

Transport and Communication

PART 1

Objective Questions

• Multiple Choice Questions

1. Which of the following is a part of land transportation?

- (a) Roadways (b) Railways
(c) Pipelines (d) All of these

Ans. (d) Roadways, railways and pipelines all are part of land transportation.

2. What is the rank of India in terms of road networks in the world?

- (a) First (b) Second (c) Third (d) Fourth

Ans. (b) India has the second largest road networks in the world.

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

Ans. (b) The Golden Quadrilateral connects India's four big metro cities of Delhi-Mumbai-Chennai-Kolkata. It is 5,846 km long, 4/6 lane high density traffic corridor.

4. The National Waterway-II lies on which river in India?

- (a) Ganga (b) Yamuna
(c) Brahmaputra (d) Chambal

Ans. (c) The National Waterway-II lies on Brahmaputra river.

5. 'India' was merged with Air India to form a single airline in which of the following years?

- (a) 2009 (b) 2011
(c) 1992 (d) 1981

Ans. (b) 'Indian' was merged with Air India to form a single airline in 2011.

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.

Ans. (a) Oil India Limited (OIL) under the Ministry of Petroleum and Natural Gas is the most important body in India which is responsible for exploration, production and transportation of crude oil and natural gas.

7. Which of the following pairs is not correctly matched?

- (a) Nagpur Plan – 1993
(b) Twenty-year road plan – 1961
(c) NHAI – 1995
(d) BRO – 1985

Ans. (d) Border Road Organisation (BRO) was established in May, 1960 (not in 1985). This organisation is responsible for construction and maintenance of Border Roads in India.

8. Which of the following pairs is not correctly matched?

- (a) Golden Quadrilateral – Connects Delhi-Mumbai-Chennai-Kolkata
(b) North-South Corridor – Connects Srinagar with Kanniyakumari
(c) East-West Corridor – Connects Silchar with Ahmedabad
(d) Aman Setu – Connects Srinagar and Muzaffarabad

Ans. (c) East-West corridor connects Silchar (Assam) with port town of Porbandar (Gujarat), not with Ahmedabad.

9. Match the following columns.

Column I (Railway Zones)	Column II (Headquarters)
A. Central	1. Kolkata
B. Eastern	2. Bhubaneshwar
C. East Central	3. New Delhi
D. East Coast	4. Hajipur
E. Northern	5. Mumbai CST
F. North Central	6. Allahabad

Codes

A	B	C	D	E	F	A	B	C	D	E	F		
(a)	1	2	3	4	5	6	(b)	6	5	4	3	2	1
(c)	5	1	4	2	3	6	(d)	1	4	3	6	5	2

Ans. (c)

10. Match the following columns.

Column I (National Waterways)	Column II (Stretch)
A. NW-1	1. Allahabad-Haldia
B. NW-2	2. Sadiya-Dhubri
C. NW-3	3. Kottapuram-Kollam
D. NW-4	4. Kakinada, Puducherry

Codes

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

Ans. (a)

11. Consider the following statements and choose the correct option from the given options.

- The first attempt to improve and modernise road network was made in 1943 with Nagpur Plan.
- Due to lack of coordination among princely states and British India, Nagpur Plan was not implemented.

Codes

(a) Only I is correct	(b) Both I and II are correct
(c) Only II is correct	(d) Both are incorrect

Ans. (b) Both the statements I and II are correct.

12. Consider the following statements and choose the correct option for the same.

- India has different kinds of roads like National Highways, State Highways, major district roads and rural roads.
- Roads are classified for the purpose of construction and maintenance.

Codes

(a) Only I is correct	(b) Only II is correct
(c) Both the statements are incorrect	(d) Both statements are correct and statement II correctly explains statement I.

Ans. (d) For the purpose of construction and maintenance Indian roads are classified as National Highways, State Highways, major District roads and rural roads. Thus, statement II correctly explains statement I.

13. Consider the following statements and choose the correct option for the same.

- Indian Railway is the largest government undertaking in India.
- The large size of Indian Railways puts huge pressure on a centralised Railway Management System.

Codes

(a) Only I is correct	(b) Only II is correct
(c) Both I and II are correct	(d) Both are incorrect

Ans. (c) Both the statements I and II are correct.

14. Arrange the following roads in sequence as per their importance.

- District Roads
- State Highways
- Rural Roads
- National Highways

Codes

(a) I, II, III, IV	(b) IV, III, II, I
(c) IV, II, I, III	(d) II, I, IV, III

Ans. (c) As per the importance, the correct sequence of roads is National Highways, State Highways, District roads and Rural roads.

15. Arrange the following waterways in sequence as per their numbering.

- Kottapuram–Kollam Stretch
- Sadiya–Dhubri Stretch
- Allahabad–Haldia Stretch
- Kakinada, Puducherry Stretch

Codes

(a) I, II, III, IV	(b) III, II, I, IV
(c) IV, III, II, I	(d) III, I, II, IV

Ans. (b) As per the numbering, the correct order of waterways is Allahabad–Haldia Stretch (NW-1), Sadiya–Dhubri Stretch (NW-2), Kottapuram–Kollam Stretch (NW-3), and Kakinada, Puducherry Stretch (NW-4).

• Case Based MCQs

16. Read the case/source given and answer the questions that follow by choosing the correct option. Pipelines are the most convenient and efficient mode of transporting liquids and gases over long distances. Even solids can also be transported by pipelines after converting them into slurry. Oil India Limited (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. It was incorporated in 1959 as a company. Asia's first cross country pipeline covering a distance of 1,157 km was constructed by OIL from Naharkatiya oilfield in Assam to Barauni refinery in Bihar. It was further extended up to Kanpur in 1966. Another extensive network of pipelines has been constructed in the Western region of India of which Ankleshwar-Koyali, Mumbai High-Koyali and Hazira-Vijaipur-Jagdishpur (HVJ) are most important. Recently, a 1256 km long pipeline connecting Salaya (Gujarat) with Mathura (Uttar Pradesh) has been constructed.

It supplies crude oil from Gujarat to Punjab (Jalandhar) via Mathura. OIL is in the process of constructing of 660 km long pipeline from Numaligarh to Siligur.

- (i) Which of the following commodities can be transported through pipelines?
 (a) Petroleum (b) Natural Gas
 (c) Sewage (d) All of these

Ans. (d) Pipelines are used to transport many commodities like liquids, gases, such as petroleum, natural gas, water, sewage, etc.

- (ii) Which of the following organisations is responsible for constructing Asia's first cross country pipeline?
 (a) ONGC Videsh (b) Indane Ltd
 (c) Bharat Petroleum (d) Oil India Limited

Ans. (d) Oil India Limited is responsible for constructing Asia's first cross country pipeline.

- (iii) Kanpur, where Asia's first cross country pipeline was extended in 1966, is located in which of the following parts of India?
 (a) Southern Part (b) Northern Part
 (c) Eastern Part (d) Western Part

Ans. (b) Kanpur, where Asia's first cross country pipeline was extended in 1966, is located in the Northern part of India.

- (iv) Hazira-Vijaipur-Jagdishpur pipeline connects which of the following States of India?
 (a) Maharashtra–Madhya Pradesh–Chhattisgarh
 (b) Gujarat–Madhya Pradesh–Jharkhand
 (c) Gujarat–Rajasthan–Jharkhand
 (d) Maharashtra–Rajasthan–Haryana

Ans. (b) Hazira–Vijaipur–Jagdishpur pipeline connects Gujarat (Hazira), Madhya Pradesh (Vijaipur) and Uttar Pradesh (Jagdishpur).

2. Read the table given below and answer the questions that follow.

Indian Road Network (2016)

S. No.	Road Category	Length in Km
1.	National Highways/Expressways	101011
2.	State Highways	176166
3.	Major District Roads	561940
4.	Rural Roads	3935377
Total		4774454

- (i) Which of the following roads account about 80% of the total road length in India?
 (a) Rural Roads (b) National Highways
 (c) State Highways (d) Major district roads

Ans. (a) Rural roads account about 80% of the total road length in India.

- (ii) Which type of roads connect the state capitals with district headquarters and other important towns?
 (a) District roads (b) Rural roads
 (c) State Highways (d) Border roads

Ans. (c) State Highways connect the state capital with district headquarters and other important towns.

- (iii) The National Highways are maintained by which of the following organisations?
 (a) NHAI (b) State Governments
 (c) BRO (d) Defence Ministry

Ans. (a) The National Highways are maintained by National Highways Authority of India (NHAI).

- (iv) What is the percentage share of National Highways to the total road network in India?
 (a) 1.3% (b) 2.1% (c) 12% (d) 80%

Ans. (b) The percentage share of National Highways to the total road network in India is 2.1%.

