

Social Science Class 10

Important Questions Geography

Chapter 3

Water Resources

Very Short Answer Questions (VSA) 1 Mark

Question 1.

What kind of resource is water

Answer:

Renewable resource.

Question 2.

How much world's water exists as oceans and fresh water?

Answer:

1. As oceans – 96.5 per cent.
2. As freshwater – 2.5 per cent.

Question 3.

Which are the sources of freshwater?

Answer:

1. Precipitation
2. Surface run off
3. Groundwater.

Question 4.

Which is the major source of freshwater in India?

Answer:

Groundwater.

Question 5.

Mention two causes of water scarcity.

Answer:

1. Rapid growth of population.
2. Uneven distribution of water resources.

Question 6.

How much hydroelectric power is produced in India?

Answer:

In India hydroelectric power contributes approximately 22 per cent of the total electricity produced.

Question 7.

State any one reason for conservation of water resources.

Answer:

To ensure food security because water is needed for production of crops.

Question 8.

State any two sources from which freshwater can be obtained under the hydrological cycle.

Answer:

1. Precipitation.
2. Ground water.

Question 9.

In whose kingdom in ancient India, dams and lakes were built?

Answer:

During the time of Chandragupta Maurya, dams, lakes and irrigation systems were extensively built.

Question 10.

What is a dam?

Answer:

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

Question 11.

How dams are classified on the basis of structure and the material used?

Answer:

Based on structure and the material used, dams are classified as timber dams, embankment dams or masonry dams with several subtypes.

Question 12.

What did Nehru say about dams and why?

Answer:

Jawaharlal Nehru proudly proclaimed the dams as the 'temples of modern India' because the dams would integrate development of agriculture and the village economy with rapid industrialisation and growth of the urban economy.

Question 13.

Which project has been constructed in the Satluj-Beas River Basin?

Answer:

Bhakra-Nangal Project has been constructed in the Satluj-Beas river basin.

Question 14.

Where the Hirakud Project and what is its advantage?

Answer:

The Hirakud Project is in the Mahanadi basin. It integrates conservation of water with flood control.

Question 15.

Why multi-purpose projects and large dams have been opposed? State one reason.

Answer:

These projects and dams have been opposed because they lead to the large scale displacement of local people and communities. They have to give up their land and livelihood and their meager access to resources.

Question 16.

Which river is called as 'river of sorrow'?

Answer:

Damodar River.

Question 17.

In which state the farmers were agitated over the higher priority given to the water supply in urban areas?

Answer:

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.

Question 18.

Which state governments have raised objections over the diversion of more water and where?

Answer:

Karnataka and Andhra Pradesh governments have raised objections regarding the diversion of more water of Koyna by the Maharashtra government for a multi-purpose project. The reason was that this would reduce downstream flow in their states with adverse consequences for agriculture and industry.

Question 19.

Why the dams have triggered floods?

Answer:

The dams have triggered floods due to sedimentation in the reservoir.

Question 20.

Which are the two social movements that have been started against multi-purpose projects?

Answer:

1. Narmada BachaoAndolan.
2. Tehri Dam Andolan.

Question 21.

On which river Salal Dam is built?

Answer:

River Chenab.

Question 22.

Who gets benefits from multi-purpose projects? State any two sections of society

Answer:

1. Land owners
2. Large farmers
3. Industrialists.

Question 23.

What is an ecological consequence of irrigation under multi-purpose projects?

Answer:

Salinisation of the soil that has transformed the social landscape i.e., increasing the social gap between the richer landowners and the landless poor.

Question 24.

What was the position of rainwater harvesting system in ancient India?

Answer:

In ancient India, along with the sophisticated hydraulic structures, there existed an extraordinary tradition of water harvesting system.

Question 25.

Give any one example of rainwater harvesting system in ancient India.

Answer:

In the hill and mountainous region, people built diversion channels like the 'guls' or 'kuls' of the Western Himalayas for agriculture.

Question 26.

What method was developed in the flood plains of Bengal to irrigate their fields?

Answer:

In the floodplain of Bengal, people developed inundation channels to irrigate their fields.

Question 27.

