

# 12 - Environmental Physics

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## 12 Environmental Physics

### 12.1 Agricultural Physics

- (2013) Describe the soil temperature with regard to agricultural physics which causes lower crop growth at a particular area.
- (2014) Briefly explain the influence of the following climatic conditions for plant growth and development:
  - Rain fall and water
  - Wind
- (2015) Explain three techniques applicable for improving soil environment for the best plant growth.
- (2016) How do soil environmental components influence plant growth? Give four points.
- (2017) Discuss two advantages of windbreaks to plant environment.
- (2019) Give two positive effects of wind on plant growth.

### 12.2 Energy from the environment

- (2016) Briefly explain three major concepts on solar wind.
- (2017) State three sources of heat energy within the interior of the earth.
- (2018) What is meant by solar constant?
- (2018) List two factors on which the solar constant depends.
- (2018) Give two advantages of photovoltaic system.
- (2018) Briefly explain how photovoltaic cells work.
- (2018) Estimate the maximum power available from  $10 \text{ m}^2$  of solar panels. Calculate the volume of water per second which must pass through if the inlet and outlet temperature of the panels are at  $10^\circ\text{C}$  and  $60^\circ\text{C}$  respectively. (Assume the wave carries away energy at the same rate as the maximum power available)

### 12.3 Earthquakes

- (1998) Explain the following terms: Earthquake, Earthquake focus, Epicentre and Body waves.
- (1998) List down three (3) sources of earthquakes.
- (2000) With reference to an earthquake on a certain point of the earth explain the terms Focus and Epicentre.
- (2000) Describe two ways by which seismic waves may be produced.
  - Describe briefly the meaning and application of seismic prospecting.
- (2007) What are the difference between  $P$  and  $s$  waves?
- (2007) Explain how the two terms of waves ( $P$  and  $S$ ) can be used in studying the internal structure of the earth.
- (2007) What is geomagnetic micropulsation.
- (2010) Explain the following terms Earthquake, Earthquake focus and Epicenter.
- (2010) Describe clearly how  $P$  and  $s$  waves are used to ascertain that the outer core of the Earth is in liquid form.
- (2013) The main interior of the earth (core) is believed to be in molten form. What seismic evidence supports this belief?
- (2015) What is the origin of earthquake?
- (2015) A large explosion at the earth's surface creates compressional ( $P$ ) and shear ( $S$ ) waves moving with a speed of 6.0 km/s and 3.5 km/s respectively. If both waves arrive at seismological station with 30 s interval, calculate the distance measured between seismological station and the site of explosion.
- (2019) What 's meant by epicentre and wind belt as used in Geophysics?
- (2019) Identify three types of seismic waves.
  - Outline two characteristics of each type of wave described above.

### 12.4 Environmental Pollution

- (1998) Define ionosphere.
- (1998) Mention the ionospheric layers that exist during the day time.
- (2000) What is the importance of the following layers of the atmosphere?
  - The lowest layer
  - The ionosphere
- (2007) Give a summary of location, constitution and practical uses of the stratosphere, ionosphere, and mesosphere.

- (2010) Define the ionosphere and give one basic use of it.
- (2010) Why is the ionosphere obstacle to radio astronomy?
- (2013) Explain why the small ozone layer on the top of the stratosphere is crucial for human survival
- (2013) Electrical properties of the atmosphere are significantly exhibited in the ionosphere.
  - What is the layer composed of and what do you think is the origin of such constituents.
  - Mention two uses of the ionosphere.
- (2013) Briefly explain on the following types of environmental pollution:
  - Thermal pollution.
  - Water pollution.
- (2014) Describe the sources and effects of the following pollutants on the environment:
  - Air pollution.
  - Radiation pollution.
- (2016) What is meant by aerial environment? Give two examples.
- (2016) Describe three ways at which the aerial environment is threatened.
- (2017) Give two factors which determine whether a planet has an atmosphere or not.
- (2017) Briefly explain the major causes of the following types of environmental pollution:
  - Water pollution.
  - Air pollution.