

2024 CSS

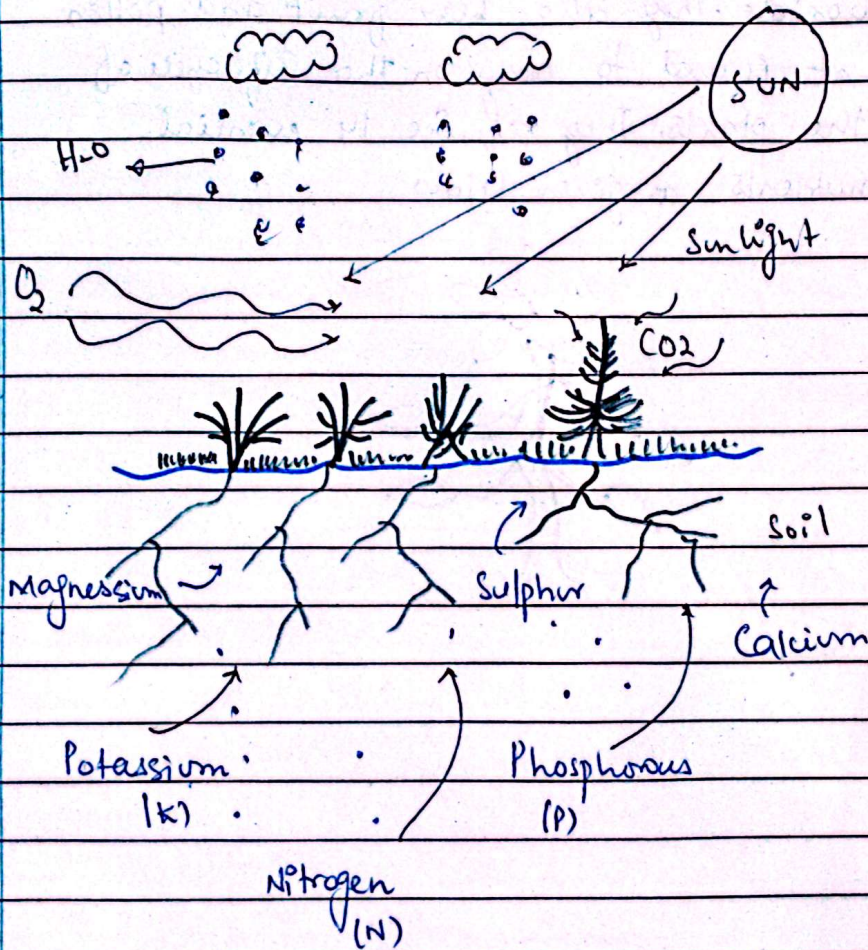
GSA

Question No. 5 (a)

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Solution:

Plants are the backbone of all life they support and foster all the organisms in this world. Just like every other creature they require essential nutrients to survive and grow. These are given below in diagram form.



Other nutrients include:

Iron, Copper, Boron, Chlorine, Zinc, Manganese, Molybdenum, Nickel.

(Q5b)

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Solution :

Software

It is the intangible part / portion of a computer.

These are specialized pieces of code that are used to run specialized tasks

Softwares are affected by malicious viruses and can also pose a threat to cyber security.

Softwares are divided into two main categories :

- a) System Software
- b) Application Software

Softwares are inter-compatible, meaning that they can be run

Hardware

These are the tangible parts of the computer.

every piece of Hardware has a specific task and cannot be replicated by another piece.

Hardware can be affected by wear and tear, misuse but not by viruses.

Hardware can also be ^{divided} ~~used~~ into ^{the following} 2 categories such as

- a) Input devices
- b) Output devices
- c) Memory Elements
- d) Control Elements

Hardwares can be swapped but are limited by the fact

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on various systems
without the requirement
of new hardware.

that the host and
reviewer may have
different hardware
requirements.

Examples

① Python, C++
these are software
used to program and
write applications

Processor
This is the brain of
the computer and
performs all the
applications

② Adobe Photoshop
It is used to edit
photos and create
graphics

Monitor
It is used to display
the operations of
the computer

③ Operating System (Windows)
It is the interface between
the human and machine
it operates the systems
and according to the input
given.

Keyboard
Used to take input
in the form of
physical touch and
converts into electrical
signals

④ MS Excel, Word

Mouse

Word processing and
editing software, spread
sheet software.

used to point and
move the cursor

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Power point
Used to create presentations and slide shows.

