highlight in brief the main chemical constituents of cereals or milk. 6
- (b) Discuss the principle and methodology of GC method used for quantification of Vitamins. 8
- (c) Write a note on food safety. 6

**Unit—IV**

4. (a) Describe analytical method of analysis for ammonia and nitrogen. 6
- (b) What are cosmetics ? Discuss in brief the different kinds of cosmetic used. 8
- (c) What are enzymes ? Discuss the specific role of the following enzymes : 6
- Lactate and Lipase.

*Or*

- (a) Write a note on cosmetic formulation and cosmetic colours. 6
- (b) Describe the concept and principle of one analytical method used in clinical laboratory. 8
- (c) Discuss the method of analysis of cholesterol. 6