

10. Transportation

Engineering

1. What is the role of transportation in national development?

Transportation is a non separable part of a national development.

Transportation is responsible for the development of civilizations from very old time.

Transport also consumes a lot of resources like time, fuel, materials and land.

Transportation economics involves production, distribution and consumption of goods and services.

Transport extends the range of sources of supply of goods in an area.

Transportation has always played an important role in urban societies.

Transportation can be seen clearly from the formation, size and pattern for development of societies.

Transport helps in the assembly of raw materials and distribution of finished goods.

Transportation also allows the movement of soldiers, equipment and supplies during war.

Hence, Transportation is vital to a nation's economy in national development.

→ Classify the different ways of transportation and state their importance.

There are four major modes of transportation.

1. Roadways: Road transportation is most agile and most profitable.

2. Railways: Railway transportation is easier for long-distance travel.

3 Waterway: Water transportation is the cheapest means of transport.

4 Airway: Airway transportation is reduced distances by minimising the travel time.

-> Importances of Transportation way.

1 Road transport is the cheapest means of transport available.

2 Road transport is the only transport that is viable and economical for short distances.

3 Rail transport is the easier for long distances transportation.

4 Rail transport is the take very less time for transfer goods.

5 Air transport is reduced distances by minimising the travel time.

6 Air transport has high standard security in transportation.

7 Air transport is less need for heavy packaging.

8 Water transportation is economical for long distance.

9 Water transportation has large storage capacity.

10 Water transportation is environmentally friendly.

2 Give classification of different roads according to its position in national network of roads.

There are five different types of roads according to its position.

1 National Highway:

National Highway are constructed and maintained by the central Government.

National Highway connect two major ports in national.

National Highway include high speed and greater safety than the onther road.

2 State Highway:

State Highway are constructed and maintain by the state Government.

State Highway connect two different state in nation.

State Highway include high speed and lower vehicle operating costs.

3 Major District Road:

Major District Road connect two different district in state.

Major District Road are constructed and maintain by the district authorities.

Major District road include low vehicle operating costs.

4 Other District Road:

Other District Roads are connect ~~rural~~ a rural area to the center of taluka.

Other District Roads are connect two taluka in District.

5 Village Road:

Village road are connecting two different village in taluka.

Village road is a low-quality road that is constructed by villages.

3 Explain traffic planning and importance.

Traffic enggering is the branch of civil enggering which deals with traffic planning and traffic control.

The roadways type, riding quality, maintenance, surface, texture are influencing the traffic.

Planning of traffic is very important factor for traffic control.

Planning of traffic are carried out as per existing data collection and need of people.

The information of data are collected and analysed with respect to past trends.

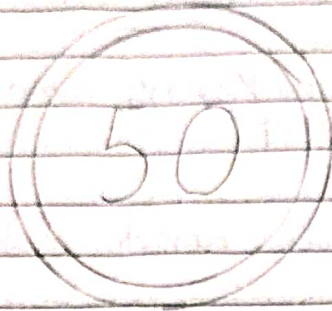
=> Importance of Traffic Planning

- 1 Traffic planning is determines traffic rate along each path.
- 2 Traffic gose smoothly and efficiently.
- 3 The safety level of Pedestrians are increased.
- 4 It control noise and local pollution level.
- 5 Traffic planning decide speed trends and traffic patters.
- 6 Traffic planning is also help in protet protect environment.

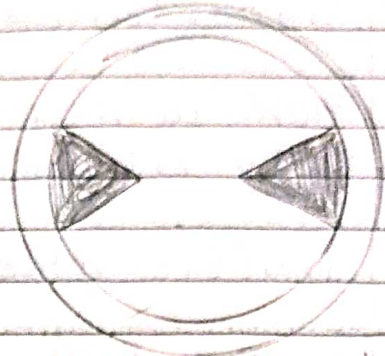
5 List various types of traffic control devices.

There are various types of traffic control devices is use for contrall traffic.

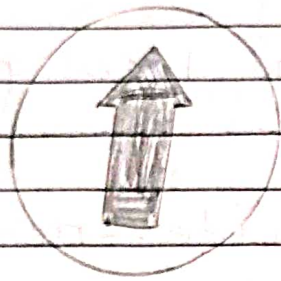
- 1 Sign: There are many types of sign use for control traffic
ex. Speed Limit, No Parking etc.



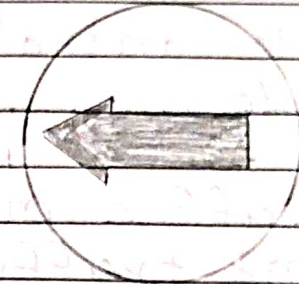
Speed limit



Width limit



Compulsory
ahead only



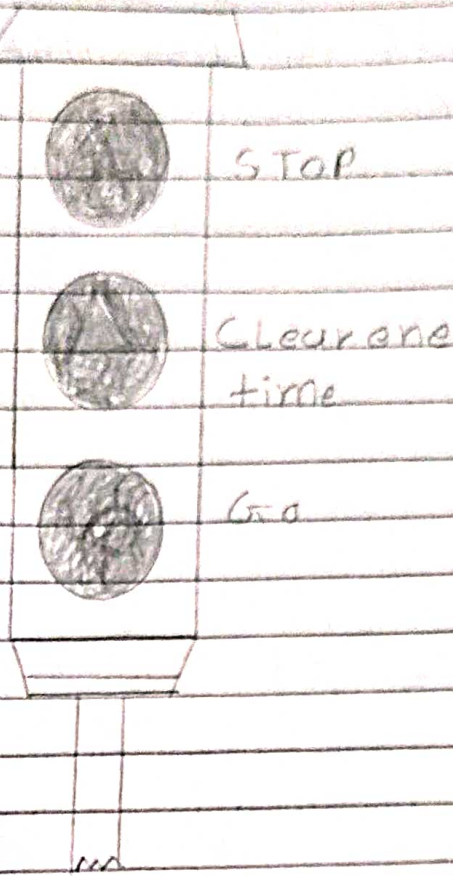
Compulsory
turn left

2. Signals:

Signals are use for control traffic and use for traffic planning.

