15 Transport and Communication

Fastrack Revision

- **Means of Transport:** There are different means of transportation such as land, water and air transport. Each of them have different characteristics.
  The major means of transportation are:
- **Land Transport:** In India, land transport is developed since ancient times when pathways and unmetalled roads were used for transportation of people and goods.
  - **Road Transport:** India has the second largest road networks in the world. After independence, twenty year road plan (1961) was started to improve the conditions of roads in India but still roads continue to concentrate in and around urban centre. The total length of Indian road is 56 lakh km (2017-18).
  - **National Highways:** The Main roads which are constructed and maintained by Central Government are known as National Highways. They are developed and maintained by NHAI.
    Four uses of National Highways in India are:
    - They facilitate inter-state transport and movement of defence men and material in strategic areas.
    - They connect the state capitals, major cities, important ports, railway junctions etc.
    - They constitute only about 2% of the total road length but carry 40% of the road traffic.
    - They are 4-6 lanes and make journey fast and easy.
  - **Golden Quadrilateral :** It comprises construction of 5,846 km long 4/6 lane, high density traffic corridor, to connect India's four big metro cities of Delhi-Mumbai-Chennai-Kolkata. With the construction of Golden Quadrilateral, the time, distance and cost of movement among the mega cities of India will be considerably minimised.
  - **North-South and East-West Corridors:** North-South corridor aims at connecting Srinagar in Jammu and Kashmir with Kanniyakumari in Tamil Nadu with 4,076 km long road. The East-West corridor has been planned to connect Silchar in Assam with the port town of Porbandar in Gujarat with 3,640 km of road length.
  - **State Highways:** These roads connect the state capitals with district headquarters and other important towns. These roads are also connected to the National Highways.

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The share of state highways in the total road length of the country is about 4%.

  - **District Roads:** These roads connect other important roads in the district. They account for 14% of the total road length of the country.
  - **Rural Roads:** These are constructed and maintained by State Government. These roads are vital for providing links in the rural areas. About 80% of the total road length in India are categorised as rural roads. There is regional variation in the density of rural road because these are influenced by the nature of terrain.
  - **Other Roads:** The two types of roads are included under the category of 'other roads' in India:
    - **Border Roads:** These are strategically important roads along the Northern and North-Eastern boundary of the country.
      Characteristics of border roads are as follows:
      - The total length of border roads is 46,870 km, these are constructed by Border Road Organisation (BRO).
      - These are important to accelerate economic development and strengthening defence preparedness.

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The World's longest highway tunnel — Atal Tunnel (9.02 km) has been built by Border Road Organisation. This tunnel connects Manali to Lahaul-Spiti Valley throughout the year. Earlier the valley was cut off for about 6 months each year owing to heavy snowfall.

    - **International Highways:** These are the roads which connect India to neighbouring countries. Characteristics of international highways are as follows:
      - They are constructed with aim to promote harmonious relationship with neighbouring countries.
      - They provide an effective connectivity to neighbouring countries.
    - Bharatmala is a proposed umbrella scheme for:
      - Development of state roads along coastal border areas, including connectivity of non-major ports.
      - Backward areas religious and tourist places connectivity programme.
      - Setu-Bharatam Pariyojana, which is for the construction of about 1500 major bridges and 200 rail over bridges rail under bridges, District Headquarters connectivity Scheme for the development of about 9,000 km newly declared National Highways.

➤ **Rail Transport:** India has one of the longest railway networks in the world. It facilitates the movement of both freight and people and contributes to the growth of the economy. In 1853, the First Indian Railway Line was started from Bombay to Thane covering a distance of 34 km.

➤ **Railways Gauges in India:** On the basis of the width of track of the Indian Railways, three categories have been made:

- **Broad Gauge**
  - The distance between rails in broad gauge is 1.676 m.
  - The total length of broad gauge lines was 63,950 km (2019-20).
- **Metre Gauge**
  - The distance between rails in meter gauge is 1 metre.
  - Its total length was 2,402 km (2019-20).
- **Narrow Gauge**
  - The distance between the rails is 0.762 m or 0.610 m in this case.
  - Its total length was 1,604 km (2019-20).
  - It is generally confined to hilly areas.

➤ **Konkan Railways:** The major features of the Konkan Railways are:

- It is one of the achievements of Indian Railways that got constructed in 1998.
- It is a 760 km long rail route connecting Roha in Maharashtra to Mangalore in Karnataka.
- It is an engineering marvel that crossed 146 rivers, streams, nearly 2000 bridges and 91 tunnels.

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Konkan Railways-crosses Asia's largest tunnel which is 6.5 km long.

➤ **Water Transport:** It is the cheapest means of transport for carrying heavy and bulky material as well as passenger services.

➤ **Advantages of Water Transport**

- It is the cheapest means of transport. Because it does not require the construction of routes as it is naturally built.
- It is most suitable for carrying heavy and bulky material.
- It is fuel efficient.
- It is an eco-friendly mode of transport.

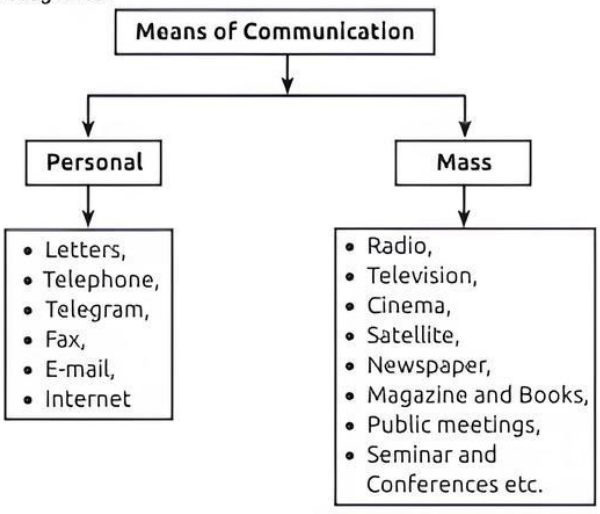
➤ **Types of Water Transport**

- **Inland Waterways**
  - It was the chief mode of transport before the advent of railways.
  - India has 14,500 km of navigable waterways, contributing about 1% to the country's transportation.
  - At present, 5,685 km of major rivers are navigable by mechanised flat bottom vessels.
  - The back waters (Kadal) of Kerala has special significance in Inland Waterways.
  - The famous Nehru Trophy Boat Race (VALLAMKALI) is also held in backwaters.
- **Oceanic Routes**
  - India has a vast coastline of approximate 7,517 km including islands.
  - Twelve major and 185 minor ports provide infrastructural support to these routes.
  - Approximately 95% of India's foreign trade by volume and 70% by value moves through ocean routes.

The following waterways have been declared as the National Waterways by the Government:

Waterways	Stretch	Specification
NW 1	Allahabad (Now Prayagraj) -Haldia stretch (1.620 km)	It is one of the most important waterways in India, which is navigable by mechanical boats up to Patna and by ordinary boats up to Haridwar. It is divided into three parts for developmental purposes..... (i) Haldia-Farakka (560 km), (ii) Farakka-Patna (460 km), Patna-Allahabad (Now Prayagraj) (600 km).
NW 2	Sadiya-Dhubri stretch (891 km)	Brahmaputra is navigable by steamers up to Dibrugarh (1,384 km) which is shared by India and Bangladesh.
NW3	Kottapuram-Kollam stretch (205 km)	It includes 168 km of West coast canal along with Champakara canal (14 km) and Udyogamandal canal (23 km).
NW 4		Specified stretches of Godavari and Krishna rivers along with Kakinada-Puducherry stretch of canals (1,078 km).
NW 5		Specified stretches of rivers Brahmani along with Matai river, delta channels of Mahanadi and Brahmani rivers and East Coast canals (588 km).

