



Very Short Answer Type Questions

1. How is freshwater obtained

Answer: The freshwater is obtained from precipitation, surface run off and groundwater that is continually being renewed and recharged through the hydrological cycle.

2. What is hydrological cycle

Answer: The continuous movement of water on, above and below the surface of earth.

3. What is the importance of hydrological cycle

Answer: The freshwater is mainly obtained from surface run off and groundwater that is continually being renewed and recharged through the hydrological cycle. All water moves within the hydrological cycle ensuring that water is renewable resource.

4. What is water scarcity [CBSE 2014]

Answer: Water scarcity is the lack of sufficient available water resources to meet the demand.

5. "The availability of water resources varies over space and time". Give reasons.

Answer: Water resources varies over space and time due to the variation in seasonal and annual precipitation.

6. What percentage of the total volume of world's water is estimated to exist as oceans

Answer: 96.5%

7. How much per cent of the total volume of world's water is estimated to exist as fresh water

Answer: 2.5

8. What are the sources of fresh water?

Answer: Precipitation, surface run off and groundwater.

9. How is freshwater being renewed

Answer: The freshwater is being renewed through the hydrological cycle.

10. Mention any two regions which are expected to face water shortage.

Answer: (i) Regions having low rainfall
(ii) Regions which are drought prone.

11. What is a dam

Answer: 'A dam' is a barrier across the flowing water that obstructs dissects or retards the flow, often creating a reservoir, lake or impoundment.

12. What is a multipurpose project

Answer: A multipurpose project is that which fulfils a . variety of purposes at the same time, for example – irrigation, generation of electricity, flood control, fish breeding, soil conservation etc.

13. Who proclaimed dams as the temples of modem India

Answer: Jawaharlal Nehru.

14. Why were the multipurpose river projects considered as temples of modem India by Jawaharlal Nehru

Answer: These would integrate development of agriculture and the village economy with rapid industrialisation and growth of the urban economy.

15. Name any two social movements which have been launched against the multipurpose projects.

Answer: Narmada Bachao Andolan and 'Tehri Dam' Andolan.

16. What was considered as a viable alternative to the multipurpose projects and why [CBSE 2013]

Answer: The disadvantages and rising resistance against the multipurpose projects, has lead us to conclude that water harvesting system is a viable alternative, both socio-economically and environmentally.

17. Irrigation has changed the cropping pattern of many regions with farmers shifting to water intensive and commercial crops". Mention its ecological consequence.

Answer: Salinisation of the soil

18. What was the primary reason for launching 'Narmada Bachao Andolan'

Answer: Narmada Bachao Andolan was launched due to the large scale displacement of local communities.

19. What is silt

Answer: A fine soil which is formed in flood plains.

20. How people used to conserve or harvest water in hills and mountainous regions

Answer: By building diversion channels like the 'guts' or 'kuls'.

21. How people used to harvest water in the flood plains of Bengal

Answer: By building inundation channels to irrigate their fields.

22. How people harvest water in the semi- arid and arid regions of Rajasthan

Answer: By building underground tanks.

23. Many people of arid and semi-arid regions construct under-ground rooms adjoining the water tanks. Give reason.

Answer: By beating the summer heat it would keep the room cool.

24. Name two techniques of roof top rain water harvesting. [CBSE 2009(0)]

Answer: (i) Recharge through hand pump.
(ii) Recharge through abandoned dug well.

25. Name any two states where roof top water harvesting is most common.

Answer: Meghalaya and Rajasthan.

26. Define the term Tankas. [CBSE 2008 (F)]

Answer: Tankas are the underground tanks for storing drinking water.

27. Which is the purest form of natural water

Answer: Rainwater

28. What is Kul

Answer: It is a circular village tank from which water is released and taken when required.

29. Name any two states which are involved in Krishna-Godavari-dispute.

Answer: Karanataka and Andhra Pradesh.