Which methods were used in arid and semi-arid regions for irrigation?

Answer:

In arid and semi-arid regions, agricultural fields were converted into rain fed storage structures that allowed the water to stand and moisten the soil like the 'khadins' in Jaisalmer and 'Johads' in other parts of Rajasthan.

Question 28.

What are tankas?

Answer:

Tankas are underground tanks for storing drinking water.

Question 29.

What was length and breadth of a tank in Phalodi?

Answer:

1. Length : 4.27 meters
2. Width : 2.44 meters
3. Depth : 6.1 meters

Question 30.

What is remarkable about Gendathur a remote backward village in Mysore?

Answer:

Nearly 200 households have installed rooftop rainwater harvesting system to meet their water needs. The village has earned the rare distinction of being rich in rainwater.

Question 31.

What makes Tamil Nadu to stand out with regard to rainwater harvesting?

Answer:

Tamil Nadu is the first and the only state in India which has made rooftop rainwater harvesting structure compulsory to all the houses across the state.

Question 32.

Which system of tapping stream water is prevalent in Meghalaya?

Answer:

In Meghalaya, a 200-year-old system of tapping stream and spring water by using bamboo pipes is prevalent.

Question 33.

Give some facts and figures about the water resources in the world.

Answer:

1. 96.5 per cent of the total volume of world's water is estimated to exist as oceans and only 2.5 per cent exists as fresh water.
2. 70 per cent of the fresh water occurs as ice sheets and glaciers in Antarctica, Greenland and the mountainous regions of the world. Less than 30% is stored as groundwater in the world's aquifers.

Question 34.

Explain how water becomes a renewable resource?

Answer:

1. Fresh water is mainly obtained from surface run off and ground water. This is continually being renewed and recharged through the hydrological cycle.
2. All the water moves within the hydrological cycle making water a renewable resource.

Question 35.

What percentage of global precipitation does India receive?

Answer:

India receives nearly 4 per cent of the global precipitation.

Question 36.

Where is India ranked in terms of water availability per person per annum? By what year will India join countries having absolute water scarcity?

Answer:

India ranks 133 in the world in terms of water availability per person per annum. By 2025, large parts of India will join countries having absolute water scarcity.

Question 37.

Give an estimate of India's renewable water resources.

Answer:

The total renewable water resources of India are estimated at 1897 sq km per annum.

Question 38.

Write three sources of fresh water.

Answer:

Three sources are:

1. Precipitation — from rainfall.
2. Surface water — in rivers, lakes, etc.
3. Ground water — water stored in underground aquifers which gets recharged by rainfall.

Question 39.

What is water scarcity? Write the main reasons for water scarcity.

Answer:

Water scarcity means shortage of water. It is usually associated with regions having low rainfall or drought prone areas. There are many other reasons which lead to scarcity of water.

These are:

1. Large growing population—means more water required for domestic use and also to produce more food.
2. In the agricultural sector, water resources are being over-exploited to expand irrigated areas and dry-season agriculture.
3. More water required for irrigation purposes to facilitate higher food production, i.e., for doing multiple cropping and for HYV seeds.
4. There is greater demand for water with growing urbanisation and industrialisation.
5. An unequal access to water among different social groups.
6. The quality of water is deteriorating, i.e., getting polluted by domestic and industrial wastes, chemical fertilizers and pesticides used in agriculture.
7. Excessive use of water by industries which also require water to generate hydro-electric power to run them.
8. Over exploitation of water in the urban areas. Housing societies and colonies have their own ground-water pumping devices. This causes depletion of fragile water resources in the cities.

Question 40.

How intensive industrialisation and urbanisation have posed a great pressure on existing fresh water resources in India? Explain with two examples for each.

Answer:

Intensive industrialisation and urbanisation have put greater pressure on existing fresh water resources. With the ever growing number of industries, the demand for water has grown tremendously:

1. Industries are heavy users of fresh water as water is required for cooling the machines as well as for the processing of goods.
2. Also the machines run on the power supplied by the hydel power plants.
3. 22 percent of the total electricity is hydro-electric power.
4. Rapid urbanisation has led to expansion of industries which increased the requirement of water.
5. The untreated industrial effluents which are discharged into water bodies are polluting the water and making it hazardous for human consumption. This is responsible for creating water scarcity.