- **Air Transportation**
  - Air transport is the fastest means of movement from one place to the other.
  - Air transport in India made a beginning in 1911 when air mail operation commenced over a little distance of 10 km between Allahabad and Naini.
  - Airport authority manages 125 airports.
  - Pawan Hans is the helicopter service operating in hilly areas and is widely used by tourists in North-Eastern sector.
- **Oil and Gas Pipelines:** Pipelines are convenient and efficient means of transporting liquids and gases over long distances. Oil India Limited (OIL) under the Ministry of Petroleum and Natural Gas is responsible for exploration, production and transportation of crude oil and natural gas.
  - **Advantages of Pipeline Transportation**
    - They are ideally suited to transport the liquids and gases and solids in slurry form.
    - They can be laid through difficult terrains as well as under water.
    - It involves very low energy consumption.
    - It is safe, accident free and environment friendly.
    - It needs little maintenance.
  - **Disadvantages of Pipeline Transportation**
    - It is not flexible *i.e.*, it can be used only for a few fixed points.
    - Its capacity cannot be increased once it is laid.
    - Underground pipelines cannot be easily repaired and detection of leakage is also difficult.
    - It is difficult to make security arrangements for pipelines.
- **Communication Networks:** Communication means transmission of information from one place, person or group to another. On the basis of scale and quality, the mode of communication can be divided into the following categories:



The most effective and advanced personal communication system in India is the 'Internet'. Its four characteristics are:

- **Enables Establishment of Direct Contact by User:** Internet enables the user to establish direct contact through e-mail to get access to the world of knowledge and information.
- **Used for E-commerce:** Internet is increasingly used for e-commerce and carrying out money transactions.
- **Huge Central Warehouse of Data:** Internet is like a huge central warehouse of data, with detailed information of various items.
- **Access to Information at Low Cost:** The network through internet and e-mail provides an efficient access to information at a comparatively low cost.

- **Personal Communication:** It is the most effective and advanced one and widely used in urban areas. It enables the user to establish direct connect through e-mail to get access to world of knowledge and information. It is used for e-commerce and carrying out money transaction. It is a huge central warehouse of data, with detailed information on various items (Letters, Telephone, Fax, E-mail, Internet etc.). Among all the personal communication systems, internet is the most effective and advanced one. The internet is like a huge central warehouse of data, with detailed information on various items. The network through internet and e-mail provides an efficient access to information at a comparatively low cost.
- **Mass Communication System Radio:** Radio broadcasting started in India in 1923 by the Radio Club of Bombay and changed the sociocultural life of people. All India Radio broadcasts a variety of programmes related to information, education and entertainment. Special news bulletins are also broadcast at specific occasions like session of Parliament and state legislatures.
  - **Television:** Television broadcasting emerged as the most effective audio-visual medium for information and educating masses.

    Use of satellite and synoptic view of larger area for economic and strategic reasons. (Radio, Television, Cinema, Satellite, Newspaper, Magazine and Books, Seminar and Conference etc). On the basis of configuration and purposes, satellite system in India can be grouped into two:
    - Indian National Satellite System (INSAT) and
    - Indian Remote Sensing Satellite System (IRS).
    - The INSAT, which was established in 1983, is a multipurpose satellite system for telecommunication, meteorological observation and for various other data and programme.
  - **Satellite Communication:** Satellite is an advanced mode of communication. They also regulate the use of the other means of communication.

    Three advantages of satellite communication in India are:
    - **Provides Synoptic View of Larger Area:** Satellites provide a continuous and synoptic view of a larger area which is very vital for the country due to economic and strategic reasons.
    - **Helps in Telecommunication, Meteorological Observation etc.:** Satellite systems are used for telecommunication, meteorological observation and for various other data and programmes. *e.g.*, Indian National Satellite System (INSAT) is a multipurpose satellite system used for this purpose.
    - **Used in Weather Forecast, Monitoring of Natural Calamities etc.:** Satellite images can be used for weather forecast, monitoring of natural calamities, surveillance of border area etc.

Practice Exercise

Multiple Choice Questions

Q 1. Nagpur Plan is associated with which of the following?

a. Railway modernisation
b. Road modernisation
c. Waterway development
d. Airways development

Q 2. Which one of the following is the longest National Highway of India?

a. NH-1 b. NH-7 c. NH-6 d. NH-8

Q 3. The Golden Quadrilateral connects which of these cities in India?

a. Delhi-Gurugram-Faridabad - Mumbai
b. Delhi-Mumbai-Chennai-Kolkata
c. Chennai-Bengaluru-Hyderabad-Pune
d. Delhi-Chennai-Bengaluru-Pune

Q 4. Which of the following constitute the maximum length of roads in India?

a. National Highways b. State Highways
c. District Roads d. Rural Roads

Q 5. Name the Headquarters of Northern Railway Zone of India.

a. Lucknow b. Kanpur
c. New Delhi d. Chandigarh

Q 6. Which of these is the most important body in India engaged in exploration and production of crude oil?

a. Oil India Ltd. b. Bharat Petroleum
c. ONGC Videsh d. Indane Ltd.

Q 7. The National Waterway II lies on which river in India?

a. Ganga b. Yamuna
c. Brahmaputra d. Chambal

Q 8. Which of these provides helicopter services in hilly areas in the North-East region in India?

a. Air India Ltd. b. Pawan Hans Ltd.
c. Indian Airlines d. BHEL Ltd.

Q 9. 'Indian Airlines' was merged with Air India to form a single airline in which of the following years?

a. 2009 b. 2011 c. 1992 d. 1981

Q 10. Which of these is true for road transport in India?

1. India has the second largest road network in the world.
2. About 20% of passenger traffic is carried by roads in India.
3. Twenty year road plan was introduced in the year 1961 to improve the conditions of roads.

Codes:

a. 1, 2 and 3 b. 1 and 2
c. 1 and 3 d. 2 and 3

Q 11. Which of these states operate the Konkan Railways?

1. Maharashtra 2. Goa
3. Andhra Pradesh 4. Karnataka

Codes:

a. 1, 2 and 3 b. 1, 2, 3 and 4
c. 1, 2 and 4 d. 1 and 3

Q 12. Which of the following is/are the use/s of satellite communication in India?

1. Management of natural resources.
2. Meteorological observation.
3. Telecommunication.

Codes:

a. 1 and 2 b. 1, 2 and 3
c. 2 and 3 d. 1 and 3

Q 13. In how many zones has the Indian Railway system been divided?

a. 9 b. 12 c. 16 d. 19

Q 14. On which river and between which two places does the National Waterway No. 1 lie?

a. The Brahmaputra, Sadiya- Dhubri
b. The Ganga, Haldia-Allahabad (Now Prayagraj)
c. West Coast Canal, Kottapuram to Kollam
d. None of the above

Q 15. In which of the following year, the first radio programme was broadcast?

a. 1911 b. 1936 c. 1927 d. 1923

Q 16. Consider the following statements and choose the correct answer with the help of given options:

Statement I: Mass communication promotes national integration and provides entertainment.

Statement II: It strengthens democracy in the country by providing news to the masses, they feel attached to country and a feeling of nationalism arises in them.

a. Both the statements are true, statements II does not explain statement I correctly.
b. Both the statements are true and statement II correctly explains the statement I.
c. Both statements I and II are false.
d. Statement I is true and statement II is false.

Q 17. Match the means of transport with their important features:

Column I	Column II
A. Roadways	1. Fastest ways of transport
B. Railways	2. Cheapest means for carrying heavy and bulky goods over long distances.

C. Waterways	3. Carry heavy goods and people over long distances quickly and cheaply.
D. Airways	4. Most commonly used specially for short distances.