Signals are operate manually at a traffic time.

Signals are change at a fixed time.



3 Marking:

Marking is also use for control and planning traffic

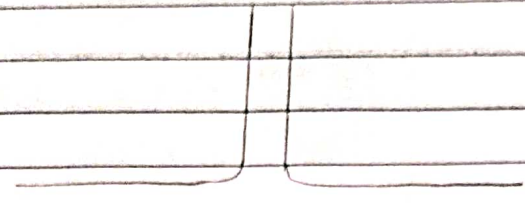
Road marking are made of lines, symbol or reflectors on near roadway

Ex. For Parking - Yellow colour line

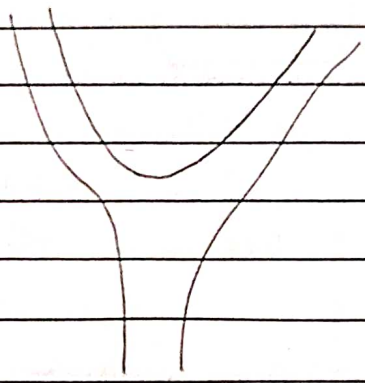
For Stop - White colour line

4 Islands:

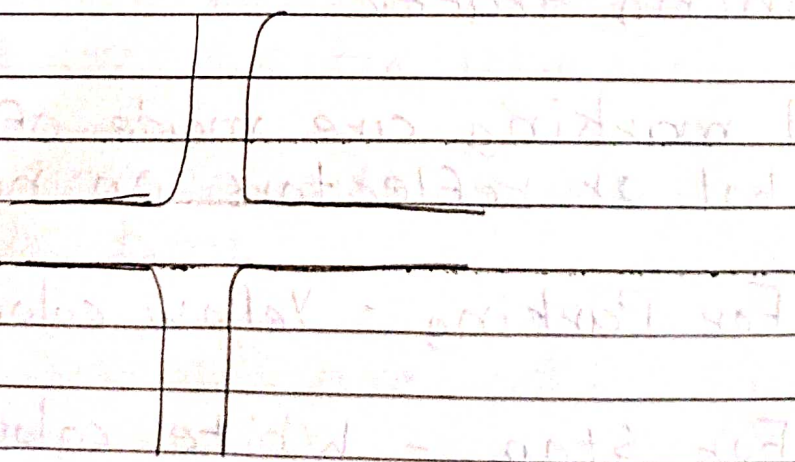
Islands is also use for controll traffic.



Tee intersection



Wye intersection



Cross intersection

6 What are the advantage and disadvantage of Waterway and Airways?

⇒ Waterway:

→ Advantage of Waterway:

1 Waterway is no need of constructing path or tracks.

2 Waterway is the cheapest mode of transportation.

3 Waterway provides high load carrying capacity.

4 In this transportation we can transfer large volume of goods or materials can be transport easily.

5 It helps in economic progress of countries.

6 Waterway transport required small amount of fuel consumption.

7 Waterway transportation is environmental friendly.

→ Disadvantages of Waterway:

- 1 Waterway transportation is very slow.
- 2 Due to the slow speed of transportation it required more time.
- 3 It is use only where water is available for transportation.
- 4 Ocean storms cause can great loss of cargo.
- 5 It permits definite routes and limited connectivity.

⇒ Airway:

→ Advantages of Airway:

- 1 Airway is the fastest mode of transportation.
- 2 Due to the fast speed of transportation it required less time.
- 3 Airway is very useful for millatary.



- 4 At the time of war, it is very usefull For transportation.
- 5 Airway has high standard security in transportation.
- 6 Air transport is require less need For heavy packaging.
- 7 Air transport provides highly skilled employment.

-> Disadvantages of Airway:

- 1 Air transportation is most expensive transport.
- 2 Due to high expensive, it require high travel cost.
- 3 Air transportation maintenance cost of aircraft is high.
- 4 Fuel consumption is high.
- 5 Due to accident, loss is very high.
- 6 Maintenance of runway is very high.

4 Discuss regarding importance of road transport over the rail transport.

→ Importance of Road transport.

1 Construction of road cost is lower than the railway lines.

2 Road transport provides door-to-door service.

3 Road transport provide link between the railway or airway transport.

4 Road transport is economical in transportation of few person.

5 Road transport are able to transport goods or material in mountainous.

6 Maintance of road network is cheaper than the railway tracks.

7 Road vehicles are cheaper than rail wagons.

8 Road transport is most flexible at the rural area.

9 The risk of damage goods is very less compare to rail transport.

10 The process of packing in road transport is less compare to rail transport.

11 Road transportation provides higher speed and less risk to the accidentes.