PART 2

Subjective Questions

• Short Answer (SA) Type Questions

1. Describe any three characteristics of State Highways of India. (All India 2008)

Ans. Three characteristics of State Highways of India are

- These are the highways which are constructed and maintained by the State Governments. They constitute about 4% of total roads in the country.
- They are meant to connect the state capitals with district headquarters and other important towns.

- These roads are further connected to National Highways, so they can connect these areas to other states.

2. Explain the functions of Border Road Organisation.

Ans. The Border Road Organisation (BRO) was established in May, 1960. Functions of BRO are

- It aims at accelerating economic development and strengthening defence preparedness through rapid and co-ordinated improvement of strategically important roads along the Northern and North-Eastern boundary of the country.

- Apart from the construction and maintenance of roads in strategically sensitive areas, the BRO also undertakes snow clearance in high altitude areas.
- It also contributes to the socio-economic development of border states.

3. Which are the two types of roads included under the category of 'other roads' in India? Write any two features of each. (Delhi 2010)

Ans. Border Roads and International Highways are included under the category of 'other roads' in India.

Border Roads are strategically important roads along the Northern and North-Eastern boundary of the country.

Features of border roads are

- (i) The total length of border roads is 46,870 km, these are constructed by Border Road Organisation (BRO).
- (ii) These roads are important to accelerate economic development and strengthening defence preparedness.

International Highways are the roads which connect India to neighbouring countries. Feature of International Highways are

- (i) They aim to promote harmonious relationship with neighbouring countries.
- (ii) They provide an effective connectivity to neighbouring countries.

4. The distribution of roads in India is not uniform. Examine the statement by giving three reasons. (All India 2014)

Ans. The distribution of roads in India is not uniform due to the following reasons

- Roads can be easily constructed at a 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.
- Level of economic development 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.
- Inaccessible areas also have less density of roads in India, e.g. forested, rainy and high altitude areas have less density of roads.

5. Why was the Indian Railway System divided into sixteen zones? Name the headquarters of Eastern, Western, Northern and Southern zones. (All India 2009)

Ans. Indian Railway System has been divided into sixteen zones to reduce the pressure of large size Indian railway on Centralised Railway System. India has one of the longest railway networks in the world and it is the largest government undertaking in India. Indian Railway Network was 66,030 km long as on 31st March, 2015.

Another reason for dividing it into different zone is to provide services through out the country. Zoning help in increasing efficiency of railways.

The Headquarters of Eastern Railway is Kolkata, Western Railway is Mumbai (Church gate), Northern Railway is New Delhi and Southern Railway is Chennai.

6. Define different gauges of Indian railways.

Or What are the three categories of the track of Indian railways? Write any one feature of each.

(Delhi 2010)

Or What are the three categories of Indian railways on the basis of width of track? Write main feature of each category. (All India 2008)

Ans. The different railway gauges on the basis of the width of the track of Indian Railways are

- (i) **Broad Gauge** In broad gauge, the distance between rails is 1.676 metre. The total length of broad gauge lines was 60,510 km in March 2016.
- (ii) **Metre Gauge** In metre gauge, the distance between the rails is 1 metre. The total length of metre gauge was 3,880 km in March, 2016.
- (iii) **Narrow Gauge** In narrow gauge, the distance between the rails is 0.762 metre or 0.610 metre. The total length of narrow gauge line is 2,297 km in March 2016, This category of railway lines was mostly found in the hilly area.

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

Ans The steps taken by Indian Railways after Independence to improve its performance are

- To convert the metre and narrow gauge into broad gauge.
- Replacement of steam engine and diesel engine into electric engine which may also help in keeping the environment clean and reduce the operational cost.
- Introduction of Metro rails in Metropolitan towns to provide good means for urban transit system. e.g. Kolkata Metro, operated by Indian Railways.

8. Examine the role of Inland Waterways Authority of India. (All India 2016)

Ans. The role of Inland Waterways Authority of India is

- The Inland Waterways Authority was set up in 1986. It is entrusted with the responsibility of the development, maintenance and regulation of national waterways in the country.
- It does the function of surveying the economic feasibility of new projects and also the administration of waterways.
- It advises the Central Government on matters related to Inland Waterways.

9. How are oceanic routes advantageous for India?

Ans. Oceanic routes are advantageous for India in the following ways

- These play an important role in the transport sector of India's economy.
- About 95% of India's foreign trade by volume and 70% by value moves through oceanic routes.
- Oceanic routes are advantageous as India has vast coastline of 7,517 km including Islands.
- These routes provide international trade service.
- 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.