On the other hand, multiplying urban centres with:

1. Large urban populations and
2. urban lifestyles have not only added to water and energy requirements but have further aggravated the problem by over-drawing the groundwater by using their own groundwater pumping devices for meeting their water needs for domestic purposes such as cleaning, cooking, washing, etc.
Thus, water resources are being over-exploited which has caused their depletion in several cities.

Question 41.

Write the adverse effects of over-exploitation of ground water resources.

Answer:

1. Pumping out more water from under the ground may lead to falling ground water levels.

2. It will adversely affect water availability.
3. This, in turn, will affect our agriculture and food security of the people.
4. Impoverishment of water resources may adversely affect the ecological cycle.

Question 42.

Write the main causes of water pollution.

Answer:

Water gets polluted by:

1. Domestic wastes, especially urban sewers.
2. Industrial wastes are disposed off in the water without proper treatment.
3. Chemical effluents from industries and from agricultural sector.
4. Pesticides and fertilisers used in agriculture may get washed into rivers by rain-water and may pollute the water by enriching it with minerals.
5. Many human activities, e.g., religious rituals and immersing of idols, etc. in the water also pollute water.

Question 43.

What is the need for conservation of water resources?

Answer:

1. Our water resources are limited and our requirements are increasing day by day. The water resources are unevenly distributed.
2. Most of our resources especially in the cities and urban areas are polluted and unsuitable for drinking and other purposes.
3. To safeguard ourselves from health hazards.
4. We need to conserve water for the continuation of our livelihoods and to prevent degradation of our natural ecosystem. To ensure food security and for continuation of our livelihoods.
5. For productive activities of the nation.
6. To prevent degradation of our natural ecosystem.

Question 44.

Write some measures adopted for conservation of water resources.

Answer:

Measures for water conservation:

1. Do not overdraw the ground water, recharge the ground water by techniques like rainwater harvesting.
2. Avoid wastage of water at all levels.
3. Do not pollute the water.
4. Increasing the water resources by tapping the rainwater in reservoirs, watershed development programmes, etc.
5. Adopting water conserving techniques of irrigation, e.g., drip irrigation and sprinklers etc., especially in dry areas. Sufficient water percolation facilities should be increased to help in raising the level of the water table.

Question 45.

What were the different types of hydraulic structures constructed in Ancient India? Give examples.

Answer:

The different types of hydraulic structures were:

1. Dams built of stone rubble e.g., during Chandragupta Maurya's time, dams, lakes and irrigation systems were extensively built.
2. Reservoirs or lakes like the Bhopal lake of the 11th century which was one of the largest artificial lakes of its time.

3. Embankments and canals for irrigation. Sophisticated irrigation works have been found in Kalinga (Orissa), Kolhapur (Maharashtra), Nagarjunakonda (Andhra Pradesh) etc.
4. Many tanks were built to store rainwater e.g., the tank in Huaz Khas in Delhi was built in 14th century to supply water to Siri Fort area.

Question 46.

How was water conserved in ancient India? Give any four examples in support of your answer.

Answer:

Archaeological and historical records show that from ancient times India has been constructing sophisticated hydraulic structures like dams, reservoirs, embankments and canals for irrigation.

1. For example, in the first century B.C., Allahabad had sophisticated water harvesting system channelling the flood water of the river Ganga.
2. During the time of Chandragupta Maurya, dams, lakes and irrigation systems were extensively built.
3. Sophisticated irrigation works have been found in Kalinga in Odisha, Nagarjunakonda in Andhra Pradesh, Bennur in Karnataka and Kolhapur in Maharashtra.
4. Bhopal lake, built in the 11th century, was one of the largest artificial lakes of its time.
5. In the 14th century, Iltutmish constructed a tank in Hauz Khas, Delhi for supplying water in Siri Fort area.

Question 47.

What is a dam? Describe the functioning of dams? On what basis are dams classified into different types?

Answer:

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

A dam is the reservoir and not the whole structure.