Hard drive
Used to store data on the computer.

Question No. 5(c)

Solutions

Earthquakes ^{are} the temporary trembling of the ground, these trembles are propagated through seismic waves.

"A seismic wave is a mechanical wave of acoustic energy that travels through the Earth."

Seismic waves are further divided 2 types

Seismic Waves

Surface waves

- a) Rayleigh waves
- b) Love waves

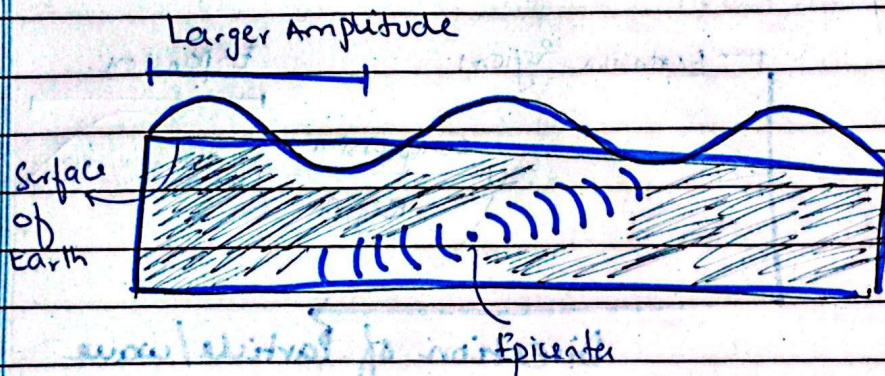
Body waves

- a) P-waves
- b) S-waves

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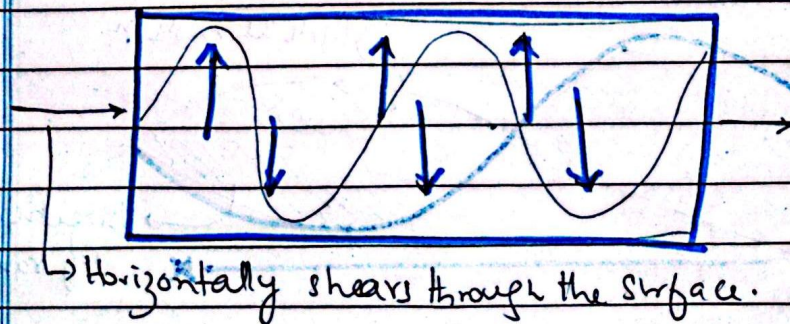
Raleigh waves

These are those waves that travel similar to ripples on the surface of water. These are generated when the source (epicenter) of the earthquake is close to the surface of the Earth.



Love waves

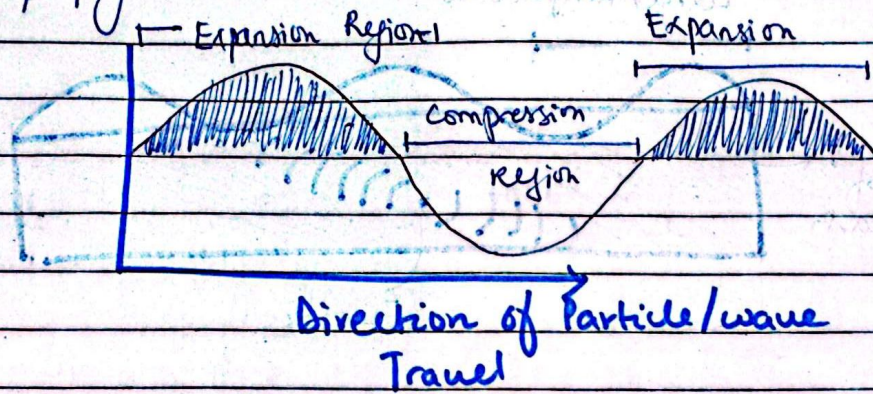
These are also propagated due to the epicenter being close to the surface; however these result in horizontal shearing and travel faster than Raleigh waves.



↳ Horizontally shears through the surface.

