

Class-10th

Geography, Chapter 7

1. What is 'irrigation'? What are the 'primary sources' and the 'secondary sources' of irrigation?

Ans.1 Irrigation refers to the process of watering of cultivated plants through artificial means from open wells, tanks, tubewells, canals, ponds, lakes etc. While sources such as rainfall, rivers, etc. are called the **primary sources** of irrigation, wells, tanks, canals, ponds, lakes etc. are called the **secondary sources**.

2. What are the four needs for irrigation in India?

Ans.2 The four needs for irrigation in India are-

- i. Uncertainty of rainfall
- ii. Uneven and erratic nature of rainfall
- iii. Nature of soil
- iv. To maximise agricultural productivity

3. How does uncertainty of rainfall necessitate irrigation?

Ans.3 India experiences unpredictable rainfall. This affects our agricultural output. Delay in the arrival and early withdrawal of monsoon can not only affect crop yield but can also lead to crop failures.

4. Explain how the nature of soil determines the need for irrigation?

Ans.4 Moisture-retentive soil such as black soil need less irrigation, while other soils such as alluvial, red and laterite need a regular supply of water as they lose moisture speedily.

5. What is the difference between surface water sources and groundwater sources? Why are the latter more important for the Indian farmers?

Ans.5 Groundwater is located underground in large aquifers and must be pumped out of the ground after drilling a deep well. Surface water is found in lakes, rivers and streams and is drawn into the public water supply by an intake.

Groundwater irrigation is key to India's food security

Groundwater irrigation has played an important role in India's food security and has provided drought resilience and income certainty for millions of farmers in the country.

6. What are the three common types of irrigation practised in India?

Ans.6 Some of the common types of irrigation in India are:-

i. Well irrigation ii. Tank irrigation iii. Canal irrigation.

7. Which is the most common type of irrigation? What are its main requirements?

Ans.7 Canals are most effective techniques of irrigation in areas of low level relief, deep fertile soils, perennial source of water and extensive command area. Therefore, the main concentration of canal irrigation is in the northern plain of India.

Canal alignment must be chosen such that the maximum area is served with the least length. It also must minimize the use of cross-drainage works. If the length of the canal is short, there is less head loss, seepage loss, and evaporation loss. This also brings additional areas for irrigation.

8. During which season is the task of digging open(surface) wells completed? Why?

Ans.8 The task of digging well since completed during the summer season to ensure the availability of water throughout the year.

9. What are the two broad classification of surface wells? What is the main difference between the two?

Ans.9 Two broad classification of surface wells are ;

1)Unlined surface wells

2)Lined surface wells

Difference between:

UNLINED SURFACE WELLS

1.These are kuchha wells.

2.They are generally found in the cultivable land away from homes.

3.They do not have a protective wall around them.

LINED SURFACE WELLS

1.These are pucca wells.

2.These are deeper and have a brick and cemented enclosure around

3.These are mainly found in the areas of high table and near the houses.

10. List any three advantages and three disadvantages of open-well irrigation.

Ans.10 Advantages of open well irrigation;

- i. Simplest and cheapest source of irrigation.
- ii. Wells can be dug at any convenient place.
- iii. Several chemicals such as nitrate, chloride, sulphate etc are generally found mixed in water.

Disadvantages of open well irrigation;

- i. Since the water available for irrigation purpose it is necessary to lift it from underground. For lifting the water power is required.
- ii. Sometimes cost of well water is so high that the return obtained from it are not justifiable.
- iii. Availability of water from the well depends on groundwater storage.

11. Give two reasons to explain why open well irrigation is more popular in Southern India than in the north.

Ans.11 Two reasons why open well irrigation is more popular in Southern India than in the north are:-

- i. The land is soft and fertile and thus wells can be easily dug at minimum cost whereas, there are rocks present everywhere in the deccan region thus making it impossible for the wells to be dug.
- ii. can be dug easily wherever needed in the area to be irrigated while in southern India it is not possible

12. What is a 'tube well'? List one disadvantage of tube well irrigation.

Ans.12 Tube wells are deep bores drilled into the ground manually or with a drill mounted on a huge machine. **Disadvantage:-**The well may dry up and may be rendered useless for irrigation if excessive water is taken out.