Functioning:

Most dams have a section called spillway or weir over which or through which, water will flow intermittently or continuously.

Classification:

Dams are classified according to structure, intended purpose or height.

1. According to structure and materials used, they are classified as timber dams, embankment dams or masonry dams.
2. According to height, they are classified as large and major dams, low dams, medium height dams and high dams.

Question 48.

What is the main difference between traditional dams and modern dams?

Answer:

Traditionally dams were built to impound rivers and rainwater that could be used later to irrigate the agricultural fields.

Today, dams are referred to as multipurpose projects where many uses of the impounded water are integrated with one another. The main purposes served by these projects are irrigation, electricity generation, flood control, water supply for domestic and industrial use, fish breeding and tourism.

Question 49.

Why multipurpose river valley projects are called 'The Temples of Modern India'? Who first made this statement?

Or

Jawahar Lai Nehru proudly proclaimed the 'dams as the temples of modern India'. Analyze this statement.

Answer:

Jawahar Lai Nehru proclaimed that multipurpose projects are 'The Temples of Modern India', because they were thought of as the vehicle that would lead the nation to development and progress. He believed that these projects with their integrated water resource management approach would integrate development of agriculture and the village economy with rapid industrialisation and growth of the urban economy.

Dams or multipurpose river valley projects have the following advantages:

1. They bring water to those areas which suffer from water scarcity and also provide water for irrigation.
2. These projects generate electricity for industries and our homes.
3. They help in controlling floods by regulating the water flow.
4. These projects can be used for recreation, inland navigation and fish breeding.

Question 50.

'Construction of dams on rivers has caused environmental degradation.' Give reasons to support this statement.

Answer:

1. Damming of rivers affects their natural flow causing poor sediment flow.
2. Excessive sedimentation at the bottom of the reservoir.
3. Lack of sediments results in
 1. rockier stream bed and
 2. poorer habitat for the river's aquatic life.
4. Dams also fragment rivers, making it difficult for aquatic fauna to migrate, especially for spawning.
5. The reservoirs submerge the existing vegetation and soil, leading to its decomposition over time.
6. Flood plains are deprived of silt and khadar, affecting the fertility levels of the soil.
7. Construction of dams also faces resistance because of large scale displacement of local communities.

Question 51.

Multipurpose projects and dams have been the cause of many new social movements. Name two such social movements and write the underlying causes for these movements.

Answer:

Resistance to these projects came from social movements, e.g.,

1. 'Narmada Bachao Andolan' and
 2. 'Tehri Dam Andolan'.
- Their major concerns were as follows:

1. Initially the environmental concerns were of utmost importance.
2. Dams have resulted in large-scale displacement of local communities.
3. Local people have to give up their land and livelihood.
4. Local people do not benefit from such projects as they are even deprived of the local sources on which they have little control.
5. Many settlements and agricultural lands are submerged under water.
6. Rehabilitation of the displaced persons is now the prime concern of these movements.

Question 52.

What are the social consequences of multipurpose projects?

Or

Multipurpose projects have transformed the social landscapes. Explain.

Answer:

1. Local people, especially the landless people, did not gain from these projects.
2. It led to displacement of people which deprived the people of their land and livelihood.
3. It has increased the social gap between the richer landowners and the landless poor.
4. Dams created conflicts between people wanting different uses and benefits from the same water resources.
5. Inter-state water disputes are also becoming common with regard to sharing the costs and benefits of the multipurpose projects.

Question 53.

Explain any three problems faced by local communities due to the construction of large dams.

Answer:

Problems faced by local communities due to the construction of large dams:

1. Dams have resulted in large-scale displacement of local communities.
2. Local people have to give up their land and livelihood.
3. Local people do not benefit from such projects as they are even deprived of the local resources on which they have little control.
4. Many settlements and agricultural lands are submerged under water.

Question 54.

Compare the advantages and disadvantages of multipurpose river valley projects.

Answer:

Advantages:

1. They bring water to those areas which suffer from water scarcity and also provide water for irrigation.
2. These projects generate electricity for industries and our homes.
3. They help in controlling floods by regulating the water flow.
4. These projects can be used for recreation, inland navigation and fish breeding.