Codes:

	A	B	C	D		A	B	C	D
a.	1	2	3	4	b.	3	4	1	2
c.	4	3	2	1	d.	2	1	4	3

Assertion & Reason Type Questions

Directions (Q.Nos. 18-20): *In the following questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option:*

a. Both (A) and (R) are true and (R) is the correct explanation of (A).
b. Both (A) and (R) are true, but (R) is not the correct explanation of (A).
c. (A) is true, but (R) is false.
d. (A) is false, but (R) is true.

Q 18. Assertion (A): Water transport is the cheapest transport.
Reason (R): India has 17,500 km of navigable waterways.

Q 19. Assertion (A): Construction of roads is easy and cheaper in plain areas.
Reason (R): Plain areas have good topography and are economically developed.

Q 20. Assertion (A): Indian Railways earlier has been divided into 16 (now 19) zones.
Reason (R): Large size of Indian Railways puts a lot of pressure on centralised railway management system.

Answers

1.	(b)	**2.**	(b)	**3.**	(b)	**4.**	(d)	**5.**	(c)
6.	(a)	**7.**	(c)	**8.**	(b)	**9.**	(b)	**10.**	(c)
11.	(c)	**12.**	(b)	**13.**	(d)	**14.**	(b)	**15.**	(d)
16.	(b)	**17.**	(c)	**18.**	(b)	**19.**	(a)	**20.**	(a)

Passage Based Questions

Passage 1

Read the passage given below and answer the questions that follow by choosing the most appropriate option:

Human beings have evolved different methods of communication over time. In earlier times, the messages were delivered by beating the drum or hollow tree trunks, giving indications through smoke or fire or with the help of fast runners. Horses, camels, dogs, birds and other animals were also used to send messages. Initially, the means of communication were also the means of transportation. Invention of post office, telegraph, printing press, telephone, satellite, etc. has made the communication much faster and easier. Development in the field of science and technology has significantly contributed in bringing about revolution in the field of communication. Among all the personal communication system, internet is the most effective and advanced one. It is widely used in urban areas. It enables the user to establish direct contact through e-mail to get access to the world of knowledge and information. It is increasingly used for e-commerce and carrying out money transactions. The internet is like a huge central warehouse of data, with detailed information on various items. The network through internet and e-mail provides an efficient access to information at a comparatively low cost. It enables us with the basic facilities of direct communication.

Satellites are mode of communication in themselves as well as they regulate the use of other means of communication. However, use of satellite in getting a continuous and synoptic view of larger area has made satellite communication very vital for the country due to the economic and strategic reasons. Satellite images can be used for the weather forecast, monitoring of natural calamities, surveillance of border areas etc. On the basis of configuration and purposes, satellite system in India can be grouped into two: Indian National Satellite System (INSAT) and Indian Remote Sensing Satellite System (IRS). The INSAT, which was established in 1983, is a multipurpose satellite system for telecommunication, meteorological observation and for various other data and programmes.

Q 1. Which among the following is the most advanced form of personal communication?
a. Postal system b. Telegraph
c. Telephone d. Internet

Q 2. Which of these is a system of mass communication?
a. Television b. Newspapers
c. Radio d. All of these

Q 3. Satellite data can be used for which of the following purposes?
a. Weather forecasting
b. Monitoring natural disasters
c. Surveillance in strategic areas
d. All of the above

Q 4. Which of the following satellites is used for natural resource management?
a. IRS b. INSAT
c. Astrosat d. All of these

Answers

1. (d) **2.** (d) **3.** (d) **4.** (a)

Passage 2

Read the passage given below and answer the questions that follow by choosing the most appropriate option:

The main roads which are constructed and maintained by the Central Government are known as the National Highways. These roads are meant for inter-state transport and movement of defence men and material in strategic areas. These also connect the state capitals, major cities, important ports, railway junctions etc. The length of the National Highways has increased from 19,700 km in 1951 to 10,10,11 km in 2016. The National Highways constitute only about 2% of the total road length but carry 40% of the road traffic. State Highways are constructed and maintained by state governments. They join the state capitals with district headquarters and other important towns. These roads are connected to the National Highways. These constitute 4% of total road length in the country. District roads are the connecting link between District Headquarters and the other important nodes in the district. They account for 14% of the total road length of the country. Rural roads are vital for providing links in the rural areas. About 80% of the total road length in India are categorised as rural roads. There is regional variation in the density of rural road because these are influenced by the nature of the terrain. Other roads include Border Roads and International Highways. The Border Road Organisation (BRO) was established in May, 1960 for accelerating economic development and strengthening defence preparedness through rapid and coordinated improvement of strategically important roads along the Northern and North-Eastern boundary of the country. It is a premier multifaceted construction agency. It has constructed roads in high altitude mountainous terrain joining Chandigarh with Manali (Himachal Pradesh) and Leh (Ladakh). This road runs at an average altitude of 4,270 metres above the mean sea level.

Q 1. Which of these roads connect state capitals?

a. District Roads b. National Highways
c. Rural Roads d. Border Roads

Q 2. Which organisation is responsible for the maintenance of strategic roads in border areas?

a. Indian Army
b. Sahastra Seema Bal
c. Border Roads Organisation
d. National Highways Authority of India

Q 3. Which category of roads constitute the largest proportion of roads in India?

a. National Highways b. Rural Roads
c. Border Roads d. State Highways

Q 4. Which of the following roads are most important for the district administration to function effectively?

a. National Highways b. State Highways
c. District Roads d. Rural Roads

Answers

1. (b) **2.** (c) **3.** (b) **4.** (b)

Passage 3

Read the passage given below and answer the questions that follow:

The replacement of steam engines run by coal has also improved (diesel and electric) the environment of the stations. Metro rail has revolutionlised the urban transport system in Kolkata and Delhi. Replacement of diesel buses by CNG-run vehicles along with the introduction of metro is a welcome step towards controlling the air pollution in urban centres. One of the important achievements of the Indian Railways has been the construction of Konkan Railway in 1998. It is 760-km long rail route connecting Roha in Maharashtra to Mangalore in Karnataka.

It is considered an engineering marvel. It crosses 146 rivers, streams, nearly 2000 bridges and 91 tunnels, Asia's largest tunnel which is nearly 6.5 km long, also lies on this route. The states of Maharashtra, Goa and Karnataka are partners in this undertaking.

Q 1. Which is the latest engines used by Indian railways?

Ans. The latest engines used by Indian railways are electric engines.

Q 2. Which two cities are connected by Konkan Railway?

Ans. The Konkan Railway connects with two states Karnataka and Maharashtra.

Q 3. Which transportation has reduced air pollution in the urban areas?

Ans. Metro rail and CNG vehicles have reduced air pollution in the urban areas.

Passage 4

Read the passage given below and answer the questions that follow:

We use many items in our daily life. From toothpaste to our bed tea, milk, clothes, soaps, food items, etc., are required everyday. All these can be purchased from the market. Have you ever thought as to how these items are brought from the site of production? All the production is meant for consumption. From the fields and factory, the produce is brought to the place from where consumers purchase it. It is the transportation of these items from the site of their production to the market which make them available to the consumer. We not only use material things, like

fruits, vegetables, books clothes, etc., but also use ideas, views and messages in our daily life.

Do you know we exchange our views, ideas and messages from one place to another or one individual to another while communicating with the help of various means?

The use of transport and communication depends upon our need to move things from place of their availability to the place of their use. Human beings use various methods to move goods, commodities, ideas from one place to another.

Q 1. Explain the utility of transportation.

Ans. Transportation is very essential for the commutation of the goods and services as well as people from one place to another easily. This has led to the increase in the closeness of the world.