10. Describe any three advantages of pipelines as a means of transport in India. (All India 2014)

Ans. Advantages of pipelines as means of transport in India are

- (i) It is most convenient and efficient means of transporting liquids and gases over long distances.
- (ii) Pipelines can also transport solids after converting them into slurry.
- (iii) Its initial setup cost is high, but once it is recovered, pipelines transport liquids and gases very cheaply. Pipelines are mainly used for transporting crude oil and natural gas for various industries in India.

11 Describe any three advantages of satellite communication in India. (Delhi 2014)

Ans. Advantages of satellite communication in India

- (i) Satellites provide a continuous and overall view of larger area which is very vital for the country due to the economic and strategic reasons.
- (ii) Telecommunication, meteorological observation and other data and programmes for India can be obtained through satellite system. Indian National Satellite System (INSAT) is a multipurpose satellite system used for this purpose.
- (iii) The Indian Remote Sensing Satellite System (IRS) is very useful in the management of natural resources, monitoring of natural calamities, surveillance of border, etc in India.

12. Which is the most effective and advanced personal communication system in India? Explain any four characteristics of it. (Delhi 2009)

Ans. The most effective and advanced personal communication system in India is internet. The characteristics of internet are

- (i) With the help of internet, users can directly communicate through e-mail and can get access to the world of knowledge and information.
- (ii) Use of internet is increasing for e-commerce and carrying out money transactions.

(iii) The internet is like a huge central warehouse of data, with detailed information on various items.

(iv) It enables us with the basic facilities of direct communication. This mode of communication is efficient and cost effective.

• Long Answer (LA) Type Questions

1. Write any five characteristics of road transport in India. (Delhi 2009)

Ans. Characteristics of road transport in India are

- (i) With a total length of 56 lakhs km (2017-18) of roads, India has placed itself among the countries which have a large road network.
- (ii) Road transport carries about 85% of passenger and 70% of freight traffic every year. It is preferred for short distance travel as it provides door to door service.
- (iii) Roads are mainly concentrated and around urban areas, rural and remote areas are least connected by the roads.
- (iv) Distribution of roads is not even throughout the country. Road density is highest in Kerala and lowest in Jammu and Kashmir. Most of the Northern and Southern states have highly dense network of roads as compared to North-East and Himalayan region.
- (v) In India, roads are classified on the basis of purpose of construction and maintenance in National Highways (NH), State Highways (SH), major district roads and rural roads.

2. Which is the apex body in India to improve the quality of National Highways? Examine the significance of National Highways. (All India 2016)

Ans. The National Highways Authority of India (NHAI) is apex body in India 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 is

- National Highways form the lifeline of road transport system in India as they constitute 2% of the road length but carry 40% of traffic in India.
- These roads are meant for inter-state transport and strategic defence movement.
- These also connect the state capitals, major cities, important ports, railway junctions, etc.
- These roads are lifeline of the country. Goods and passengers are transported from one place to another in a short period of time.
- They connect remote areas with developed areas.
- Manufactured product and raw material is transported through it in very efficient manner.

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

(Delhi 2011)

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

(Delhi 2011)

Ans. Road density is defined as the length of roads per 100 sq km of surface area. It is a method to compare road network of an area to another area.

The two determinants of road density in India are

(i) **Level of Economic Development** The density of roads is directly proportional to the level of economic development in a region. In Northern plains, the density of roads is high mainly due to development of agricultural sector and urbanisation. States of Haryana, Punjab and UP have high density of roads.

Industrialisation also decides the density of roads. In the industrialised area, there is high density due development activities. In the backward areas the level of economic development is low thus the density of roads is also low.

(ii) **Nature of Terrain** It directly affects road density. Plains are most suitable for construction of road infrastructure whereas mountains, hills and forested areas are not suitable for construction of roads. Gangetic plains have high density of roads whereas Himalayan states like Uttarakhand and North-Eastern states have low density of roads. Plateau regions have less dense roads. For example Chotanagpur plateau region, central highlands region.

4. How are Indian railways contributing to the growth of national economy? Explain with examples.

(All India 2011)

Or “Indian Railways network is one of the longest networks in the world and has contributed a lot to the growth of the economy.” Support the statement.