Disadvantages:

1. They have failed to achieve the purpose for which they were built.
2. The dams that were constructed to control floods have triggered floods due to sedimentation in the reservoir.
3. The big dams have mostly been unsuccessful in controlling floods at the time of excessive rainfall.
4. These floods cause extensive soil erosion in addition to loss of life and property.
5. Sedimentation deprives the flood plains of silt, a natural fertiliser.
6. It was observed that these projects induced earthquakes.
7. Floods cause water-borne diseases and pests.
8. Results in pollution also.
9. These river valley projects lead to large scale displacement of people and loss livelihoods.

Question 55.

What percentage of total electricity produced comes from hydro-electricity?

Answer:

22 per cent of the total electricity produced is from hydro-electric power.

Question 56.

Name two multipurpose projects and the rivers on which they are respectively situated.

Answer:

1. Hirakud Project is situated on river Mahanadi in Orissa, and
2. Bhakra Nangal Project is situated on river Sutlej.

Question 57.

Give an example of an inter-state water dispute.

Answer:

Krishna-Godavari dispute. The Karnataka and Andhra Pradesh Governments objected to the diversion of more water at Koyna by the Maharashtra government for a multipurpose project as this results in reduction of downstream flow to Karnataka and Andhra Pradesh adversely affecting agriculture and industry in these States.

Question 58.

Describe the traditional method of rainwater harvesting adopted in different parts of India.

Answer:

In ancient India, people developed wide-ranging techniques to harvest rainwater.

1. In mountainous areas 'Guls' and 'Kuls' the diversion channels were built for agriculture.
2. 'Rooftop rainwater harvesting' was commonly practised to store drinking water, especially in Rajasthan.
3. Inundation channels for irrigation were developed in the flood plains of West Bengal.
4. In arid and semi-arid regions, agricultural fields were converted into rainfed storage structures, eg. 'Khadins' in Jaisalmer and 'Johads' in other parts of Rajasthan.
5. In semi-arid and arid regions of Rajasthan, particularly in Bikaner, Phalodi and Barmer, all the houses had underground tanks or 'tankas' built inside the house for storing drinking water. They were a part of the well-developed rooftop rainwater harvesting system.

Question 59.

Explain how rooftop rainwater harvesting in semi-arid regions of Rajasthan is carried out.

Or

Write the features of the 'tankas' built in the houses of Bikaner, Phalodi and Barmer.

Answer:

'Rooftop rainwater harvesting' was commonly practiced to store drinking water, especially in semi-arid and arid regions like Bikaner, Phalodi and Barmer in Rajasthan.

1. In semi-arid and arid regions, all the houses had underground tankas or 'tankas' for storing drinking water built inside the house. They were the part of the well-developed rooftop rainwater harvesting system.
2. The tankas could be as large as a big room. One household in Phalodi had a tank that was 6.1 metres deep, 4.27 metres long and 2.44 metres wide.
3. The tankas were built inside the main house or the courtyard.
4. The tanks were connected to the sloping roofs of the houses through a pipe. The falling rain would travel down the pipes and get stored in the underground 'tankas'. The first spell of rain would not be collected as it cleaned the roof and pipes. The rainwater from subsequent showers was collected.
5. Many houses constructed underground rooms adjoining the tanka to beat the summer heat as it would keep the room cool.

Question 60.

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

Answer:

1. In modern times, rainwater harvesting is done in both rural and urban areas to recharge the groundwater by capturing and storing rainwater by constructing structures, e.g., dugwells, percolation pits, digging trenches around fields, etc.
2. Rooftop rainwater harvesting structures are a common practice in many cities. Rain-water is collected using a PVC pipe and is filtered using sand and bricks.
3. This water can be stored to meet the household needs through storage in tanks. This water is readily available for immediate usage.

4. Excess water or a pipe can be connected to an underground reservoir which may recharge the ground-water through hand-pump or through abandoned dugwell. Later, this water can be drawn for varied uses.
5. Storage tanks/reservoirs are built to store rainwater which is later used for irrigation purposes.

Question 61.