Q 2. Define the term 'Communication'.

Ans. Communication is the exchange of information between the sender and receiver through several channels like radio, internet, mobile and other mediums like newspapers and magazines.

Q 3. Differentiate between transport and communication.

Ans. Transport is the movement of goods and services or people from one place to another, whereas the exchange of information from one medium to another is known as communication.

Very Short Answer Type Questions

Q 1. Define the term 'Transport Network.' *(CBSE 2015)*

Ans. Several places (nodes) joined together by a series of routes (links) to form a pattern which permit vehicular movement or flow of some commodity is called Transport Network.

Q 2. Explain the term 'Golden Quadrilateral.' *(CBSE 2018)*

Ans. Golden Quadrilateral comprises construction of 5,846 km long 4/6 lane, high density traffic corridor, to connect India's four big metro cities of Delhi-Mumbai-Chennai-Kolkata. With the construction of Golden Quadrilateral the time, distance and cost of movement among the mega cities of India will be considerably minimised.

Q 3. Why did Sher Shah Suri build the Shahi (Royal) Road? *(CBSE 2015)*

Ans. Sher Shah Suri built the Shahi (Royal) Road from the Indus Valley to the Sonar Valley in Bengal to strengthen and consolidate his empire.

Q 4. Which means of transport is extensively used to carry water, petroleum, natural gas and other liquids? *(CBSE 2015)*

Ans. Pipelines are extensively used to carry water, petroleum, natural gas and other liquids for uninterrupted flow.

Q 5. State the functions of 'Border Road Organisation (BRO)'.

Ans. The main functions of BRO are:

(i) In Peace

(a) To develop and maintain the operational road infrastructure of general staff in the border areas.

(b) To contribute to the socio-economic development of the border states.

(ii) In War

(a) To develop and maintain roads to keep line of control through in original sectors and redeployed sectors.

(b) To execute additional tasks as laid down by the government contributing to the war effort.

Q 6. What are 'National Highways'?

Ans. The National Highways are the network of highways that is managed and maintained by agencies of the Government of India.

Q 7. Which authority looks after the responsibility of development, maintenance and operation of National Highways? *(CBSE 2017)*

Ans. The National Highways Authority of India (NHAI).

Q 8. What is the major function of the National Highways Authority of India? *(CBSE 2017)*

Ans. Major function of the National Highways Authority of India is Operation, maintenance and development of National Highways.

Q 9. Which type of the roads connect the state capitals with district headquarters and other important towns?

Ans. State Highways connect the state capitals with district headquarters and other important towns.

Q 10. How many types of waterways are found in India?

Ans. The water transport is of two types:

(i) Inland waterways

(ii) Oceanic waterways.

Q 11. Why was the Inland Waterways Authority of India set up?

Ans. For the development, maintenance and regulation of national waterways in the country, the Inland Waterways Authority was set up in 1986.

Q 12. Name the boat race that is held in the backwaters of Kerala.

Ans. The famous Nehru Trophy Boat Race (Vallam kali) is held in the backwaters (Kayal).

Q 13. Write a brief history of air transport in India.

Ans. Air transport in India was started in 1911 when airmail operation commenced over a little distance of 10 km between Allahabad (Now Prayagraj) and Naini.

Q 14. How do oceanic routes play an important role in the transport sector of India?

Ans. Oceanic routes play an important role in the transport sector of India's economy. Approximately 95 per cent of India's foreign trade by volume and 70 per cent by value moves through ocean routes.

Q 15. What is Open House Policy?

Ans. To help the Indian exporters and make their export more competitive, the government had introduced an Open Sky Policy for cargo in April, 1992. Under this policy, foreign airlines or association of exporters can bring any freighters to the country.

Q 16. Which organisation is responsible for the safety of air transport in India?

Ans. The Airport Authority of India (AAI) is responsible for providing safe, efficient air traffic and aeronautical communication services in the Indian Air Space.

Q 17. Name the two corporations that manage the air transport in India.

Ans. The air transport in India was managed by two corporations, Air India and Indian Airlines after nationalisation.

Q 18. Name the air service which is widely used in the hilly areas of the North-Eastern sector of India.

Ans. Pawan Hans.

Q 19. How many airports does the Airport Authority of India manages?

Ans. The authority manages 126 airports including 11 international, 86 domestic and 29 civil enclaves at defence air fields.

Q 20. Name the two means of mass communication used in today's world.

Ans. The two means of mass communication used in today's world are:

(i) Personal Communication.

(ii) Mass Communication.

Q 21. In how many groups can the satellite system in India can be grouped?

Ans. On the basis of configuration and purposes, satellite system in India can be grouped into two: Indian National Satellite System (INSAT) and Indian Remote Sensing Satellite System (IRS).

Q 22. From where has the logo of 'Indian' been adopted and what does it signify?

Ans. The logo of Indian is a partly visible blue wheel and is inspired by the Sun Temple at Konark (Odisha), symbolising timeless; motion convergence and divergence. It also embodies strength as well as trust that has stood the test of time.

Q 23. Name the Asia's largest cross country pipelines.

Ans. Asia's first cross country pipeline covering a distance of 1157 km was constructed by Oil India Limited (OIL) from Naharkatiya oilfield in Assam to Barauni refinery in Bihar.

Q 24. What is NRSA ? Where is its headquarter?

Ans. The National Remote Sensing Agency (NRSA) at Hyderabad provides facilities for acquisition of data and its processing. These are very useful in the management of natural resources.

Q 25. In India, how many domestic airports are there?

Ans. There are 11 international airports and 81 domestic airports.

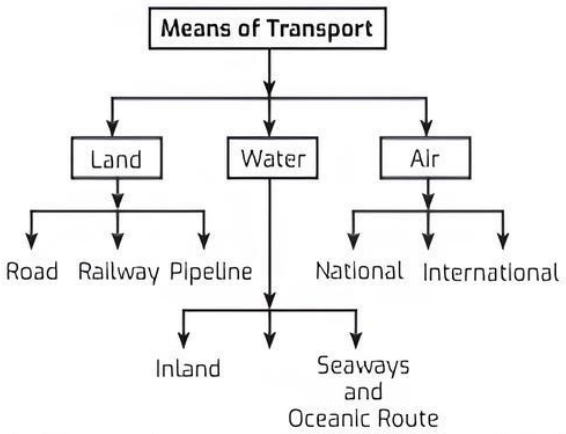
Short Answer Type Questions

Q 1. Which activity does transportation convey? Name the three modes of transportation. Also draw a diagram depicting the same.

Ans. Transportation conveys the tertiary activity i.e., transport services for people and goods from one place to another.

The three modes of transportation are:

(i) Land. (ii) Water. (iii) Air.



Q 2. Discuss advantages and disadvantages of pipeline transportation.

Ans. Advantages of pipeline transportation are:

(i) They are ideally suited to transport the liquids and gases and solids in slurry form.

(ii) They can be laid through difficult terrains as well as under water.

(iii) It involves very low energy consumption.

(iv) It is safe, accident free and environment friendly.

(v) It needs little maintenance.

Disadvantages of pipeline transportation:

(i) It is not flexible *i.e.*, it can be used only for a few fixed points.

(ii) Its capacity cannot be increased once it is laid.

(iii) Underground pipelines cannot be easily repaired and detection of leakage is also difficult.

(iv) It is difficult to make security arrangements for pipelines.

Q 3. Discuss the contribution of Air India and Indian Airlines in the air transport of India.

Ans. Contribution of 'Air India' in the air transport of India:

(i) The air transport in India is managed by Air India.

(ii) Air India provides International Air Services for both passengers and cargo traffic.

(iii) It connects all the continents of the world through its services.