(All India 2019)

Ans. Indian railways is one of the longest networks in the world and it has contributed to the growth of national economy in following ways

- Indian Railways form the lifeline of India catering to its needs for large scale movement of traffic, both freight and passenger, thereby contributing to economic growth.
- Railways has also helped in promoting national integration. It connects areas having important mineral resources to regions where there are industries.
- It also helps in transporting raw materials and finished products.
- Apart from the passengers and traffic, the freight also increased tremendously. Development in industrial and agricultural sectors has generated high demand for railway transport.

- Major commodities transported by railways include coal, iron and steel ores, petroleum products and essential commodities such as foodgrains, fertilizers, cement, sugar, salt, edible oils, etc.

- Indian railways also contribute in tourism sector by connecting hill stations, religious places and other important tourist places.

- It is the largest government undertaking which provides employment to millions of people in India.

5. “Indian Railways brought people of diverse cultures together.” Support this statement with suitable examples.

(All India 2015)

Ans. Indian Railways brought people of diverse cultures together in the following ways

- 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.
- 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 Uttar Pradesh, Bihar to Delhi, Maharashtra. Students travel to various parts and meet people of other cultures having different traditions.
- Railways was the main means of transport that brought people of diverse cultures together during the freedom struggle.
- 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.
- 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.

6. “Waterways is an important mode of transport for both passenger and cargo traffic in India.” Support the statement with examples.

(Delhi 2019)

Ans Waterways are important mode of transport for both passengers and cargo traffic in India in the following ways

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

- India has 14,500 km of Inland waterways which accounts for 1% of country's transportation.
- At present, over 5685 km of rivers are navigable by mechanised vessels in India which are used to transport both passenger and freight.
- Backwaters (Kayal) of Kerala have special significance as they provide cheap means of transport as well as tourism activities.
- It reduces congestion and accidents on roads highways as freight can be moved easily with waterways.
- It can be used for transporting both domestic as well as international cargo. India has many major and minor parts, which are facilitating trade within the country as well as internationally.
- Waterways have potential for cruise, tourism and passenger traffic that can contribute to the development of the country.

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 of India. (All India 2010)

Ans. Air transport facilitates the fastest movement of goods and passengers from one place to another place. It has reduced distances and converted the world into one unit. 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.

It is also important for our links with other countries. 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

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

• Case Based Questions

1. Read the case/source given and answer the following questions.

Indian Railways, network is one of the longest in the world. It facilitates the movement of both freight and passengers and contributes to the growth of the economy. Mahatma Gandhi said, the Indian railways "...brought people of diverse cultures together to contribute to India's freedom struggle." Indian Railway was introduced in 1853, when a line was constructed from Bombay to Thane covering a distance of 34 km. Indian Railways is the largest government undertaking in the country. The length of Indian Railways network was 66,030 km as on 31st March, 2015. Its very large size puts a lot of pressure on a centralised railway management system.

Thus, in India, the railway system has been divided into 16 zones. Indian Railways has launched extensive programme to convert the metre and narrow gauges to broad gauge. Moreover, steam engines have been replaced by diesel and electric engines. This step has increased the speed, as well as, the haulage capacity.

The replacement of steam engines run by coal has also improved the environment of the stations. Metro rail has revolutionised 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.

(i) Which strategy has improved the environment of railway stations in India?

Ans. The replacement of steam engines run by coal has improved the environment of the stations in India.

(ii) Mention any one point that identify the development of Indian Railways.

Ans. One point that identify the development of Indian Railways is that when Indian Railway was introduced in 1853, a line was constructed from Bombay to Thane only covering a distance of 34 km. But now, the length of Indian Railways network increased to 66,030 km as on 31st March, 2015.

(iii) Konkan Railways is one of the important achievement of Indian Railways. Explain your answer.

Ans. 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 Manglore in Karnataka. 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.

2. Read the case/source given and answer the following questions.

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.

(i) What is satellite communication?

Ans. Satellites are mode of communication in themselves and they regulate the use of other means of communication.

(ii) Discuss about the evolution of communication system.

Ans. Human beings have evolved different methods of communication over time. In earlier times, the messages were delivered by beating the drum or hollow tree trucks,

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 message. Initially, the means of communication were also the means of transportation.

But invention of post offices, telegraph, printing press, telephone, satellite, etc has made the communication much faster and easier.

(iii) Internet has become a major part of our lives. State its importance in brief.

Ans. It is true that internet has become a major part of our lives due to its importance as

- It enables the users 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.