Give a brief description of the 'Narmada Bachao Andolan'.

Answer:

Narmada Bachao Andolan or Save Narmada Movement is an NGO (Non-Governmental Organisation) that mobilised tribal people, farmers, environmentalists and human rights activists against the Sardar Sarovar Dam being built across the Narmada river in Gujarat.

1. The movement originally focussed on environmental issues related to submerging of trees under the dam water.
2. Recently its aim has been to enable the displaced poor people to get full rehabilitation facilities from the government.

Question 62.

Which village in Karnataka has earned the distinction of being rich in rainwater?

Answer:

In Gendathur in Mysore, Karnataka, nearly 200 households have installed rooftop rainwater harvesting system.

Question 63.

Name the state which has made rooftop rainwater harvesting compulsory.

Answer:

Tamil Nadu has made rooftop rainwater harvesting structure compulsory for all houses across the state.

Question 64.

When does water stress occur according to Falken Mark, a Swedish expert?

Answer:

Water stress occurs when water availability is less than 1000 cubic metre per person per day.

Question 65.

Name the unique irrigation system prevalent in Meghalaya.

Answer:

Bamboo Drip Irrigation System.

Question 66.

Name two states where rooftop rainwater harvesting is common practice.

Answer:

Shillong, Meghalaya.

Question 67.

What is the present condition of Indian rivers?

Answer:

India's rivers, especially the smaller ones have turned into toxic streams. Even the bigger ones like the Ganga and Yamuna are slowly getting polluted.

Question 68.

Mawsynram is the region of highest rainfall, yet it faces acute water shortage. Why?

Answer:

Mawsynram faces acute water shortage because the rainwater harvested is not sufficient to meet the needs of the people.

QUESTIONS OF 3/5 MARKS

Question 69.

Give some facts and figures about water in the world.

Answer:

Some facts and figures about water are given below :

1. 96.5 per cent of the total volume of world's water exists as oceans.
2. 2.5 per cent of the total volume of world's water exists as freshwater. 70 per cent of the fresh water occurs as ice-sheets and glaciers in Antarctica, Greenland and the mountainous regions of the world. Only less than 30 per cent is stored as groundwater in the world's aquifers.
3. The total renewable water resources of India are estimated at 1,897 sq. km per annum.
4. India receives nearly 4 per cent of the global precipitation and ranks 133 in the world r in terms of water availability per person per annum.
5. By 2025, it is predicted that large parts of India will join countries or regions having absolute water scarcity.

Question 70.

In Israel average annual rainfall is 25 cm but there is no shortage of water but in India, average rainfall is 114 cm but here we find drought in one region or the other every year. Why?

Answer:

In Israel large scale projects to desalinate sea water, direct water from rivers and reservoirs in the north, make optimal use of groundwater and reclaim flood overflow and sewage have been undertaken. On the other hand, in India there is no proper arrangement of using rainwater. As a result of it, most of the water flows in to drains and to the sea. The rainy season is only for three months. Thereafter there is no rain for remaining nine months. As a result of these conditions we, in India, face shortage of water.

Question 71.

Explain three causes of water scarcity.

Or

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 statement with the help of examples.

Answer:

The statement means that there are various reasons for the scarcity of water as mentioned below :

1. Over-exploitation
2. Excessive use
3. Unequal access of water among different social groups.

See Textbook Question 2(2).

Question 72.

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.

Answer:

It is possible that an area or region may have ample water resources, but is still facing water scarcity.

1. Such scarcity may be due to bad quality of water. The available water may be polluted by domestic and industrial wastes, chemicals, pesticides and fertilisers used in agriculture, thus making it harmful for human use.
2. Growing population and consequent greater demands for water.
3. Own wells/tubewells and falling groundwater level affecting water availability.
See Textbook Question 2(2).

Question 73.

Why is it important to conserve and manage our water resources? Give any three reasons.