30. Name the river on which the Hirakud dam is located. [CBSE 2013]

Answer: Mahanadi

31. Name the river on which the Mettur dam is located.

Answer: Kaveri

32. Name the river on which the Nagarjuna Sagar dam is located.

Answer: Tungabhadra

33. Name the river on which the Rihand dam is located.

Answer: Son

34. Name the river on which the Bhakra Nangal dam is located. [CBSE 2014]

Answer: Satluj

35. Name the river on which the Koyna dam is located

Answer: Krishana

36. Name the river on which the Sardar Sarovar dam is located.

Answer: Narmada

37. What is the contribution of hydroelectricity in the total generation of electricity.

Answer: 22%

Short Answer Type Questions

1. What is hydrological cycle? What is its importance

Answer: The continuous movement of water on, above and below the surface of earth is known as hydrological cycle. The freshwater is mainly obtained from surface run off 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.

2. How has agriculture aggravated the problem of water scarcity in India Explain. [CBSE 2014]

Answer: (i) Water is a basic input in agriculture. It is used for irrigation.
(ii) HYV seeds needs more water as compared to traditional seeds.
(iii) Commercialisation of agriculture has also lead to withdrawal of groundwater at a large scale.
(iv) Overuse of groundwater is another problem associated with agriculture. The water table has lowered in many parts of India due to its overuse.

3. "Water scarcity may be an outcome of large and growing population". Justify.

Answer: (i) A large population means more water not only for domestic use but also to produce more food.
(ii) Most of the Indian cities are facing the problem of water due to growing population. .
(iii) A growing population has also a direct impact on the water level.

4. How does urbanisation and urban lifestyle lead to over-exploitation of water resources Explain. [CBSE 2013]

Answer: (i) Most of our cities are over populated. Overpopulation leads to our utilisation of water resources.
(ii) Urbanisation especially unplanned urbanisation adds to water pollution.

(iii) Urbanisation also damages the existing water resources especially the river. For example, most of Indian river have been polluted by the waste of cities.

5. Is it possible that an area or region may have ample water resources but is still facing water scarcity Explain with the help of three relevant examples. [CBSE 2013]

Answer: Yes, it is possible that an area or region may have ample water resources but is still facing water scarcity. Most of our cities are facing this problem.

(i) In most of our cities there is no shortage of water but the water is unfit for consumption.

(ii) Most of our cities are in the banks of rivers, but rivers have been turned into toxic streams.

(iii) The ever increasing population, industries and vehicles has made matter worse by exerting pressure on existing freshwater resources.

6. What is importance of water [CBSE 2012]

Or

“Water is a very important and critical resource in India.” Support the statement by explaining any three points. [CBSE 2013]

Answer: (i) Water is vital for human survival.

(ii) Water is used for transportation.

(iii) In industries water is used as a coolant.

(iv) Water is also used for power production.

(v) Water is a basic input for agriculture.

7. How do increasing number of industries exert pressure on existing freshwater resources [CBSE 2012]

Answer: (i) industries used water as coolant, raw material, solvent, etc.

(ii) Industries release harmful chemicals which contaminates water.

(iii) Most of the Indian rivers are polluted due to toxic chemicals which are released by industries.

8. What are dams? How do these help to conserve and manage water

Answer: A dam is a barrier across flowing water that obstructs, directs or retards the flow often creating a reservoir, lake or impoundment.

(i) Dams were traditionally built to impound rivers and rainwater that could be used later to irrigate agricultural fields.

(ii) Dams are also source of perennial canals.

9. Distinguish between a dam and a multipurpose project.

Answer:

Dam

1. A dam is barrier across the flowing water that obstructs, dissects or retards the flow, often creating a reservoir, lake or an impoundment

2. It is a traditional concept.

Multipurpose project.

1. A multipurpose project is that which fulfils a variety of purposes at the same time, for example – irrigation, generation of electricity, flood control, fish breeding, soil conservation, etc.

2. It is a modern concept.

10. Who proclaimed the dams as the temples of modern India Give reason.

Answer: Jawaharlal Nehru proudly proclaimed the dams as the ‘temples of modern India’; the reason being that it would integrate development of agriculture and the village economy with rapid industrialisation and growth of the urban economy.

