1. Multiple Choice Questions

(i) Classify each situation as 'suffering from water scarcity' or 'not suffering from water scarcity':

(a) Region with high annual rainfall.
Not suffering from water scarcity

(b) Region having high annual rainfall and large population.
Suffering from water scarcity (Demand may outstrip supply)

(c) Region having high annual rainfall but water is highly polluted.
Suffering from water scarcity (Poor quality makes water unusable)

(d) Region having low rainfall and low population.
Not suffering from water scarcity (Low demand matches availability)

(ii) Which one of the following statements is not an argument in favour of multipurpose river projects?

(a) Multi-purpose projects bring water to those areas which suffer from water scarcity.
(b) Multi-purpose projects by regulating water flow helps to control floods.
(c) Multi-purpose projects lead to large scale displacements and loss of livelihood.
(d) Multi-purpose projects generate electricity for our industries and our homes.
Answer: (c) Multi-purpose projects lead to large scale displacements and loss of livelihood.

(iii) Identify the mistakes in the false statements and rewrite them correctly:

(a) Multiplying urban centres with large and dense populations and urban lifestyles have helped in proper utilisation of water resources.
Correction: Multiplying urban centres with large and dense populations and urban lifestyles have led to overutilisation and greater stress on water resources.

(b) Regulating and damming of rivers does not affect the river's natural flow and its sediment flow.

Correction: Regulating and damming of rivers affects the river's natural flow and its sediment flow, often causing environmental problems.

(c) Today in Rajasthan, the practice of rooftop rainwater harvesting has gained popularity despite high water availability due to the Indira Gandhi Canal.
Correction: Today in Rajasthan, the practice of rooftop rainwater harvesting has gained popularity due to frequent water scarcity despite the presence of the Indira Gandhi Canal.

2. Answer the following questions in about 30 words.

(i) Explain how water becomes a renewable resource.
Water is a renewable resource because it circulates in nature continuously through the hydrological cycle—evaporation, condensation, precipitation, and surface run-off—allowing its reuse and replenishment.

(ii) What is water scarcity and what are its main causes?
Water scarcity is a situation where water availability is insufficient to meet the needs of people, agriculture, and industry. Main causes include overuse, pollution, population growth, uneven distribution, and mismanagement.

(iii) Compare the advantages and disadvantages of multi-purpose river projects.
Advantages: Provide irrigation, drinking water, electricity, flood control, navigation, and recreation.
Disadvantages: Displacement of local communities, destruction of habitats, reduced natural river flow, negative impact on aquatic life, and sedimentation.

3. Answer the following questions in about 120 words.

(i) Discuss how rainwater harvesting in semi-arid regions of Rajasthan is carried out.
In semi-arid regions of Rajasthan, rainwater harvesting has been an ancient practice to conserve water for use during dry periods. Structures called 'khadins' and 'Johads' are constructed to collect and store rainwater. A khadin is an earthen embankment built across slopes to hold rainwater and allow it to gradually infiltrate into the soil, increasing soil moisture for crops. Johads are small earthen check dams built to capture surface runoff, replenish

groundwater, and create water storage for livestock and domestic use. Community wells are recharged by channeling rainwater. Rooftop rainwater harvesting is gaining popularity, especially in urban areas, where rainwater collected from roofs is stored in tanks or used to recharge wells. These collective efforts by villagers have helped ensure water availability in harsh and dry conditions.

(ii) Describe how modern adaptations of traditional rainwater harvesting methods are being carried out to conserve and store water.

Modern adaptations of traditional rainwater harvesting methods combine indigenous wisdom with new technology for better water conservation. Rooftop rainwater harvesting systems are installed on urban buildings, collecting rainwater into storage tanks or directing it to recharge groundwater. Percolation pits and soak wells are constructed to allow rainwater to seep quickly into the ground, increasing aquifer levels. In rural areas, old structures like ponds, baolis, and check dams are revived and maintained using concrete and plastic linings to reduce leakage. Drip irrigation and micro-irrigation systems use harvested rainwater efficiently for agriculture. Government programs educate and motivate communities to adopt rainwater harvesting, ensuring maintenance and regular cleaning of storage systems for healthy water. These modern practices increase water availability and help fight droughts and water scarcity.