Answer:

It is necessary to conserve and manage our water resources due to the following reasons :

1. **To safeguard ourselves from health hazards:** Polluted water is not good for health. It may cause various kinds of water borne diseases. Water polluted by domestic and industrial wastes, chemicals, pesticides and fertilisers makes it hazardous for human use.
2. **To ensure food security:** Sufficient water is required for growing crops to meet the food requirement in the country. Shortage of water may lead to condition of drought and failure of crops.
3. **To prevent degradation of our natural ecosystems:** Over exploitation and mismanagement of water resources will impoverish this resource and cause ecological crisis that may have profound impact on our lives.
We cannot imagine a life without water. Thus it is very necessary to conserve and manage our water without which there can be no life on earth.

Question 74.

How was the water conserved in ancient India? Give some examples in support of your answer.

Answer:

The water was conserved in ancient India by constructing sophisticated hydraulic structures like dams built of stone rubble, reservoirs or lakes, embankments and canals for irrigation.

Some of the hydraulic structures in ancient India were as follows:

1. In the first century B.C., Sringerapur near Allahabad, had sophisticated water harvesting system channelling the flood water of the river Ganga.
2. During the reign of Chandragupta Maurya, dams, lakes and irrigation systems were extensively built.
3. Irrigation works have been found in many places viz., Kalinga (Orissa), Nagarjunakonda (Andhra Pradesh), Bennur (Karnataka) and Kolhapur (Maharashtra).
4. In the 11th century, Bhopal Lake was built. It was one of the largest artificial lakes of its time.
5. In the 14th century, the tank in Hauz Khas, Delhi was constructed by Iltutmish. It supplied water to Siri Fort area.

Question 75.

Name any two multipurpose projects of India. State four objectives of multipurpose projects.

Answer:

(1)

1. Bhakra-Nangal Project in the Satluj-Beas river basin.
2. Hirakud Project in the Mahanadi basin.

(2) Four objectives of multipurpose projects are as given below:

1. Electricity generation
2. Irrigation
3. Flood control
4. Inland navigation
5. Fish breeding.

See Textbook Question 2(3) also.

Question 76.

What is a dam? How are they classified?

Or

What is a dam? Describe the classification of dams on the basis of their structure and materials used and height.

Answer:

(1) A dam is a barrier across flowing water that obstructs, directs or retards the flow, often creating a reservoir, lake or impoundment. It has a section called a spillway or weir over which or through which water flows intermittently or continuously.

(2)

1. Based on structure and the materials used, dams are classified as timber dams, embankment dams or masonry dams.
2. According to the height, dams can be categorised as large dams and major dams or alternatively as low dams, medium height dams and high dams.

Question 77.

Describe the factors that are responsible for the poor condition of India's rivers – both smaller and big rivers.

Answer:

The following factors are responsible for the poor condition of India's rivers :

(1) Smaller rivers :

1. The growing domestic, municipal, industrial and agricultural demand of water from rivers has affected the quality of water. The volume of rivers has been reduced as more and more water is being drained out of them.
2. A heavy load of untreated sewage and industrial effluents are emptied into the rivers. This also affects the self-cleansing capacity of the rivers leading to rising pollution of their water. As a result of above factors, the smaller rivers have all turned into toxic streams.

(2) Big rivers: These rivers have been affected by the following factors :

1. Population growth
2. Agricultural modernisation

3. Urbanisation
4. **Industrialisation** : Industries are heavy users of water and also require hydroelectric power to run them.
For example in Delhi, a large amount of domestic and industrial waste falls in the Yamuna River that leads to water pollution. Thus, even the big”rivers like the Ganga and Yamuna are far from being pure and efforts are being made to clean the rivers.

Question 78.

What is a multi-purpose river project? Give four objectives of these projects?

Answer:

(1) Dams are referred to as multi-purpose projects where the many uses of the impounded water are integrated with one another. Dams are now built not just for irrigation but for electricity generation, water supply for domestic and industrial uses, flood control and recreation.

(2) **The objectives of the projects were as mentioned below:**

1. It would integrate development of agriculture and the village economy with rapid industrialisation and growth of the urban economy. It was thought that they would lead the nation to development and progress, overcoming the handicap of its colonial past.
 2. These projects generate hydro-electricity. For example the Bhakra-Nangal project water is being used for hydel power production.
 3. The projects are useful for irrigation as is the case of Bhakra project.
 4. **Flood control:** These projects help in the control of floods. For example the Hirakud project in the Mahanadi basin integrates conservation of water with flood control.
 5. The other objectives are navigation, fish breeding, and water supply for domestic and industrial uses and to encourage tourism.
- Also see Textbook Question 2(Hi).

