

Q: ⁹ What is the tuberculosis and Hepatitis?

Explain Briefly.

Answer: Tuberculosis:

Tuberculosis is caused by bacteria *Mycobacterium tuberculosis*, which attacks the lungs. It can attack other parts of the body as well, such as the kidney, spine or brain. It spreads through the air one breathes. The symptoms of tuberculosis include cough, chest pain, fever, night sweats, chills, loss of appetite, weakness and weight loss. It can be diagnosed through **blood tests**.

The **treatment** of tuberculosis include taking anti biotic and sometimes isolation is prescribed for preventing further spreading.

Hepatitis

It is the inflammation of the liver caused by viruses, bacterial infections or continuous exposure to alcohol, drugs, toxic chemical and people having fatty liver also suffer hepatitis.

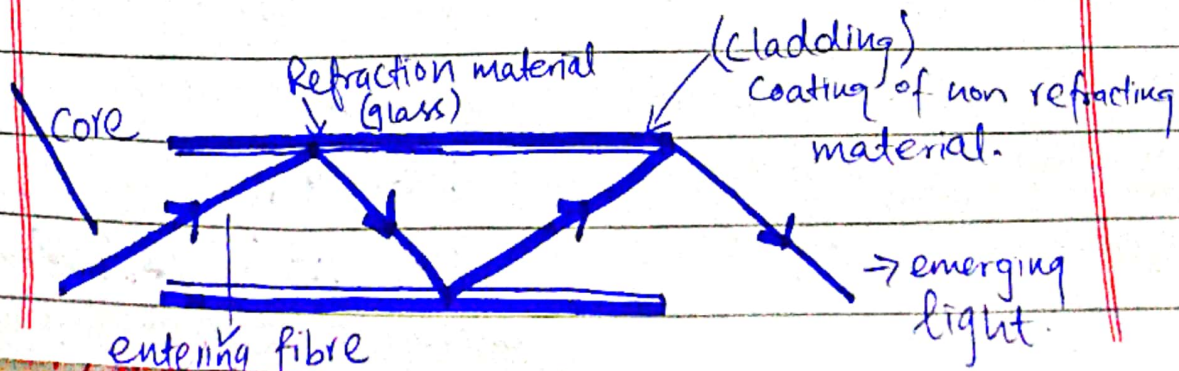
The symptoms include weakness, fatigue, fever, abdominal pain etc. The **treatment** of hepatitis is done by a drug called **interferon**. There are different types of hepatitis such as **HAV, HBV, HCV**.

b) Explain the mechanism of fiber optic cable for signal. Explain its construction.

Optical fibre are the line pure glass lines which are used for carrying information in the form of light rays. Light travels down an optical fibre cable by bouncing repeatedly off the walls. The light hit the glass at a shallow angle i.e. less than 42 degrees, it reflects back in it again. This process is called Total internal reflection. Wrapped around the core is another layer of glass called **cladding**. It keeps the light inside the core.

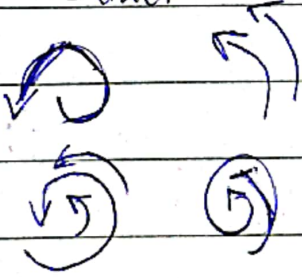

Usage of ^{Fibre} Optics:

Fibre optics are used in diverse fields such as military, endoscopic imaging, remote sensing, satellite sensing etc. It also helps in connectivity by providing faster information transfer as compared to traditional copper fibre.



c) Explain the difference between Middle Latitude Cyclone and Tornadoes.

Following are the differences between Middle latitude cyclone and tornadoes

	Middle latitude Cyclone	Tornado
Definition	They are formed by rapidly swirling air masses around a low-pressure core, which result in stormy and often destructive weather.	It is a spinning column of air that extends between two earth's surface and a cloud.
		
Formation	Dynamic interaction of warm tropical and cold polar air	warm, humid air collide with dry
Havoc level	Massive and destructive	high speed wind, violent
Circumference	wide	Small
Diameter	200 km	300-400 yards
wind speed	50 km/h	290 km/h
Duration	3-10 days	less than 10 minutes

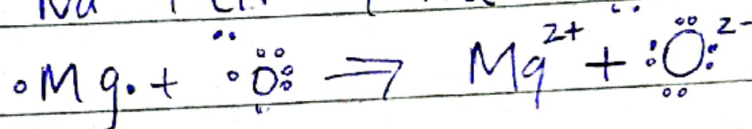
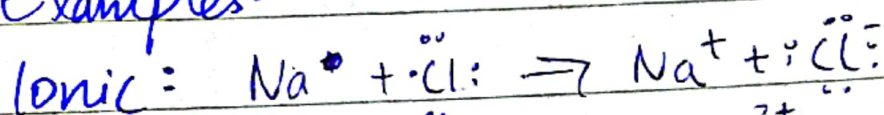
d) what is the difference between ionic and covalent bonding? Give examples.

Ionic bond: It is a bond in which one or more pair electrons are removed or attached to another atoms resulting in positive and negative ion.

Covalent bond:

It is a bond that one or more pairs of electrons are shared by two atoms.

Examples-



Covalent:

