CHAPTER 2.3

Water Resources

ONE MARK QUESTIONS

1. Name any one river valley project which has significantly contributed to the loss of forests.
Ans : [CBSE 2014]
Sardar Sarovar Dam.

2. Write the major source of freshwater in India?
Ans : [CBSE 2010]
Groundwater.

3. How much percent of the total volume of world's water is estimated to exist as fresh water?
Ans : [CBSE 2011]
25 percent.

4. What percentage of the total volume of world's water is estimated to exist as oceans?
Ans : [CBSE 2012]
96.5 percent.

5. What are the causes of water scarcity?
Ans : [CBSE 2013]
Rapid growth of population, uneven distribution of water resources and increase in demand of water.

6. Which largest artificial lake was built in 11th century?
Ans : [CBSE 2014]
Bhopal lake.

7. On which river has the Hirakud Dam been constructed?
Ans : [CBSE 2014]
River Mahanadi.

8. On which river Bhakhra Nangal Dam has been constructed?
Ans : [CBSE 2014, 2015]
River Satluj.

9. Who proclaimed dams as the temples of modem India?
Ans : [CBSE 2014]
Jawaharlal Nehru.

10. Which river is known as the 'River of Sorrow'?
Ans : [CBSE 2015]
Damodar river.

11. Name two social movements which were against the multipurpose projects.
Ans : [CBSE 2015]
Narmada Bachao Andolan and Tehri Dam Andolan.

12. The Nagarjuna Sagar Dam is built on which river?
Ans : [CBSE 2015]
Krishna.

13. On which river the Salal Dam is built?
Ans : [CBSE 2015]
Chenab.

14. In which regions the release of water from dams during heavy rains aggravated the food situation in 2006?
Ans : [CBSE 2015]
Maharashtra and Gujarats

15. Which water is recharged by roof-top rainwater harvesting technique?
Ans : [CBSE 2014]
Ground water.

16. In which region, people built 'Guls' or 'Kuls' for irrigation?
Ans : [CBSE 2012]
Western Himalayas.

17. Mention one state where canal irrigation has developed.
Ans : [CBSE 2013]
Nagaland.

18. In which state Bamboo Drip Irrigation is prevalent?
Ans : [CBSE 2014]
Meghalaya.

19. On which river is the Nagaijunsagar dam built?
Ans : [All India 2010]
The Nagarjunsagar Dam is built on the Krishna.

20. What is the traditional system of rainwater harvesting?
Ans : [Foreign 2010]
The traditional system of rainwater harvesting is to build underground tanks or tankas for storing drinking water. This system is mainly practised in the arid and semi-arid regions of Rajasthan.

21. Name the river on which Sardar Sarovar dam is built.
Ans : [Delhi 2011]

Sardar Sarovar dam is built on the Narmada.

22. Name the river on which Nagarjunasagar dam is constructed.

Ans : **[Delhi 2009]**

The Nagarjunsagar Dam is built on the Krishna.

23. Name the river on which Mettur dam has been built.

Ans : **[Delhi 2009]**

Mettur dam has been built on the Kaveri.

24. What was the main purpose of launching multi-purpose projects in India after independence?

Ans : **[All India 2010]**

The main purpose of launching multi¬purpose projects after independence was that they would integrate development of agriculture with rapid industrialization.

25. Name two techniques of rooftop rainwater harvesting.

Ans : **[All India 2011]**

a. Construction of tanks so as to store the rainwater
b. Collection of excess rainwater in the dugwell

26. What is the need of rainwater harvesting ?

Ans : **[Delhi 2011]**

Rainwater harvesting is needed to provide it for agriculture, collect drinking water, irrigate the fields and to moisten the soil.

THREE MARKS QUESTIONS

27. Mention any four main objectives of multi -purpose river valley projects. Name any two Multipurpose Projects of India. **[CBSE 2015]**

or

What is a multipurpose river valley project? Mention any four objectives of it. [CBSE 2016-17]

Ans :

A project where many uses of the impounded water are integrated with one another is known as multipurpose project. It is built for irrigation, power generation, water supply, flood control, recreation, etc.

28. Water scarcity in most cases is caused by over exploitation, excessive use and unequal access to water among, different social groups. Explain the meaning of the statement with the help of examples

Ans : **[CBSE 2015]**

We can understand the meaning of the above statement through these examples:

a. After a heavy downpour, a boy collects drinking water in Kolkata.
b. A Kashmiri earthquake survivor carries water in the snow in a devastated ‘ village.
c. A Rajasthani woman balances her matka and travels large distances to collect water.

29. Explain the working of underground tanks as a part of roof top rainwater harvesting system practised in Rajasthan. **[CBSE 2015, 2014, 2012, 2010]**

or

How were the underground tanks beneficial to the people of Rajasthan? Explain. [CBSE 2012, 2016-17]

or

Discuss how rainwater harvesting in semiarid regions of Rajasthan is carried out. [NCERT]

Ans :

a. In semi-arid and arid regions of Rajasthan almost all the houses traditionally had underground tanks for storing drinking water.
b. They are extremely reliable source of drinking water when other sources are dried up. This is considered the purest form of natural water.
c. The tanks can be as large as big rooms.
d. The tanks were part of the well- developed rooftop rainwater harvesting system.
e. The tanks were built inside the main house or the courtyard giving cooling effect to the rooms in the summer.
f. Those tanks were connected to the sloping roofs of the houses through a pipe.
g. Rain falling on these rooftops would travel down the pipe and stored in these underground tanks.
h. Usually first: rain water is not collected to clean the rooftop and the pipe. (Any three)

30. Why did Jawaharlal Nehru proclaim dams as the ‘temples of modern India’? Explain any three reasons.

Ans : **[CBSE 2014]**

Jawaharlal Nehru proclaimed the dams as the “temples of modern India” because

a. They eliminate or reduce flooding.
b. Provide water for agriculture.
c. Provide water for human and industrial consumption.
d. Provide hydroelectricity for houses and industries.

31. How have intensive industrialization and urbanization posed a great pressure on existing freshwater resources in India. Explain. [CBSE 2014]

or

How does urbanization and urban lifestyle lead to over exploitation of water resources? Explain.[CBSE 2013]

or

How have intensive industrialization and urbanization posed a great pressure on existing freshwater resources in India? Explain. [CBSE 2012]

Ans :

Post independent India witnessed intensive industrialisation and urbanisation.

a. Arrival of MNC’s: Apart from fresh water they require electricity which comes from hydroelectric power.
b. Multiplying urban centers with large and dense populations and urban life styles have not only added to water and energy requirements, but have further aggravated the problem.
c. Large-scale migration from rural to urban areas is causing over exploitation of water resources.

(CBSE Marking Scheme, 2013).

32. Describe any three traditional methods of rainwater harvesting adopted in different parts of India.

[CBSE 2014, 2015, 2016-17]

or

Describe any three different rainwater harvesting systems practised in India. [CBSE 2012]

or

“Rainwater harvesting system is viable alternative

both socially, economically and environmentally". Support the statement with three examples.

Ans : **[CBSE 2012]**

a. In hilly and mountainous regions, people build diversion channels like 'gul' or 'kul' in Western Himalaya for agriculture.
b. Roof-top rainwater harvesting was commonly practised to store drinking water particularly in Rajasthan.
c. In West Bengal, people develop inundation channels to irrigate their fields.
d. In semi-arid regions agricultural fields are converted into rainfed storage structures that allowed the water to stand and moist the soil

33. List any three advantages and three disadvantages of multipurpose river project. [CBSE 2013, 2012]

or

What are the advantages and disadvantages of multipurpose river project.

Ans : **[CBSE 2014]**

Advantages:

a. These are the main source of power generation.
b. They provide us neat, pollution free and cheapest energy which is the backbone of industry and agriculture.
c. These projects control the floods because water can be stored in them. These projects have converted many, 'rivers of sorrows' into 'rivers of boon'.
d. These projects are the main source of irrigation and also help in conserving soil.

Disadvantages:

a. Due to the construction of dams, there are no adequate floods in the river. Because of this, the soil of the downstream region does not get nutrient rich silt.
b. Dams also fragment rivers making it difficult for aquatic fauna to migrate for spawning, i.e., to produce eggs.
c. It resulted in displacement of local communities. The local people often have to give up their land and livelihood and their meagre access and control over resources for the greater need of the nation.

34. What is Bamboo Drip Irrigation? Mention any two features of it. [CBSE 2012]

Ans :

Bamboo Drip Irrigation system is a 200-year-old system of tapping stream and spring water by using bamboo pipe and transporting water from higher to lower regions through gravity.

Features:

a. 18-20 liters of water enters the bamboo pipe system, get transported over hundreds of meters and finally reduces to 20-80 drops per minute at the site of the plant.
b. The flow of water into the pipes is controlled by manipulating the pipe positions.

35. Highlight any three hydraulic structures as part of water management programmes initiated in ancient India along with the period when they were built.

Ans : **[CBSE 2011,2012]**

Sophisticated hydraulic structures like dams built of stone rubble, reservoirs or lakes, embankments and canals for irrigation were built in various regions' of the country.

a. A sophisticated water harvesting system channelling the flood water of river Ganga was built at Sringaverapura near Allahabad in the 15th century BC.
b. Nagarjunakonda in Andhra Pradesh, Bennur in Karnataka, Kolhapur in Maharashtra and Kalinga in Odisha have evidences of irrigation structures.
c. In the 11th century, Bhopal Lake, one of the largest artificial lakes of its time was built.
d. The tank in Hauz Khas, Delhi was constructed by Iltutmish in the 14th century to supply water to the Siri Fort Area.

36. Why is groundwater a highly overused resource?

Ans : **[CBSE 2011]**

Groundwater is a highly overused resource because of the following reasons:

a. Due to large and growing population and consequent greater demands for water and unequal access to it.
b. To facilitate higher food grain production for large population, water resources are being over exploited to expand irrigated areas and dry season agriculture.
c. In the housing societies or colonies in the cities, there is an arrangement of own ground water pumping devices to meet water needs.

FIVE MARKS QUESTIONS

37. Why is roof-top water harvesting important in Rajasthan? Explain. [CBSE 2014]

Ans :

Roof top water harvesting is important in Rajasthan because:

a. It was commonly practised to store drinking water.
b. The rainwater can be stored in the tanks till the next rainfall, making it an extremely reliable source of drinking water when all other sources are dried up, particularly in the summers.
c. Rain water, or palar pani, as commonly referred to in these parts, is considered the purest form of natural water.
d. Many houses construct underground rooms adjoining the 'tanka' to beat the summer heat as it would keep the room cool.

e. Some houses still maintain the tanks since they do not like the taste of tap water.

38. Explain any three reasons responsible for water scarcity in India. [CBSE 2013,2011]

or

Water is available in abundance in India. Even then scarcity of water is experienced in major parts of the country. Explain it with four examples.

Ans :

a. The availability of water resources varies over space and time, mainly due to the variations in seasonal and annual precipitation.
b. Over-exploitation, excessive use and unequal access to water among different social groups.
c. Water scarcity may be an outcome of large and growing population and consequent greater demands for water. A large population means more water to produce more food. Hence, to facilitate higher food-grain production, water resources are being over exploited to expand irrigated areas for dry-season agriculture.
d. Most farmers have their own wells and tubewells in their farms for irrigation to increase their production. But it may lead to falling groundwater levels, adversely affecting water availability and food security of the people. Thus, inspite of abundant water there is water scarcity.

39. Describe any four traditional methods of rainwater harvesting adopted in different parts of India.

Ans : **[CBSE 2011]**

Methods of rainwater harvesting used in India are:

a. Guls and Kuls: People built guls and kuls in hilly and mountainous regions to divert water. These are simple channels. They are mainly used in the Western Himalayas.
b. Roof top rainwater harvesting: Commonly practised to store drinking water in Rajasthan.
c. Inundation Channels: These channels developed in the flood plains of Bengal to irrigate fields.
d. Khadins and Johads: In arid and semi-arid regions, some agricultural fields were converted into rain fed storage structures. These structures are found in Rajasthan.
e. Tankas: The tankas were built inside the main house or the courtyard. 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 these underground 'tankas'. The first spell of rain was usually not collected as this would clean the roofs and the pipes. The rainwater from the subsequent showers was then collected. The rainwater can be stored in the tankas.

40. Why are different water harvesting systems considered a viable alternative both socio-economically and environmentally in a country like India? [CBSE 2010]

Ans :

Keeping in view the disadvantages and rising resistance against the multi¬purpose projects, water harvesting system is considered a viable alternative both socio-economically and environmentally.

1. In ancient India also along with the sophisticated hydraulic structures, there existed an extraordinary tradition of various water harvesting systems.
2. People adopted different techniques in different areas. In hilly regions people built diversion channels like the 'guls' or "kuls' for agriculture.
3. Roof-top rainwater harvesting was commonly practised to store drinking water, particularly in Rajasthan.
4. In the flood plains of Bengal, people developed inundation channels to irrigate their fields. Khadins, Johads and Tanks are the forms of rainwater harvesting practised in Rajasthan.