

1. Multiple Choice Questions:

(i) Based on the information given below classify each of the situations as 'suffering from water scarcity' or 'not suffering from water scarcity'.

- (a) Region with high annual rainfall.
- (b) Region having high annual rainfall and large population.
- (c) Region having high annual rainfall but water is highly polluted.
- (d) Region having low rainfall and low population.

Ans. (a, b, c) not suffering water scarcity.
(d) Suffering from water scarcity.

(ii) Which of these statements is not an argument in favour of multi-purpose 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.

Ans. Multi purpose projects lead to large scale displacements and loss of livelihood.

(iii) Here are some false statements. Identify the mistakes and rewrite them correctly.

- (a) Multiplying urban centres with large and dense populations and urban lifestyles have helped in proper utilization of water resources.
- (b) Regulating and damming of rivers does not affect the river's natural flow its sediment flow.
- (c) In Gujarat, the Sabarmati basin farmers were not agitated when higher priority was given to water supply in urban areas, particularly during droughts.
(d) Today in Rajasthan, the practice of roof-top rainwater harvesting has gained popularity despite high water availability due to Rajasthan Canal.

- Ans.** (a) Multiplying urban centres with large and dense populations and urban lifestyles have not helped in proper utilization of water resources.
- (b) Regulating and damming of rivers affect the river's natural flow its sediment flow.
- (c) In Gujarat, the Sabarmati basin farmers agitated when higher priority was given to water supply in urban areas, particularly during droughts.
- (d) Today in Rajasthan, the practice of roof-top rainwater harvesting has gained popularity due to low water availability from Rajasthan Canal.

2. Explain how water becomes a renewable resource?

Ans. Fresh water is mainly obtained from surface and ground water that is continually being renewed and recharged through the hydrological cycle. All water moves within the hydrological cycle ensuring that water is a renewable resource.

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

Ans. Water harvesting of a technique of increasing the recharge of ground water by capturing and storing rain water.

We should keep some points in mind for efficient management of water:

- Inundation channels in west Bengal.
- Tankas for storing rain water in arid regions.
- Rooftop rainwater harvesting in western Rajasthan.
- Khadins and Johads in arid regions of Rajasthan.

4. What is water scarcity and what are its main causes?

Ans. Water scarcity means non-availability of water in some extent.

Main causes of water scarcity are as under:

- Growing population:** Growing population is one of the basic factors which is responsible for the scarcity of water.
- Commercialization of agriculture:** After the success of green revolution our farmers are producing commercial crops. The commercial crops need more water and other inputs.
- Urbanization:** Urbanization is another factor which is responsible for the scarcity of water.

(d) **Pollution:** Pollution of water resources is another factor which is responsible for scarcity. Domestic waste and industrial waste are the main factors responsible for pollution of water.

5. Compare the advantages and disadvantages of multi-purpose river projects.

Ans. Advantages multi-purpose river projects:

1. To conserve water and soil resources. To store water, which can be used when it is in greater demand?
2. To control floods and to generate hydro-electric power.
3. To provide irrigational facilities and to promote navigation through canals. The traditional irrigation projects could serve only purpose i.e., providing water for irrigation. The multi-purpose projects aim at many purposes as mentioned above. These river valley projects are called new temples of modern India.

Disadvantages of multi-purpose river projects:

1. In recent years, multi-purpose projects and large dams have come under great scrutiny and opposition for a variety of reasons.
2. Regulating and damming of rivers affect their natural flow causing poor sediment flow and excessive sedimentation at the bottom of the reservoir, resulting in rockier stream beds and poorer habitats for the rivers' aquatic life.
3. Dams also fragment rivers making it difficult for aquatic fauna to migrate, especially for spawning. The reservoirs that are created on the floodplains also submerge the existing vegetation and soil leading to its decomposition over time.
4. Multi-purpose projects and large dams have also been the cause of many new social movements like the 'Narmada Bachao Andolan' and the 'Tehri Dam Andolan' etc. Resistance to these projects has primarily been due to the large scale displacement of local communities.
5. The local people often had to give up their land and livelihood and their meager assess and control over resources for the greater good of the nation.
6. Discuss how rainwater harvesting in semi-arid regions of Rajasthan is carried out.

- Ans.** (i) In the semi-arid and arid regions of Rajasthan, particularly in Bikaner, Phalodi an Barmer, almost all the houses traditionally had underground tanks or tanks for storing drinking water.
- (ii) The tanks were part of the well developed rooftop rain water

harvesting system and were built inside the main house or the courtyard.

- (iii) They were connected to the sloping roofs of the houses through a pipe. Rain falling on the rooftops would travel down the pipe and was stored in the underground tanks.
- (iv) Today, in many parts of rural and urban India, rooftop rainwater harvesting is being adapted to store and conserve water.
- (v) Gendathur a remote backward village in Mystore, Karnataka, Villagers have installed, in their house hold's rooftops; rainwater harvesting system to meet their water needs.

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