11. ‘Multipurpose projects and large dams have also been the cause of many social movement’. Name any two such movements. Why these movements were launched

Answer: Multipurpose projects and large dams have also been the cause of many new social movements like the ‘Narmada Bachao Andolan’ and ‘Tehri Dam Andolan’ etc. Resistance to these projects has primarily been due to the large – scale displacement of local communities. Local people often had to give up their land, livelihood and their meagre access and control over resources for the greater good of the nation.

12. How do the dams create conflicts between the people

Answer: (i) The dams have created conflicts between people wanting different uses and benefits from the same water resources.
(ii) Inter-state water disputes are becoming common with regard to sharing the costs and benefits of the Projects.
(iii) The landowners, the rich farmers, industrialists and urban centres are benefitting at the cost of local communities.

In Gujarat, the Sabarmati – basin farmers were agitated and almost caused a riot over the higher priority given to water supply in urban areas, particularly during droughts. Inter – state water disputes are also becoming common with regard to sharing the costs and benefits of the multipurpose project.

13. How has irrigation changed the cropping pattern? What is its impact on the social landscape [CBSE Sep 2012]

Answer: Due to irrigation facilities many farmers have shifted to water intensive and commercial crops. For example, Punjab has become major producer of rice inspite of low rainfall.

Impact on social landscape: This transformation has widens the gap between rich and poor. The rich and mighty who can afford higher inputs has become more rich whereas the poor have failed to get benefit due to lack of capital.

14. Explain three ways in which irrigation schemes have changed the social landscape of the region. [CBSE 2012]

Answer: (i) Displacement of the local people : Local people often had to give up their land, livelihood and their meagre access and control over resources for the greater good of the nation.

(ii) Social movements : Multipurpose 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.

(iii) Widening the gap between rich and poor : Multipurpose projects have widened the gap between rich and poor. The landlords, large farmers and industrialist are getting benefit at the cost of poor.

15. “Multipurpose projects have failed to achieve the purpose for which they were built”. Justify by giving reasons. [CBSE 2014]

Answer: (i) These dams were constructed to control floods but they have triggered floods due to sedimentation in the reservoir.
(ii) Moreover, the big dams have mostly been unsuccessful in controlling floods at the time of excessive rainfall.
(iii) Many a time authorities are forced to release water from dams during heavy rainfall.

16. What is rainwater harvesting What is its importance

Answer: It is a technique of increasing the recharge of ground water by capturing and storing rainwater by constructing structures such as percolating pits, check dams, etc.

Importance:-

- (i) Rainwater harvesting is the need of hour as demand for water is increasing day by day.
- (ii) Rainwater harvesting reduces pressure on existing water resources.
- (iii) It is cheap source of water supply.
- (iv) It helps in recharging groundwater.
- (v) The rainwater store is extremely reliable source of drinking water when all other sources are dried up.

17. (i) What is a multipurpose project [CBSE 2009 (D) ; Sept. 2010, 11]

(ii) Why did Pandit Jawahar Lal Nehru proclaim the river dams as the 'Temples of Modern India?' Explain the main reason. [CBSE 2014]

Answer: (i) A multipurpose project is that which fulfils a variety of purposes at the same time, for example – irrigation, generation of electricity, flood control, fish breeding, soil conservation, etc.

(ii) It would integrate development of agriculture and the village economy with rapid industrialisation and the growth of urban economy.

18. Explain the rooftop rainwater harvesting technique.

Answer: (i) Rooftop rainwater is collected using a PVC pipe.

(ii) Collected water is filtered using sand and bricks.

(iii) Underground pipe is used to take the water to the sump for immediate usage.

- (iv) Excess water from the sump is taken to the well.
- (v) Water from the well recharges the underground water.

19. Why are different water harvesting systems considered a viable alternative both socio economically and environmentally in a country like India [CBSE Sept. 2010, 2011]

Answer: (i) Water harvesting is a very cheap and affordable method of conservation of water.

(ii) Indian people have in-depth knowledge of rainfall regime and soil type. They have developed techniques to harvest rainwater, groundwater, rain water and flood water in keeping with the local ecological conditions and their water needs.

(iii) Rainwater harvesting techniques are more environmental friendly as compare to multipurpose river projects.

Long Answer Type Questions

1. How have the growing population, industrialisation and urbanisation led to water scarcity Explain.[CBSE 2008 (D)]

Or

Explain any four reasons responsible for water scarcity in India. [CBSE 2010(D), Sept. 2012]

Or

How have industrialisation and urbanisation aggravated water scarcity in India [CBSE Sept. 2010, 14]

Or

Give three reasons for water scarcity in post independent India. [CBSE Sept. 2010]

Or

'Three-fourths of the earth's surface is covered with water but there is still scarcity of water across the globe.' Explain giving three reasons. [CBSE 2011]

Answer: (i) Growing population : Growing population is one of the basic factors which is responsible for the scarcity of water. Most of our cities are facing this problem due to overpopulation. A large population means more water not only for domestic use but also to produce more food.

(ii) Commercialisation of agriculture : After the success of Green Revolution, our farmers are producing commercial crops. The commercial crops need more

water and other inputs. Assured means of irrigation like tube wells and wells are responsible for the falling groundwater levels.

(iii) Industrialisation : The post independent India witnessed intensive industrialisation and urbanisation. Today, large industrial houses are common in the form of industrial units of many MNCs (Multinational Corporations). The ever increasing number of industries has made matters worse by exerting pressure on the existing freshwater resources. Industries, apart from being heavy users of water, also require power to run them. Much of this energy comes from the hydroelectric power.

(iv) Urbanisation : Urbanisation has also aggravated the problem of water scarcity. Most of our cities are overpopulated. Overpopulation leads to over-utilisation of the water resources, and also pollutes the existing resources.

2. How do the multipurpose river projects affect the aquatic life Explain.

Or

Explain the ecological problems being faced due to the multi-purpose river projects. [CBSE 2013]

Answer: In recent years, the multi-purpose projects and large dams have come under great scrutiny and opposition for a variety of reasons :

(i) 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 streambeds and poorer habitats for the rivers, as well as the aquatic life.

(ii) Dams also fragment rivers making it difficult for the aquatic fauna to migrate, especially for spawning.

(iii) The reservoirs that are created on the flood. Plains also submerge the existing vegetation and soil leading to its decomposition over time.

(iv) Irrigation has also changed the cropping pattern of many regions with farmers shifting to water intensive and commercial crops. This has great ecological consequences like salinisation of the soil.

3. Explain the quantitative and qualitative aspects of water scarcity.

Or

Water is available in abundance in India even then scarcity of water is experienced in major parts of the country. Explain with four examples. [CBSE 2008 (D)]

Answer: (i) Quantitative aspect : This aspect is related to the availability of water resources. The availability of water resources varies over space and time mainly due to variations in seasonal and annual precipitation. However, water scarcity in most cases is caused by over-exploitation, excessive use and unequal access to water among different social groups.

(ii) Qualitative aspect : Now, let us consider another situation where water is sufficiently available to meet the needs of the people, but, the area still suffers from water scarcity. This scarcity may be due to bad quality of water. Lately, there has been a growing concern that even if there is ample water to meet the needs of the people, much of it may be polluted by domestic and industrial wastes, chemicals, pesticides and fertilizers used in agriculture, thus, making it hazardous for human use.

4. Why is there an urgent need to conserve and manage our water resources Mention three reasons. [CBSE 2012]

Or

Why is it necessary to conserve water resources in India Explain.

Or

Why is it essential to conserve, and manage our water resources Explain any three reasons. [CBSE 2012]

Or

Why we should conserve our water resources Explain any three reasons. [CBSE 2012,2014]

Answer: (i) Precondition for life : Water is necessary for life on earth. It is believed that life originated in water before it invaded land. Water is in fact a precondition of life.

(ii) Water essential for crops: Cultivation of crops depends on the availability of water. Water dissolves minerals and other nutrients in the ground. The roots of the plants draw this nutritious water for the soil. India is an agricultural country so availability of water is a must.

(iii) Water and industries : Industries need water as coolant, solvent, raw material, etc.

(iv) Water for daily life : Water is also used for drinking and domestic consumption. The growing urbanisation with its modern lifestyle has been demanding greater share of water day by day.

(v) Water an important component of ecosystem : Conservation of water is also important to prevent degradation of our natural ecosystems.

