

[Time: 2½ Hours]

[Marks:75]

Please check whether you have got the right question paper.

- N.B:**
1. All questions are **compulsory**.
 2. All carry equal **marks**.

- Q1. Answer briefly any two. 15
- a. What is disaster? What is the difference between Natural and Manmade disasters?
 - b. Explain the formation and effects of a Cyclone.
 - c. Describe the role of NGOs in Disaster Management.
- Q2. Answer briefly any two. 15
- a. Elaborate the Disaster Management cycle with appropriate examples.
 - b. Highlight the significance of Education, Awareness and Training in disaster management.
 - c. 'The Uttarakhand Floods of 2013 were both a man-made and natural disaster.' Justify.
- Q3. Answer briefly any two. 15
- a. Define Biological Warfare. Give an account of the same.
 - b. Explain the various strategies to be adopted for the Disaster Preparedness.
 - c. Discuss the Psychological impacts of a disaster. 15
- Q4. Answer briefly any two.
- a. What are the steps to be followed to carry out a Search and Rescue mission after an Earthquakes?
 - b. What are the Socio-Economic impacts of a disaster ?
 - c. Discuss any three effects of a Nuclear Disaster with suitable examples.
- Q5. Case study:- 15

From 1942 to 1953 a landfill in the Niagara Falls area known as Love canal, was contaminated by Hooker Chemical and then sold to the city after being covered up by layers of dirt. The city then allowed homes and schools to be built over the landfill and people started to feel the effects of the hazardous waste. Love Canal was named after the late 18th century entrepreneur William T. Love who envisioned a canal connecting the two levels of the Niagara River which is separated by Niagara Falls. His plan attempted to incorporate a canal and would provide hydroelectric power to the Niagara area. His plan ultimately failed due to the economic collapse of 1892 after only 1 mile – at fifteen feet wide and ten feet deep – had been dug. Love's Canal was sold in 1920 at a public auction to the city of Niagara Falls which began using the land as a landfill for chemical waste disposal and later the U.S. Army began burying waste from chemical warfare experiments.

Hooker Chemical and Plastics Corporation acquired the use of the site for private use in 1947 and buried 21,000 tons of toxic waste there over the next five years. After the site was filled, Hooker filed the canal in 1952. During this period the Niagara population was rapidly expanding and the city was desperate for land. The city bought the Love Canal for \$1 (the corporation added a caveat highlighting the prior use of the site). The subsequent construction of the school punctured a copper barrier Hooker had prior use of the chemical waste. Additionally, sewers were constructed around the site as well. Health reports and strange odours were reported the following years, but not until the President of the Love Canal Homebuilders Association, Lois Gibbs, investigated was the severity of the situation realized. The homeowners, many sick, were not allowed to relocate with compensation until national attention on Love Canal intensified. In 1978, President Jimmy Carter declared the site a federal emergency area.

Scientists were brought in and were able to determine that the chemicals dumped seeped into basements and the air and were responsible for the ill health of the residents. Over 800 families relocated and the Environmental Protection Agency sued Hooker's parent company then Occidental Petroleum, for \$129

million. The clean-up site was the flagship of the Superfund program. The Agency cleaned up 21 tons of toxic chemicals on the 16 acre site.

- a. How was the Love Canal being used from 1947 to 1952?
- b. What was the health and economic impact of the Love Canal tragedy? Use the above case study and your own knowledge to answer the same.
- c. What were the steps taken by the US Government to manage the Love Canal Tragedy?

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