3. Read the case/source given and answer the following questions.

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 1,010,11 km in 2016. The National Highways constitute only about 2 per cent of the total road length but carry 40 per cent 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 per cent 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 per cent of the total road length of the country. Rural roads are vital for providing links in the rural areas. About 80 per cent 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.

- (i) Mention any one point of difference between National Highways and State Highways.

Ans. National Highways are constructed and maintained by the Central Government whereas State Highways are constructed and maintained by State Governments.

- (ii) National Highways are very important for a vast country like India. State its two features.

Ans. Two features of National Highways are

- (i) These roads are meant for inter-state transport and movement of defence mean and materials in strategic areas.
- (ii) These also connect the state capitals, major cities, important ports, railways junctions, etc.

- (iii) What is Border Road Organisation (BRO)? Explain in brief.

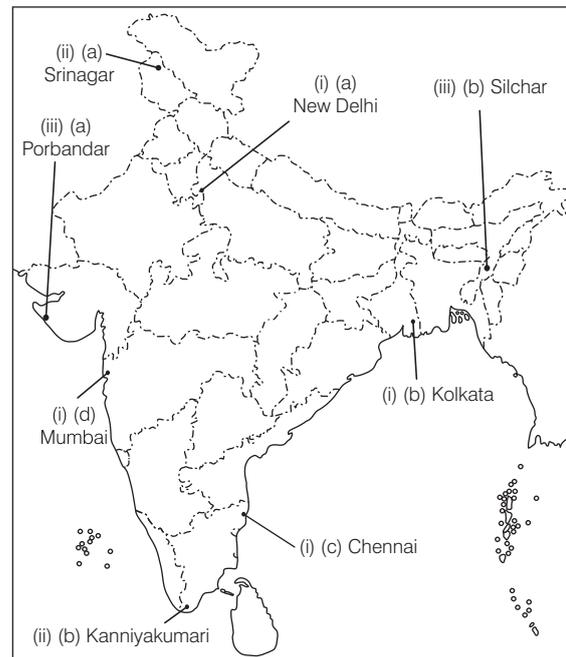
Ans. BRO is a government organisation which was established in May, 1960. It was established for accelerating economic development and strengthening defence preparedness through rapid and coordinated

improvement of strategically important roads along the Northern and North-Eastern boundary of the country. It is a premier multifaceted construction agency.

• Map Based Questions

1. On the outline map of India locate the following.

- (i) Important cities of Golden Quadrilateral.
- (ii) Important towns of North-South Corridor.
- (iii) Important towns of East-West Corridor.



Chapter Test

Objective Questions

- The National Highways Authority of India was operationalised in
(a) 1994 (b) 1995 (c) 1992 (d) 1993
- The East-West corridor connects which of these two cities?
(a) Delhi - Kolkata (b) Porbandar - Silchar (c) Kashmir - Kanniyakumari (d) Chennai-Bengaluru
- Which of the following pairs is not correctly matched?
(a) Total road length of National Highways — 2%
(b) Total road length of State Highways — 4%
(c) Total road length of District Roads — 50%
(d) Total road length of Rural Roads — 80%
- Match the following columns.

Column I (Railway Zones)	Column II (Headquarters)
A. North-Eastern	1. Gorakhpur
B. North-Western	2. Secunderabad
C. Southern	3. Chennai
D. South Central	4. Jaipur

Codes

- | | |
|-------------|-------------|
| A B C D | A B C D |
| (a) 1 2 3 4 | (b) 4 3 2 1 |
| (c) 1 4 3 2 | (d) 3 1 4 2 |

- Which of the following is/are true regarding inland waterways in India?
I. It was the main means of transport before the development of railways in India.
II. Diversion of water of irrigation has led to decline of inland waterways in India.
III. Inland waterways comprises of rivers, canals, creeks etc.

Codes

- (a) I and II (b) I, II and III (c) II and III (d) I and III

Short Answer Type Questions

- Define in brief the functions of National Highway Authority of India.
- What are inland waterways? Name the five National Waterways in India.
- What is the importance of air transport in India?
- Name the factors affecting density of roads in India.
- Give an account of oil and gas pipelines in India.

Long Answer Type Questions

- Write a note on communication networks. Also explain its types.
- Explain the factors affecting distribution of Indian Railways network.
- Discuss the growth and role of TV and radio in mass communication.

Answers

- (b) 1995
- (b) Porbandar - Silchar
- (c) Total road length of District Roads — 50%
- (c)
- (b) I, II and III