(vi) Water scarcity : It is essential to conserve and manage water because its overuse and misuse has lead to water scarcity.

5. Examine the importance of the river valley projects in the development of hydel power and irrigational facilities in India.

Or

Give any four objectives of the multipurpose river valley projects. [CBSE Sept. 2011]

Answer: (i) Generation of Power (electricity) :

These multipurpose projects are the main source of power generation.

According to the Economic Survey, 2013, these produce more than 39,788.40 MW power. They provide us neat, pollution free and cheapest energy which is the backbone of industry and agriculture.

(ii) Flood Control : These projects control the floods because water can be stored in them. These projects have converted many 'rivers of sorrows' into 'rivers of boon'. For example, the river Kosi.

(iii) Soil Conservation : They help to conserve the soil because they slow down the speed of water.

(iv) Irrigation : These projects are the main source of irrigation for our country. These irrigate the fields during the dry seasons. Many perennial canals have been dug and they irrigate dry areas.

6. "In recent years, the multipurpose projects and large dams have come under great scrutiny." Give reasons. [CBSE Sept. 2012]

Or

Mention any four disadvantages of multi purpose projects. [CBSE Sept. 2010, 2013]

Or .

How may the multipurpose river valley projects become harmful for the country Explain with four examples. [CBSE 2008]

Or

Why are multipurpose projects facing resistance Explain with three reasons. [CBSE Sept.2010]

Answer: (i) Adverse effect on the fertility of the soil : Due to the construction of dams, there are no annual floods in the river. And because of this, the soil of the downstream region does not get nutrient rich "silt". This decreases the fertility of the soil.

(ii) Adverse impact on aquatic life: Due to the construction of dams on the rivers, the fish in the downstream area do not get sufficient nutrient material. Regulating and damming of rivers affect the natural flow of water causing poor sediment flow downward, and excessive sedimentation at the bottom of reservoir, resulting in rockier stream beds and poorer habitats for the rivers aquatic life. Dams also fragment rivers making it difficult for aquatic fauna to migrate for spawning i.e., to produce eggs.

(iii) Displacement of local communities : The building of large dams results 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 food of the nation.

(iv) Change in the cropping pattern : The multipurpose projects are responsible for providing assured means of irrigation to farmers. Due to this, most of the farmers have changed the cropping pattern shifting to water intensive and commercial crops. This has led to salinisation of soil leading to ecological imbalance.

HOTS Questions and Answers

1. Write the features of the 'tankas' built in the houses of Bikaner, Phalodi and Banner. [CBSE 2013]

- Answer:** (i) The tanks could be as large as a big room; one household in Phalodi had a tank that was 6.1 meters deep, 4.27 meters long and 2.44 meters wide.
- (ii) The tankas were part of the well-developed rooftop rainwater 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.
- (iv) Rain falling on the rooftops would travel down the pipe and was stored in these underground tankas.
- (v) 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.

2. Explain the term 'tankas'. Where were tankas built in India [CBSE 2013]

Answer: (i) The tankas were part of the well-developed rooftop rainwater harvesting system and were built inside the main house or the courtyard. They are built for storing drinking water. A tank could be 6.1 meters deep, 4.27

meters long and 2.44 meters wide.

(ii) The tankas were built in the semi-arid and arid regions of Rajasthan, particularly in Bikaner, Phalodi and Barmer.

3. What is bamboo drip irrigation Mention any two features of it. [CBSE 2012]

Answer: (1) (i) About 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.

(ii) Bamboo drip irrigation system is practiced in Meghalaya.

(2) Features of bamboo drip irrigation ;

(i) Bamboo drip irrigation system is 200 year old system of tapping stream and stripwater by using bamboo pipe.

(ii) Bamboo pipes are used to divert perennial springs on the hilltops to the lower reaches by gravity.

(iii) The channel sections, made of bamboo, divert water to the plant site where it is distributed into branches.

4. What role do “Guls” or “Kuls” of the Western Himalayas and “Khadin” and “Johads” in parts of Rajasthan play Describe. [CBSE 2012]

Answer: (i) In Western Himalayas people build diversion channels like ‘guls’ or ‘kuls’.