Contribution of 'Indian Airlines' in the air transport of India:

(i) It was the largest state owned domestic carrier which handled the domestic needs of air transport in India.

(ii) It was merged with Air India in 2011.

Q 4. Which are the different railway gauges in India? On what basis are these categories made?

Ans. The different railway gauges in India are:

(i) Broad Gauge

(a) The distance between rails in broad gauge is 1.676 m.

(b) The total length of broad gauge lines was 63,950 km in 2019-20.

(ii) Metre Gauge

(a) The distance between rails in metre gauge is 1 metre.

(b) Its total length was 2,402 km in 2019-20.

(iii) Narrow Gauge

(a) The distance between the rails is 0.762 m or 0.610 m in this case.

(b) Its total length was 1,604 km in 2019-20.

(c) It is generally confined to hilly areas.

These categories are made on the basis of the width of the track of Indian Railways.

Q 5. Why is road transport gaining more importance over rail transport? Explain.

OR

"Road transport is the most economical for the short distances compared to railways in the world". Support the statement. *(CBSE 2022 Term-2)*

Ans. Road transport is gaining more importance over rail transport because:

(i) Construction cost of roads is much lower than construction cost of railway lines.

(ii) Roads can be constructed easily in hilly terrains and undulating topography.

(iii) Roadways act as a feeder to other modes of transport, as they provide a link between railway stations, air and sea ports.

(iv) Roads provide door-to-door service while railways do not.

(v) Road transport is economical in transportation of few persons and relatively smaller amount of goods over short distances.

Q 6. Which are the two types of roads included under the category of 'other roads' in India? Write any two features of each.

Ans. The two types of roads included under the category of 'other roads' in India are:

(i) Border Roads: These are strategically important roads along the Northern and North-Eastern boundary of the country.

Characteristics of border roads are as follows:

(a) The total length of border roads is 46,870 km, these are constructed by Border Road Organisation (BRO).

(b) These roads are important to accelerate economic development and strengthening defence preparedness.

(ii) International Highways: These are the roads which connect India to neighbouring countries. Characteristics of international highways are as follows:

(a) They are constructed with aim to promote harmonious relationship with neighbouring countries.

(b) They provide an effective connectivity to neighbouring countries.

Q 7. What are the steps taken by Indian Railways to improve its performance?

Ans. The steps taken by Indian Railways to improve its performance are:

(i) Conversion of Metre and Narrow Gauge to Broad Gauge: Indian Railways has launched extensive programme to convert the metre and narrow gauges to broad gauges.

(ii) Replacement of Steam Engines by Diesel and Electric Engines: Steam engines have been replaced by diesel and electric engines. This has led to two benefits:

(a) It has increased the speed as well as the haulage capacity.

(b) It has also improved the environment of the stations.

(iii) Introduction of Metro Rails in Metropolitan Cities: Metro Rails have been introduced in metropolitan cities like Kolkata and Delhi which has revolutionised the urban transport system there.

Q 8. Why is the Indian Railway System divided into sixteen zones (now nineteen)? Name the headquarters of Eastern, Western, Northern and Southern Zones.

Ans. Indian Railways network is one of the longest network in the world. Indian Railways is the largest government undertaking in the country. The length of Indian Railway network was 66,030 km as on 31.3.2015.

Reasons for dividing the Indian Railway system into 16 (Now 19 in 2023) zones are:

(i) **Administrative Convenience:** The very large size of Indian Railway system puts a lot of pressure on the centralised railway management system. So, it was decided to divide the operations into zones for convenient structural implementation of hierarchy and responsibilities.

(ii) **Provision of Services Across the Country's Length:** Indian Railways was divided into different zones to provide services throughout the country. Zoning helps in increasing efficiency in railways.

(iii) **Better Control Measurement:** The divisions give better control in a zone as per traffic passing through it.

The headquarters of different zones are given below:

Zones	Headquarters
Eastern Zone	Kolkata
Western Zone	Mumbai (Church Gate)
Northern Zone	New Delhi
Southern Zone	Chennai

Q 9. How are oceanic routes advantageous for India?

Ans. Oceanic routes are advantageous for India because:

(i) These play an important role in the transport sector of India's economy.

(ii) About 95% of India's foreign trade by volume and 70% by value moves through oceanic routes.

(iii) Oceanic routes are advantageous as India has vast coastline of 7,517 km including islands.

(iv) These routes provide international trade service.

(v) It provides transportation between the islands and rest of the country.

About 185 minor ports and twelve major ports provide infrastructural support to these routes.

Q 10. Describe any three advantages of satellite communication in India.

Ans. Three advantages of satellite communication in India are:

(i) **Provides Synoptic View of Larger Area:** Satellites provide a continuous and synoptic view of a larger area which is very vital for the country due to economic and strategic reasons.

(ii) **Helps in Telecommunication, Meteorological Observation, etc.:** Satellite systems are used for telecommunication, meteorological observation and for various other data and programmes. *e.g.*, Indian National Satellite System (INSAT) is a multipurpose satellite system used for this purpose.

(iii) **Used in Weather Forecast, Monitoring of Natural Calamities etc.:** Satellite images can be used for weather forecast, monitoring of natural calamities, surveillance of border area, etc.

Q 11. Which is the most effective and advanced personal communication system in India? Explain any four characteristics of it.

Ans. The most effective and advanced personal communication system in India is the 'Internet'. Its four characteristics are:

(i) **Enables Establishment of Direct Contact by User:** Internet enables the user to establish direct contact through e-mail to get access to the world of knowledge and information.

(ii) **Used for E-commerce:** Internet is increasingly used for e-commerce and carrying out money transactions.

(iii) **Huge Central Warehouse of Data:** Internet is like a huge central warehouse of data, with detailed information of various items.

(iv) **Access to Information at Low Cost:** The network through internet and e-mail provides an efficient access to information at a comparatively low cost.

Q 12. Distinguish between personal and mass communication.

Ans. The difference between personal and mass communication are:

S.No.	Basis of Difference	Personal Communication	Mass Communication
(i)	No. of people involved	It is the communication between person to person.	It is the communication among masses.
(ii)	Provider of	It provides necessary communication between two people making man a social animal.	It provides entertainment as well as creates awareness among the masses.
(iii)	Example	Letters, E-mails, Telephones, SMS etc.	Radio, Television, Newspapers, Magazines, etc.

Q 13. The distribution of roads in India is not uniform. Examine the statement by giving three reasons.

OR

"The density and quality of roads are better in plains as compared to other regions in India." Support the statement with examples.

Ans. The distribution of roads in India is not uniform. Reasons behind this uneven distribution of roads are:

(i) **Nature of Terrain:** Roads can be easily constructed at low cost in plain areas, whereas it is difficult and costly in hilly, mountainous and plateau areas. Therefore, most of the Northern states and Southern states have dense network of roads as compared to Himalayan and North-Eastern states.

(ii) **Level of Economic Development:** Level of economic development also plays an important role in deciding the network of roads in an area. Therefore, areas having low economic development like, Rajasthan and Madhya Pradesh have less dense network of roads.

(iii) **Accessibility of Areas:** Inaccessible areas also have less density of roads in India *e.g.*, Forested, rainy and high altitude areas have less density of roads.

Q 14. Which is the apex body in India to improve the quality of National Highways? Examine the significance of National Highways. *(CBSE 2016)*

Ans. The apex body in India to improve the quality of National Highways is National Highways Authority of India (NHAI).

The significance of National Highways can be understood from the following points:

(i) They facilitate inter-state transport and movement of defence men and material in strategic areas.

(ii) They connect the state capitals, major cities, important ports, railway junctions, etc.

(iii) They constitute only about 2% of the total road length but carry 40% of the road traffic.

(iv) They are 4-6 lanes and make journey fast and easy.