13. What are the four advantages of tube Wells over open wells(surface wells) for irrigation?

Ans.13 Four advantages of tube Wells over open wells for irrigation are:-

- i. Since these wells are deeper and have more water, they can irrigate larger area in comparison to surface wells.
- ii. They are more reliable during draught seasons.
- iii. Salinity level in these wells is low due to zero evaporation.
- iv. They occupy less area in comparison to open wells.

14. Tube well irrigation is more common in North India than in South India why?

Ans.14 The rocky undulating surface of south india is not suitable for well construction. North India has wide spread deposition of alluvial soil which is suitable for well irrigation. In south india ground water reserve is far below the surface but in north india the ground water level is within easy reach.

15. What type of irrigation is most common in the South eastern part of the Deccan plateau why?

Ans.15 Tank irrigation is most common in south eastern part of deccan plateau as it has many natural depressions where tanks can be easily built.

16. What are the three main requirements for the popularity of tank irrigation?

Ans.16 Three main requirements for the popularity of tank irrigation are:

- i. Topography of a depression for collection of rainwater.
- ii. There should be ample seasonal rainfall to ensure water supply in these tanks.
- iii. The bedrock should be non porous to prevent the further percolation of water.

17. What are the three advantages and disadvantages of tank irrigation?

Ans.17 Advantages of tank irrigation are:-

- i. Tanks conserve rainwater by minimizing surface runoff.
- ii. They raise the ground water table of the surrounding areas.
- iii. Construction cost of tank is generally low as compared to canals.

Disadvantages:-

- i. They depend on monsoon for water therefore if monsoon fails tank irrigation fails.
- ii. They cover large tracts of land ,which could otherwise be used for agriculture.
- iii. Irrigation far off places.

Using tank water is difficult and expensive.

18. List three reasons why tank irrigation is very popular in the Deccan plateau?

Ans.18 Tank irrigation is very popular in deccan plateau due to the following reasons:-

- i. Presence of many natural depressions that enable the collection of rainwater.
- ii. Occurrence of seasonal rainfall that provides water supply.
- iii. Existence of hard bedrock that prevents further percolation of rainwater.

Q19. What is Canal irrigation? What are the two types of canals?

Ans.19 Canal irrigation refers to the supply of water from a river to faroff cultivable land through an artificially constructed path.

Two types of canals are:

- i. Perennial canals
- ii. Non-perennial canals

20. What are 'perennial canals'? Which is the longest perennial Canal in India?

Ans.20 Perennial canals are those having water throughout the year and irrigate large areas.

The Indira Gandhi canal in Rajasthan is the longest canal in India (approx 650 kms long).

21. Give two examples why Canal irrigation is more popular in northern part of India?

Ans. 21 Two examples why Canal irrigation is more popular in Northern part of India are:-

- i. The surface of the land is almost flat and soft. Hence it is easy to dig canals.
- ii. The demand for irrigation is very great in North India as a variety of crops are grown.

22. List any three advantages and three disadvantages of perennial Canal irrigation.

Ans.22 Three advantages of perennial Canal irrigation are:-

- i. These canals provide regular supply of water for irrigation throughout the year.
- ii. They provide a mode of cheap internal water transport.
- iii. They supply fertile alluvial soil to the irrigated fields and control floods in low lying river plains.

Three disadvantages of perennial Canal irrigation are:-

- i. Supply of excess water renders the land infertile and unsuitable for agriculture in the long run.
- ii. Canal construction involves greater construction cost.
- iii. Lots of cultivable land is wasted by means of constructing canals.

23. What are the two advantages and two disadvantages of non-perennial canal irrigation.

Ans.23 Two advantages of non-perennial canal irrigation are:-

- i. They are useful in controlling floods.
- ii. They are cheap to construct and to operate.

Two disadvantages of non-perennial canal irrigation:-

i. Water supply is seasonal, i.e. they supply water only during flood season when there is generally enough supply of water by rain.

ii. There is no control over water supply.

24. What are the two reasons why perennial canals are more preferred over inundation canals?

Ans.24 Inundation canals do not carry water during summer as the rivers which feed them, goes dry during this season. Perennial canals usually have water in them all year through, as they originate from dam reservoirs or barrages. Because of this reason, more Inundation canals are being converted to Perennial canals.

