

PNS SCHOOL OF ENGG. & TECH, MARSHAGHAI

INTERNAL QUESTION WITH ANSWER

SUBJECT-TH-3(R&B)

BRANCH –CIVIL ENGG(5TH SEMESTER)

1.a) What is permanent way?

Ans. In a permanent way, **rails are joined either by welding or by using fish plates and are fixed with sleepers by using different types of fastenings**. Sleepers are properly placed and packed with ballast. Ballast is placed in the prepared subgrade called formation.

b). what is capacity of railway track?

Ans. In a permanent way, **rails are joined either by welding or by using fish plates and are fixed with sleepers by using different types of fastenings**. Sleepers are properly placed and packed with ballast. Ballast is placed in the prepared subgrade called formation.

c). what is gauge?

The gauge of the railway track is **a clear minimum vertical distance between the inner sides of two tracks** is called a railway gauge. That is, the distance between the two tracks on any railway route is known as a railway gauge

d). what is function of rails?

Ans. Rails in the Railway Track serves the following purposes: Rails **transfer loads from wheels safely to sleepers and ballasts**. Provides a smooth level surface for movement of trains. Provides an unchanging surface for passage of heavy moving loads with minimum friction between steel rail and wheels

e). what are the types of rail section?

Ans. here are three types of rails: Double-headed rails.

...

- Double-Headed rails. These rails were used in the early stages of railroad development. ...
- Bull-Headed rails. ...
- Flat-footed rails
- F) what is rail joint?

Ans. **A join between two rails in a railway track placed end to end**; the rails are joined by fishplates where joints are not welded.

g) what is the purpose of welding?

Ans. The welding of rails is **carried out in a depot by the "Flash butt welding process and at site by the "Thermit Welding" process**. The length to which the rails can be welded in a depot depends on the transport facilities available

h)what is the function of sleepers?

Ans. The basic functions of Railway sleepers are to: **hold the rails strongly and to maintain uniform gauge**. transfer the load from rails to the ballast or ground. reduce the vibrations coming from rails.

i)classify different types of sleepers?

Ans. Based on the materials used, railway sleepers are classified into following types.

1. Wooden sleepers
2. Concrete sleepers
3. Steel sleepers
4. Cast iron sleepers
5. Composite sleepers

j)what is the function of ballast?

Ans. It is used **to bear the load from the railroad ties, to facilitate drainage of water, and also to keep down vegetation that might interfere with the track structure**. Ballast also holds the track in place as the trains roll over it.

2.a)What is the function of rails?define different types of rail sections?

Ans. Rails in the Railway Track serves the following purposes: Rails **transfer loads from wheels safely to sleepers and ballasts**. Provides a smooth level surface for movement of trains. Provides an unchanging surface for passage of heavy moving loads with minimum friction between steel rail and wheels

There are three types of rails:

- Double-headed rails
- Bull-headed rails
- Flat-footed rails

1. Double-Headed rails

These rails were used in the early stages of railroad development. They are divided into three sections:

- Upper table
- Web
- Lower table

The upper and lower tables were identical, and they were introduced in the hopes of doubling the rail's lifespan. When the upper table wears out, the rails can be placed on the chair upside down and reversed, allowing the lower table to be used.

2. Bull-Headed rails

This type of rail is made up of three pieces:

- The head
- The web
- The foot

Steel was used to construct these rails. The head is larger than the foot, and the foot holds the wooden keys that fasten the rails in place.

As a result, the foot's sole purpose is to provide the required strength and rigidity to rails.

When these rails are used, two cast iron chairs are required for each sleeper. Their weight ranges from 85 to 95 pounds, and they can grow up to 60 feet long

3. Flat-footed rails

These rails were first invented in 1836 by Charles Vignoles, and so are also known as Vignols rails.

They are divided into three sections:

- The head
- The web
- The foot

This type of rail has grown in popularity to the point where it now makes up over 90% of all railway lines in the world.

b)what is rail joint?describe different types of rail joint?

Ans. A join between two rails in a railway track placed end to end; the rails are joined by fishplates where joints are not welded

Rail joint plays a jointing function (connecting function) in the railroad. High quality railway joint can effectively reduce the influence of wheels when passing through the jointing sections of the steel rail and increase the steadiness and continuity of the passing trains. As one of the important parts in railway, railway joint bar are widely used both in light rail and heavy rail to guarantee the safety of railroad transportation.

Different Types of Railway Joint

[Railway joint can be classified into many types](#), including common rail joint, compromise rail joint, bulge rail joint, insulated rail joint and glued insulated rail joint. Different types can be applied into different use.

Common Rail Joint

Common rail joint is the most commonly used rail joint in the connecting of the steel rail, and it is usually with regular shape. There are two types, 4 holes And 6 holes. We can produce both types to suiting for your steel rails. In addition, we can also produce matching rail fish plate for different standard steel rail.

Compromise Joint Bar

Compromise joint bar is usually to connecting two kinds of different rails, it can joint them together and fit each other exactly. Compromise joint bar can make the joint section flat and smooth. Because of the specific function of compromise joint bar, it has two different bars: gauge side joint bar and outside joint bar.

Joggled Rail Joint

Joggled rail joint, also named bulge rail joint, it has a prominent bulge section in the middle. Different from other rail joint, rail bulge rail joint is generally used in broken welded rails or temporary repair of cracked welded rail joint with an emergency clamp. It can be used in various rail sections and it is useful as the temporary repairing.

Insulated Rail Joint

Insulated rail joint is electrical resistance, and it is usually used in electrical section of railway track. It is usually consist of insulated materials on the surface of railway joint, which can prevent the signal and electric transmission. There are two types of end post of Insulated rail: glued end post, inserted end post.

Glued Insulated Rail Joint

Glued insulated rail joint is generally used in long welded rails. With minimum number of installing components, it is easy to install glued insulated rail joint. It is the right place in track-circuited area to install glued insulated rail joint.