

ENVIRONMENTAL SCIENCE

Paper III

Time Allowed : 2½ Hours]

[Maximum Marks : 200

Note :—This paper contains **19** questions arranged in four Sections, Sections I to IV. Section I contains *two* questions (Q. Nos. **1** and **2**) carrying **40** marks. Section II contains *three* questions (Q. Nos. **3, 4** and **5**) carrying **45** marks. Section III contains *nine* questions (Q. Nos. **6** to **14**) carrying **90** marks and Section IV contains *five* questions (Q. Nos. **15** to **19**) carrying **25** marks.

SECTION I

Instructions :—This section contains *two* questions. (Q. Nos. **1** and **2**), each carrying **20** marks. You have to answer each question in about **500** words.

1. Answer any *one* of the following :

Explain briefly the impacts of climate change on water resources and food security.

Or

Discuss the principle, the experimental set-up for gas chromatography and its applications in environmental studies.

Or

Discuss the applications of GIS in environmental management.

Or

Describe the changing relationship between man and environment.

Or

Describe the microbiology of composting in management of solid wastes.

SECTION IV

Instructions :—This section contains **5** questions (Q. Nos. **15** to **19**) based on the passage given below. Each question carries **5** marks. You have to answer each of these questions in not more than **30** words each.

Passage :

Ozone depletion started relatively late in the Antarctic Vortex of 2008. The vortex was rather concentric (i.e., not subject to much sunshine until late August) and centred over the South Pole. At the end of August, ozone depletion set in and the size and depth of the ozone hole increased rapidly. During August and the first half of September, the ozone mass deficit was less than all earlier years since 1999 except 2002 and 2004. In mid-September it was 27 megatonnes (Mt) and reached a maximum of 35 Mt on 3rd October. Thereafter, it decreased rapidly and by 13 October it was 25 Mt.

The variation in the severity of the Antarctic ozone hole will be governed over the next few years by interannual changes in meteorology rather than changes in ozone depleting substances whose decline is quite slow (some 1 percent/year), after reaching a peak around 2000.

World Meteorological Organisation (WMO) coordinates the global ozone observing network. The Global Atmospheric Watch ozone observing system comprises more than 100 stations worldwide that measure total column ozone and ozone profiles in the troposphere and stratosphere. Data from the Antarctic are delivered in near real-time and used in the WMO Antarctic Ozone Bulletins.

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