Question 79.

Describe the factors that are responsible for the various objections against the multi-purpose projects.

Answer:

The factors that are responsible for the various objections against the various multi-purpose projects are as given below :

1. Failure of the projects to achieve their objectives.
2. Some dams that were constructed to control floods were responsible for the floods due to sedimentation in the reservoir.
3. Generally, big dams are not successful in controlling flood at the time of heavy and excessive rainfall because in such cases the release of water from dams aggravated the flood situation. This has happened in Maharashtra and Gujarat in 2006. The floods have not only devastated life and property but also caused extensive soil erosion.
4. Sedimentation deprived flood plains of silt, a natural fertiliser and was responsible for land degradation.
5. Multi-purpose projects induce earthquakes, cause water-borne diseases and pests and pollution resulting from excessive use of water.

Question 80.

What is rainwater harvesting? How was it used in ancient times?

Or

How is rainwater harvesting carried out in semi-arid regions of Rajasthan? Explain.

Or

What is rainwater harvesting? Explain any two different methods of rainwater harvesting in different regions of India.

Or

Why are different water harvesting systems considered a viable alternative both socio-economically and environmentally in a country like India?

Answer:

(1) Rainwater harvesting is a technique of increasing the recharge of groundwater by capturing and storing rainwater by constructing structures, such as dugwells, percolation pits, checkdams.
(2) Keeping into view the disadvantages and rising resistance against the multi-purpose projects, water harvesting system is considered a viable alternative both socio-economically and environmentally.

(3) Ancient Times:

1. In ancient India, along with the sophisticated hydraulic structures, there existed an extraordinary tradition of water-harvesting system.
2. People had in-depth knowledge of rainfall regimes and soil types.
3. They had developed wide ranging techniques to harvest rainwater, groundwater, river water and flood water in keeping with the local ecological conditions and their water needs.
4. In hilly and mountainous regions, people built diversion channels like the 'guls' or 'kuls' of the western Himalayas for agriculture. Rooftop rainwater harvesting was commonly practised to store drinking water.
5. In the flood plains of Bengal, people developed inundation channels to irrigate their fields.
6. In arid and semi-arid regions, agricultural fields were converted into rain fed storage structures that allowed the water to stand and moisten the soil like the 'Khadins' in Jaisalmer and 'Johads' in other parts of Rajasthan.
7. In Bikaner, Phalodi and Barmer, almost all the houses had underground tanks for storing drinking water.

Also see Textbook Question 3(1) and (2).

Question 81.

What is rooftop rainwater harvesting system? In which state is it compulsory to follow this system?

Answer:

(1) Rooftop rainwater harvesting means the rainwater that falls on the sloping roofs of houses is taken through pipe into an underground tanka (circular holes in the ground), built in the main house or in the courtyard.

(2) In the semi-arid and arid regions of Rajasthan, particularly Bikaner, this practice was followed.

(3)

1. Roof top rainwater harvesting is the most common practice in Shillong, Meghalaya.
2. Tamil Nadu is the first and the only state in India which has made rooftop rainwater harvesting structure compulsory to all the houses across the state. There are legal provisions to punish the defaulters.

Question 82.

What is Bamboo Drip Irrigation system?

Answer:

In Meghalaya, a 200-year-old system of tapping stream and spring water by using bamboo pipes is prevalent. About 10-20 litres of water enters the bamboo pipe system, gets transported over hundreds of meters, and finally reduced to 20-80 drops per minute at the site of the plant. Bamboo pipes are used to divert perennial springs on the hilltops to the lower reaches by gravity.

MAP QUESTION

Question 83.

On the map of India show the following multi-purpose projects :

- (1) Bhakra-Nangal (2) Hirakud (3) Nagarjunasagar (4) Tungabhadra
(5) Sardar Sarovar.

Answer:

See map given below :