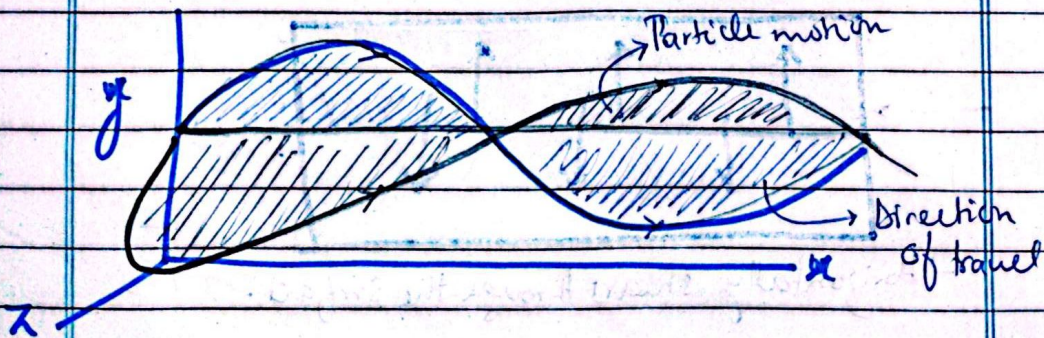
P-waves :

These are pressure waves that travel through the surface of the Earth. They travel through a medium by alternatively expanding and compressing the medium. The particle motion is parallel to the direction of wave propagation.



S-waves :

These are secondary shear waves that travel through the earth and are slower than P-waves. Particle motion is perpendicular to the direction of wave.



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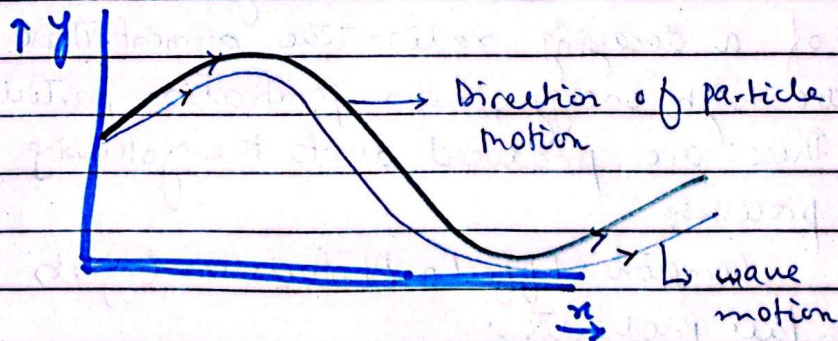
Question No. 5(d)

Solution:

Longitudinal waves

Longitudinal waves are those in which the wave and particle motion are in the same direction of travel. They are parallel to one another.

Sound waves are one example of longitudinal waves. Similarly, P-waves (seismic waves) are also a good example of them.

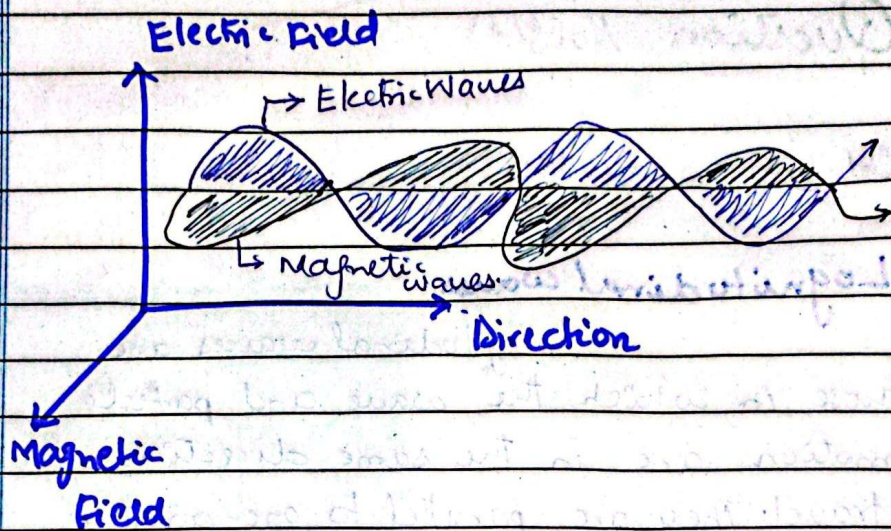


Electromagnetic Radiation

These are those forms of energy that propagate as both magnetic and electric waves. These waves travel in packets of energy called photons.

Radio waves and microwaves are one form of EM radiations.

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Gamma Radiations

These are a type of electromagnetic radiation. These are emitted by the nucleus of a decaying radioactive element. These are high energy, high penetration particles. These are produced due to the following processes:

Compton Effect, Photoelectric Effect,
Pair Production.