Q 15. What are National Highways? Explain any four uses of National Highways in India.

Ans. National Highways: The main roads which are constructed and maintained by Central Government are known as National Highways. They are developed and maintained by NHAI.

Four uses of National Highways in India are:

(i) They facilitate inter-state transport and movement of defence men and material in strategic areas.

(ii) They connect the state capitals, major cities, important ports, railway junctions, etc.

(iii) They constitute only about 2% of the total road length but carry 40% of the road traffic.

(iv) They are 4-6 lanes and make journey fast and easy.

Q 16. Why does the rail transport continue to remain the cheap mode of transport for the masses in India? *(CBSE 2016)*

Ans. The rail transport continues to remain the cheap mode of transportation for the masses in India because:

(i) It facilities movement of both freight and passengers.

(ii) It brings people of diverse cultures together.

(iii) It contributes to the growth of the economy of the country.

(iv) It is a cheap means of transport.

(v) Introduction of metro rail in metropolitan cities have revolutionised the urban transport system there. People can travel in huge numbers at cheap rates in them.

Q 17. Classify satellite system of India into two groups on the basis of configuration and purpose. Explain the main feature of each group.

Ans. On the basis of configuration and purposes, satellite system in India is divided into two types:

(I) Indian National Satellite System (INSAT)

(a) It was established in 1983.

(b) It is a multi-purpose satellite system for telecommunication, meteorological observation.

(II) Indian Remote Sensing Satellite System (IRS)

(a) With the launching of IRS-1A in March, 1988 from Baikonur in Russia, it became operational.

(b) It collects data in several spectral bands and transmit them to the ground stations for various uses.

(c) It is useful in management of natural resources.

Q 18. Explain the functions of OIL.

Ans. The function of OIL are:

(i) Oil India Limited (OIL) was incorporated in 1959 as a company.

(ii) OIL under the administrative set up of the Ministry of Petroleum and Natural Gas is engaged in the exploration, production and transportation of crude oil and natural gas.

(iii) OIL undertakes construction of pipelines in various regions in India. Some of the examples are given below:

(a) It constructed Asia's first cross country pipeline covering a distance of 1,157 km from Naharkatiya oilfield in Assam to Barauni refinery in Bihar. It was further extended upto Kanpur in 1966.

(b) It constructed another extension network of pipelines in the Western region of India of which Ankleshwar-Koyali, Mumbai High-Koyali and Hazira-Vijaipur-Jagdishpur (HVJ) are most important.

(c) Recently, it constructed a 1,256 km long pipeline connecting Salaya (Gujarat) with Mathura (UP).

(d) It supplies crude oil from Gujarat to Punjab (Jalandhar) via Mathura.

(e) It is in the process of constructing of 660 km long pipeline from Numaligarh to Siliguri.

Long Answer Type Questions

Q 1. Give a detailed account of the development of railway transport in India and highlight their importance.

Ans. Development of railway transport in India can be understood in two phases:

Phase 1: Under the Britishers

(i) Railways was developed in India by the Britishers.

(ii) They developed it with the objective of exploiting resources.

(iii) It was introduced in 1853, when a line was constructed from Bombay to Thane covering distance of 34 km.

(iv) Areas around towns, raw material producing areas, hill stations, cantonment towns were well connected by railways during the British period.

Phase 2: After Independence

(i) After independence, the railway network has been extended to remote and backward areas of the country.

(ii) Various initiatives were taken by government to improve the performance and outreach of the railways like:

(a) Attempt to convert meter and narrow gauges to broad gauges.

(b) Replacement of steam engines by electric and diesel engines.

(c) Development of metro rail in metropolitan cities.

(d) Division of the country into 19 zones for better control and administration of railways.

Importance of Railways can be understood from the following points:

(i) It facilitates movement of both freight and passenger and contributes to the growth of economy.

(ii) According to Mahatma Gandhi, it has brought people of diverse cultures together to contribute to India's freedom struggle.

(iii) It has played an important role in the development of India after Independence. It still remains the chief means of transport for the masses.

Q 2. Describe the role of roads in the economic development of India.

Ans. Transport infrastructure is one of the key factors on which country's growth depends. The amount of traffic moving on the roads of the country can demonstrate its progress. Role of roads in economic development of India can be understood from the following points:

(i) Road connect the remote villages and backward areas with the cities. *e.g.*, Rural roads connectivity is regarded as the major component for rural development because it improves the access to social and economic services. The road transport plays a significant role in enabling the students in rural areas to reach the schools for higher education.

(ii) Roads provides opportunity to people living in areas of difficult terrain such as desert and hilly areas.

(iii) It contributes to the economic development of India as about 80% of passenger traffic and 75% of freight in India is carried by roads every years.

(iv) A planned network of roads helps to minimise the transport cost, boost the delivery of farming material and improves special agricultural production as well as distribution.

(v) A good road network promotes distributions of agrarian goods and creates additional opportunities for the agricultural sector.

(vi) The industries which have no or poor access to rail tracks, the road transport supports them by improving their supply chain.

(vii) Roads supplement the ports and airways. Ports and airways are major means of India's international trade but to connect the interiors to the ports and airport, a good working connection of roads is must, so that the products which are traded can circulate within the interiors of the country.

(viii) Roads have helped in establishing small scale and medium scale industries by providing them access to the closest markets.

(ix) Road transport establishes easy contacts between farms, fields and factories and markets.

(x) It facilitates easy movement of raw materials as well as finished products across the country.

(xi) The National Highways are used to transport men and materials in the strategic areas.
They also connect state capitals, important economic and industrial cities, important ports, railway junctions etc.

(xii) State Highways connect state capitals with district headquarters and commercial towns.

(xiii) Border roads accelerate economic development by rapidly improving strategically important roads along North and North-Eastern border of the country.

(xiv) International highways also contribute to trade and economic development of India.

(xv) Golden Quadrilateral and North-South economic corridor helps in connecting major urban, industrial centres, promoting growth and development.

Q 3. Discuss about the functions and role of the National Highways Authority of India.

Ans. The National Highways Authority of India (NHAI) is the main agency responsible for building, upgrading and maintaining most of the National Highways network. It operates under the Ministry of Road Transport and Highways.

The significance of National Highways can be examined through the following points:

(i) National Highways forms the lifeline of road transport system in India as they constitute 2% of the road length but carry 40% of traffic in India.

(ii) These roads are meant for inter-state transport and movement of defence men and material in strategic areas.

(iii) These also connect the state capitals, major cities, important ports, railway junctions etc.

(iv) The length of the National Highways has increased from 19,700 km in 1951 to 1,01,011 km in 2016, which is a good indicator of development in India.

(v) These roads are lifeline of the country. Goods and passengers are transported from one place to another in a short period of time.

(vi) They connect remote areas with developed areas.

(vii) Manufactured product and raw material is transported through it in very efficient manner.

Q 4. Define the term 'road density'. Explain with examples the two main determinants of road density in India.

OR

Explain with examples the two main determinants of road density in India.

Ans. Meaning of Road Density: Length of roads per 100 sq km of area is called road density.

The two major determinants of road density are:

(i) Level of Economic Development

(a) Road density depends upon the level of economic development of a region.

(b) In northern plains, where agriculture as well as industrial activities are well developed, road density is higher as compared to the backward areas where the economic development is low.

(ii) Nature of Terrain

(a) Nature of terrain directly affects road density.

(b) In plain areas like Northern plains, road density is high as construction of roads is easy as compared to hilly and plateau area where the construction of roads is difficult as well as costly.

(c) In areas where the terrain is difficult like Rajasthan, Himalayan region, North-Eastern region, the road density is low.

(d) **Example:** Density of roads in Jammu and Kashmir is 12.14 km whereas it is 517.77 km in Kerala.

Q 5. Explain with five suitable examples; how the level of economic development and nature of terrain affect the density of roads in India?

Ans. Nature of terrain and level of economic development affect the density of roads in following ways:

(i) Construction of roads in plains is easy and cheaper in comparison to hilly and mountainous areas. Therefore, Gangetic plains have high density of roads as compared to hilly North-Eastern States.

(ii) Sandy soil is also a restriction in the development of roads, *e.g.*, less density of roads in Western Rajasthan, less density of roads in the sandy region of Gujarat.

(iii) Difficult terrain, thick forest do not provide suitable conditions for the development of roads, *e.g.*, low density of roads in Himalayan and North-Eastern region.

(iv) High density of road network is found in Punjab, Haryana and Uttar Pradesh in the Northern India. This is due to advanced agriculture, industry and urbanisation in these areas. Density of roads is also high in West Bengal.

(v) Economic development also affects the density of roads. Karnataka Plateau and Maharashtra have high density of roads due to high concentration of industries and urbanisation in these areas. While in some states, there is very less density of roads in areas which are economically backward and have less natural resources. After analysing these example, we can say that density of roads is dependent on level of economic development and nature of terrain.

Q 6. "Indian Railways brought people of diverse cultures together." Support this statement with examples.

Ans. 'Indian Railways brought people of diverse cultures together' as:

(i) It connects people of different regions through its 19 zones.

(ii) Each state of India has a distinct culture and customs. When people travel from one state to another, they mostly use railways as a means of transport and thus mix with different people having different cultural background.

(iii) People from different languages with different customs and cultures connect with each other using the services of Indian railways. For example, Migrant labour travels from the states of U.P., Bihar to Delhi, Maharashtra. Students travel to various parts and meet people of other cultures having different traditions.

(iv) Railways was the main means of transport that brought people of diverse cultures together during the freedom struggle.

(v) As India is a land of diverse cultures, railways connects people of different regions through its services. For example, People from the Northern regions can travel to Southern regions people from the Eastern regions can travel to Western regions.

(vi) People also come in contact with foreigners who belong to other countries, having varying colours of different customs and practices and share their culture and customs with each other. Thus, railways help in bringing people of different cultures together.

Q 7. Give an account of air transportation in India.

OR

What is the importance of air transport? Describe any four characteristics of air transport system in India.

Ans. The importance of air transport are:

(i) Air transport facilitates the fastest movement of goods and passengers from one place to another place.

(ii) It has reduced distances and converted the world into one unit.

(iii) Air transport has a great importance for a vast country like India where distances are large and the terrain and the climatic conditions are uneven throughout the country.

(iv) It is also important for our links with other countries.

(v) India occupies a central location between Western Europe and Africa on the one hand and South-East and East Asia on the other hand.

Characteristics of air transport system of India are as follows:

(i) To provide safe, efficient air traffic and aeronautical communication services in Indian space, there is regulatory body known as Airport Authority of India.

(ii) Initially, there were two corporations, Air India and Indian Airlines, which provide air services in India. Air India handles international traffic passengers and cargo whereas Indian Airlines is the major domestic air carrier of the country.

(iii) In addition to Air India and Indian Airlines, there are two private scheduled airlines operating on the domestic network. 38 companies hold non-scheduled air taxi operators permit. The share of the private sector airways has increased very rapidly after liberalisation.

(iv) Union Government has launched open sky policy in 1982. Under this policy, foreign airlines or association of exporters can bring any freighters to the country. Its objectives is to help exporters, so that their exports become more competitive in the world.

Q 8. What is the importance of Water Transport? Describe in brief water transport system of India.

Ans. The importance of water transport are:

(i) It is an important mode of transport for both passenger and cargo traffic in India.

(ii) It is the cheapest means of transport.

(iii) It is most suitable for carrying heavy and bulky material.

(iv) It is fuel-efficient.

(v) It is eco-friendly mode of transport.

The water transport system of India can be explained as under:

There are two types of water transport:

(I) Inland Waterways

(a) It was the chief mode of transportation before the advent of railways.

(b) India has 14,500 kms of navigable waterways, contributing about 1% of the country's transportation.

(c) It comprises of rivers, canals, backwaters, creeks etc.

(d) At present, 5,685 km of major rivers are navigable by mechanised flat bottom vessels.

(e) The Inland Waterways Authority was set up in 1986 for development, maintenance and regulation of national waterways in the country.

The following waterways have been declared as the national waterways by the government:

- NW1 [(Allahabad (Now Prayagraj)- Haldia stretch)].
- NW2 (Sadiya- Dhubri stretch).
- NW3 (Kottapuram-Kollam stretch).
- NW4 (Specified stretches of Godavari and Krishna rivers along with Kakinada Puducherry stretch of canals (1,078 km).
- NW5 (Specified stretches of river Brahmani along with Matai river, delta channels of Mahanadi and Brahmani rivers and East coast canals).

(f) The Inland Waterways Authority has also identified 10 other Inland waterways, which could be upgraded.

(g) The backwaters (Kayal) of Kerala has special significance in Indian waterway.

Reasons: It provides cheap means of transport. It attracts large number of tourists in Kerala.

(II) Oceanic Routes

(a) Oceanic routes play an important role in the transport sector of India's economy.

(b) Approximately, 95% of India's foreign trade by volume and 70% by value moves through ocean routes.

(c) They are used for international trade.

(d) They are also used for the purpose of transportation between the islands and the rest of the country.

(e) 12 major and 185 minor ports provide infrastructural support to these routes.

Q 9. Examine the role of Inland Waterways Authority of India. Explain why inland water transport is an important mode of transport? *(CBSE 2016)*

Ans. The role of Inland Waterways Authority of India:

(i) The Inland Waterways Authority of India was set up in 1986.

(ii) It was set-up for the development, maintenance and regulation of National Waterways in the country.

(iii) The Authority has declared three inland waterways as National Waterways.

(iv) It has also identified ten other inland waterways which can be upgraded.

Importance of inland water transport can be understood from the following points:

(i) It is suitable for carrying bulky goods: It can carry much larger quantities of heavy and bulky goods such as coal and timber at little cost.

(ii) It carries both cargo and passengers: Water transport is capable of carrying both cargo as well as passenger load at any given point of time.

(iii) It is the cheapest mode of transport: Rivers are a natural highway which does not require cost of construction and maintenance. Even the cost of construction and maintenance of canals is much less or they are used not only for transport purposes but also for irrigation etc. Moreover, the cost operation of the Inland water transport is very low.

(iv) It is eco-friendly: It is eco-friendly as the amount of pollution created waterways is very less than that created by other means of transportation.

Q 10. Explain the Super National Highways of India.

OR

Explain the National Highways Development Projects undertaking by NHAI.

Ans. NHAI has taken up some major projects in the country under different phases:

(i) Golden Quadrilateral

(a) It comprises construction of 5,846 km long 4/6 lane, high density traffic corridor, to connect India's four big metro cities of Delhi-Mumbai-Chennai-Kolkata.

(b) With the construction of Golden Quadrilateral the time, distance and cost of movement among the mega cities of India will be considerably minimised.

(ii) North-South and East-West Corridors

(a) North-South corridor aims at connecting Srinagar in Jammu and Kashmir with Kanyakumari in Tamil Nadu (including Kochi-Salem Spur) with 4,076 km long road.

(b) The East-West corridor has been planned to connect Silchar in Assam with the port town of Porbandar in Gujarat with 3,640 km of road length.

Q 11. "Waterways is an important mode of transport for both passenger and cargo traffic in India." Support this statement with examples. *(CBSE 2019)*

Ans. Waterways is an important mode of transport for both passengers and cargo traffic in India in the following ways:

(i) Waterways provide cheapest and most suitable transportation for heavy and bulky material for long distances from one region to another.