25. What are the three methods of irrigation?

Ans.25 Some of the common types of irrigation:-

i. Well irrigation

ii. Tank irrigation

iii. Canal irrigation

26. What is spray irrigation also known as? What are its two features?

Ans.26 It is also known as 'sprinkler irrigation'. Under this method the field using spray guns or sprinklers attached to the other (exit) end of the hose.

Features:-i. Sprinkler irrigation is a method of applying irrigation water which is similar to natural rainfall.

ii. Water is distributed through a system of pipes usually by pumping.

27. Which is the most advanced and efficient method of irrigation? What is its unique feature as compared to the other forms of irrigation?

Ans.27 Drip irrigation is the most advanced and efficient method of irrigation.

Features:-Drip irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface. The goal is to place water directly into the root zone and minimize evaporation.

28. What are the two special advantages of drip irrigation over other form of irrigation?

Ans.28 Two special advantages of drip irrigation over other form of irrigation are:-

Ans.28 Two advantages of drip irrigation are:-i. Drip irrigation is the most efficient water and nutrient delivery system for growing crops as it is the most common method of microirrigation.

ii. It delivers water and nutrients directly to the plant's roots zone, in the right amounts, at the right time, so each plant gets exactly what it needs, when it needs it, to grow optimally.

29. Give two reasons why is sprinkler irrigation and drip irrigation are gaining popularity in semi-arid areas.

Ans.29 Two reasons why is sprinkler irrigation and drip irrigation are gaining popularity in semi-arid areas are:-

i. Ground level where irrigation is not possible by other irrigation methods can be irrigated by sprinkler method.

ii. Having maximum temperature where crops might get destroyed, sprinkler irrigation method maintains humid environment for the crops.

30. List any three reasons for the ocular lens of water scarcity in India.

Ans.30 India's water crisis is often attributed to lack of government planning, increased corporate privatization, industrial and human waste and government corruption. In addition, water scarcity in India is expected to worsen as the overall population is expected to increase to 1.6 billion by year 2050.

31. Give three reasons to prove the need for fresh water conservation today.

Ans.31 Three reasons to prove the need for fresh water conservation today are:-

i. We use water every day of our lives.

ii. Water grows food.

iii. It protects our ecosystem and wildlife.

32. What is 'watershed management'?

Ans.32 Watershed management is the study of the relevant characteristics of a watershed aimed at the sustainable distribution of its resources and the process of creating and implementing plans, programs etc.

33. Suggest any two steps that can be taken for an effective watershed management system.

Ans.33 Two key steps in watershed management?

i. Delineate and map the watershed's boundaries and the smaller drainage basins within the watershed.

ii. Inventory and map the resources in the watershed.

34. What is rainwater harvesting?

Ans.34 Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Rainwater is collected from a roof-like surface and redirected to a tank, cistern, deep pit (well, shaft, or borehole), aquifer or a reservoir with percolation.

35. Why is rainwater harvesting necessary in India?

Ans.35 important so that you can save this pure water for future use. This water is collected from various hard surfaces, and is used for various activities like irrigation and landscaping. Two Indian states that practise rainwater harvesting in India are Tamil Nadu and Kerala.

36. List any three methods of water harvesting necessary in India?

Ans.36 Three Methods of Rainwater Harvesting:-

Ans.36 i. Surface Runoff Harvesting. Surface runoff harvesting is the most suitable method in urban clusters.

ii. Rooftop Rainwater Harvesting. Rooftop rainwater harvesting is the most popular of all harvesting options in urban areas.

iii. Recharge Pits.

37. What are the various methods of recharging groundwater aquifers?

Ans.37 Groundwater can be artificially recharged by redirecting water across the land surface through canals, infiltration basins, or ponds; adding irrigation furrows or sprinkler systems; or simply injecting water directly into the subsurface through injection wells.

38. Mention any objectives of rainwater harvesting.

Ans.38 Objectives of Rainwater Harvesting:-

i. To meet the rising demand of water needs.

ii. To raise the water table underground.

iii. To reduce soil erosion.

iv. It helps preventing urban flooding due to excess rain.

v. It can reduce the water bill in urban areas.

vi. can be used for non-drinking purposes.

39. What are the benefits of rainwater harvesting?

Ans.39 The advantages of rainwater harvesting are:-

i. It is cost-effective.

ii. Conserves water.

iii. A source of water for landscape irrigation.

iv. It is a simple method and easy to practice.

v. It reduces soil erosion and pollution of water bodies due to fertilizers and pesticides.