(ii) In arid and semi-arid regions, agricultural fields were converted into rain-fed storage structures.

(iii) These allowed the water to stand and moisten the soil like the ‘Khadins’ in Jaisalmer and ‘Johads’ in other parts of Rajasthan.

5. “Need of the hour is to conserve and manage our water resources.” Mention any four reasons. Suggest any two ways to conserve water. [CBSE Sept. 2012]

Answer: (i) To safeguard ourselves from health hazards.

(ii) To ensure food security.

(iii) To prevent degradation of our natural ecosystem.

(iv) To save the future generations from water crisis.

Suggestions : –

(i) Turn off the tap while brushing.

(ii) We should spread awareness regarding water conservation.

(iii) Rainwater harvesting.

6. How is industrialisation responsible for water scarcity? Explain. Suggest any two ways to check water pollution.

Answer: (i) The ever increasing number of industries has made matter worse by exerting pressure on the existing freshwater resources.

(ii) Industries need power which is produced from water. The power is produced by the multipurpose projects.

(iii) Chemicals and gases released by industries also pollutes the water.

Suggestions :

(i) Minimising use of soaps and detergents.

(ii) Minimising use of fertilizers.

7. What is water scarcity? Mention any four factors responsible for water scarcity. [CBSE 2014]

Or

What is meant by water scarcity and give any two causes of water scarcity

Answer: Shortage of water as compared to its demand is known as water scarcity.

Factors responsible :

(i) Overexploitation of water sources.

(ii) Improper management.

(iii) Unequal access of water among different social groups.

(iv) Industrialisation and urbanisation.

8. "Overpopulation or large and growing population can lead to water scarcity." Explain. Mention any two lessons which you have learnt from this.

Answer: Overpopulation or large and growing population can lead to water scarcity as :

(i) More population means more demand for water.

(ii) A large population means more water not only for domestic use but also to produce more food.

(iii) To facilitate higher foodgrain production, water resources are being over exploited to expand the irrigated areas and the dry season agriculture.

(iv) Overutilisation of water results in lowering of the groundwater levels.

Lessons :

(i) There is need to check the growth of population.

(ii) Human beings need to care for nature.

9. 'Large multipurpose projects also lead to land degradation.' Explain.

Answer: Multipurpose projects lead to land degradation because :

- (i) Irrigation has changed the cropping pattern of many regions with farmers shifting to water intensive crops. This has led to the salinisation of the soil.
- (ii) Regulating and damming of rivers affect the natural flow of rivers causing poor sediment flow.
- (iii) The flood plains are deprived of silt.
- (iv) Multipurpose projects induce pollution which leads to land degradation.

10. Explain various problems associated with poor people due to construction of large dams. [CBSE 2013]

Answer: (i) Construction of large dams leads to the large-scale displacement of the local communities.

(ii) Local people have to give up their land and livelihood.

(ii) Poor people lose meagre access and control over resources for the greater good of the nation.

(iv) The displaced people do not get full rehabilitation facilities from the government,

(v) The landless people have to work as labourers in factories or construction sites. Their lives become miserable.

11. Name any two movements that have been started to oppose multipurpose projects. Who are benefitted from such projects [CBSE 2013]

Answer: (1) Two movements that have been started to oppose multipurpose projects are:

(i) Narmada Bachao Andolan was started against the Sardar Sarovar Dam being built across the Narmada river in Gujarat.

(ii) Tehri Dam Andolan – Resistance to these projects has primarily been due to the large-scale displacement of local communities.

(2) The landowners and large farmers, industrialists and a few urban centers are benefitted from such projects.

12. Why is rooftop rainwater harvesting important in Rajasthan Explain. [CBSE 2013, 14]

Answer: (i) The rainwater stored in tankas is an extremely reliable source of drinking water when all other sources are dried up.

(ii) Rainwater is considered the purest form of natural water.

(iii) Many houses constructed underground rooms adjoining the tanka to beat the summer heat as it would keep the room cool.

(iv) There is lack of perennial rivers in Rajasthan.

(v) The rainfall is not reliable in this region.