(ii) It is a fuel efficient and eco-friendly means of transport as it does not require maintenance and construction of routes, which involves high cost.

(iii) India has 14,500 km of Inland waterways which accounts for 1% of country's transportation.

(iv) At present, over 5,600 km of rivers are navigable by mechanised vessels in India, which are used to transport both passenger and freight.

(v) Backwaters (Kayal) of Kerala have special significance as they provide cheap means of transport as well as tourism activities.

(vi) It reduces congestion and accidents on roads highways as freight can be moved easily with waterways.

(vii) India has a coastline as long as 7,516 km.

Waterways are very important to provide security to the country along the coast. Thus, coastal waterways help to foster security of the country.

(viii) Transportation of goods, resources, commodities and passengers through waterways generate high levels of income and employment. This helps to increase the overall national income.

(ix) Waterways serve as an important means of transport in distribution of relief in times of natural disasters, e.g., Relief was distributed to the cyclone struck areas of Sundarban through waterways.

(x) Waterways have potential for cruise, tourism and passenger traffic that can contribute to the development of the country.

Q 12. How have the geographical factors influenced railway network in India?

Ans. The impact of geographical factors on the railways network in India can be understood from the following examples:

(i) The Northern Indian plains with their level land, high density of population and rich agriculture present the most favourable conditions for the development of railways. However, the presence of a large number of rivers makes it necessary to construct bridges which involve heavy expenditure.

(ii) There are practically no railways in the flood plains of many rivers in Bihar and Assam.

(iii) The plateau region of South India is not as much suitable for railways as the North plain area.

(iv) The Himalayan region in the North is almost entirely devoid of railways due to its rugged topography.

(v) Some railways terminals such as Jammu Tawi, Kotdwar, Dehradun etc., are found on the foothills.

(vi) Sandy areas of Rajasthan are also not much favourable for railways.

(vii) Forested areas of Madhya Pradesh and Odisha, deltaic swamps of West Bengal, marshy areas of Rann of Kutch and hilly tract of Sahyadri are also unfavourable for the development of railways.

Q 13. "Land transport plays a vital role in the development of trade and tourism in the world." Support the statement with suitable examples.

Ans. Land transport plays a vital role in the development of trade and tourism in the world due to following ways:

(i) Transport helps in the assembly of raw materials and distribution of finished goods. It makes possible to move goods from the place of production to the place where they are to be consumed.

(ii) In the earlier days, there were only local markets due to the absence of safe means of transport. Nowadays, trade is not restricted to boundaries of a nation, but has spread throughout the world.

(iii) Development of the efficient means of transport has knit together all the nations of the world into one big world market. Even the perishable articles like fish, dairy products, meat etc., are being transported to distant places of the world. But without good transport facilities such a development in trade and commerce would not be possible. In India, there are many highways linking the major towns and cities. For example, National Highway No. 7 (NH7), connecting Varanasi with Kanyakumari, is the longest in the country. The Golden Quadrilateral (GQ) or Super Express-ways connects the four metropolitan cities-New Delhi, Mumbai, Bangalore, Chennai, Kolkata and Hyderabad which has helped in the development of the trade.

(iv) Transportation links diverse destinations and ferries people, commodities and services between these places. Tourism is much about travel and therefore the role of transportation in its operation is vital. Railways are also a mode of land transport that helps to carry passengers over long distances.

(v) The Border Road Organisation has constructed roads in high altitude mountainous terrains joining Chandigarh with Manali (Himachal Pradesh) and Leh (Ladakh). This road runs at an average altitude of 4,270 metres above the mean sea level and has promoted tourism in such high altitude areas as well.

Q 14. Explain the importance of 'Communication Services' in India. *(CBSE 2016)*

Ans. The importance of 'Communication Services' can be understood from various perspective like:

(i) Economical: Communication services help obtain information from all market so the producer can decide on what and how much to produce and where to sell. The same is applicable to buyers also. It boosts international trade.

(ii) Social: It has brought people from various parts of the world closer to each other. People develop an understanding of each other's culture by interacting with one another.

(iii) Strategic: Communication services play an essential role in the defence of the country in emergencies like war.

(iv) Development: Communication services help in exchange of ideas leading to development in research.

(v) During Emergencies/Disaster Management: Communication services are very useful in disaster such as earthquakes and storms to give early alerts to people and in coordinating among rescue teams. Thus, communication services are important for the overall development of mankind.

Chapter Test

Multiple Choice Questions

Q 1. Which of the following is/are the use/s of satellite communication in India?
1. Management of natural resources.
2. Meteorological observation.
3. Telecommunication.
Codes:
a. 1 and 2 b. 1, 2 and 3
c. 2 and 3 d. 1 and 3

Q 2. Name the Headquarters of Northern Railway Zone of India.
a. Lucknow b. Kanpur
c. New Delhi d. Chandigarh

Q 3. Which of these is true for road transport in India?
1. India has the second largest road network in the world.
2. About 20% of passenger traffic is carried by roads in India.
3. Twenty year road plan was introduced in the year 1961 to improve the conditions of roads.
Codes:
a. 1, 2 and 3 b. 1 and 2
c. 1 and 3 d. 2 and 3

Assertion and Reason Type Questions

Directions (Q.Nos. 4-5): *In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option:*

a. Both (A) and (R) are true and (R) is the correct explanation of (A).
b. Both (A) and (R) are true, but (R) is not the correct explanation of (A).
c. (A) is true, but (R) is false.
d. (A) is false, but (R) is true.

Q 4. Assertion (A): Water transport is the cheapest transport.
Reason (R): India has 17,500 km of navigable waterways.

Q 5. Assertion (A): Indian Railways earlier has been divided into 16 (now 19) zones.
Reason (R): Large size of Indian Railways puts a lot of pressure on centralised railway management system.

Passage Based Question

Q 6. *Read the passage given below and answer the questions that follow:*

The replacement of steam engines run by coal has also improved (diesel and electric) the environment of the stations. Metro rail has revolutionlised the urban transport system in Kolkata and Delhi. Replacement of diesel buses by CNG-run vehicles along with the introduction of metro is a welcome step towards controlling the air pollution in urban centres. One of the important achievements of the Indian Railways has been the construction of Konkan Railway in 1998. It is 760-km long rail route connecting Roha in Maharashtra to Mangalore in Karnataka. It is considered an engineering marvel. It crosses 146 rivers, streams, nearly 2000 bridges and 91 tunnels, Asia's largest tunnel which is nearly 6.5 km long, also lies on this route. The states of Maharashtra, Goa and Karnataka are partners in this undertaking.

(i) Which is the latest engines used by Indian railways?
(ii) Which two cities are connected by Konkan Railway?
(iii) Which transportation has reduced air pollution in the urban areas?

Very Short Answer Type Questions

Q 7. State the functions of 'Border Road Organisation' (BRO).

Q 8. Why was the Inland Waterways Authority of India set up?

Q 9. What is the major function of the National Highways Authority of India?

Q 10. How do oceanic routes play an important role in the transport sector of India?

Short Answer Type Questions

Q 11. Discuss advantages and disadvantages of pipeline transportation.

Q 12. Discuss the contribution of Air India and Indian Airlines in the air transport of India.

Q 13. Why does the rail transport continue to remain the cheap mode of transport for the masses in India?

Q 14. Which is the apex body in India to improve the quality of National Highways? Examine the significance of National Highways.

Long Answer Type Questions

Q 15. Discuss about the functions and role of the National Highways Authority of India.

Q 16. What is the importance of Water Transport? Describe in brief water transport system of India.