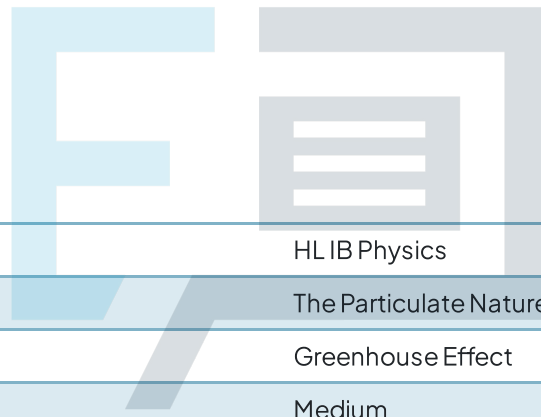




Greenhouse Effect

Question Paper



Course	HL IB Physics
Section	The Particulate Nature of Matter
Topic	Greenhouse Effect
Difficulty	Medium

Exam Papers Practice

To be used by all students preparing for HL IB Physics
Students of other boards may also find this useful

Question 1

Which factors affect the amount of solar power incident on a given point on the surface of the Earth?

- I. Weather conditions
- II. Latitude
- III. Position of the Earth in its orbit of the Sun

- A. I and III only
- B. I and II only
- C. I, II and III
- D. III only

[1 mark]

Question 2

The solar constant is quoted as an average rather than an absolute value. Which statements correctly explain this?

- I. The Earth follows an elliptical orbit around the Sun
- II. The Earth rotates on an axis which is tilted at 23.5° to the plane of its orbit
- III. The energy output of the Sun varies according to an 11-year cycle

- A. I only
- B. II and III only
- C. I and III only
- D. III only

[1 mark]

Question 3

Certain gases, for example carbon dioxide and methane, are categorised as greenhouse gases because they:

- A. Transmit incoming radiation from the Sun and then absorb outgoing radiation from the Earth
- B. Absorb incoming radiation from the Sun and also absorb outgoing radiation from the Earth
- C. Reflect incoming radiation from the Sun
- D. Reflect outgoing radiation from the Earth

[1 mark]

Question 4

Some of the energy incident on the surface of the Earth is emitted as infrared radiation. Why does this cause a 'greenhouse effect'?

- A. The radiation becomes trapped in the troposphere
- B. The radiation heats the upper atmosphere
- C. The radiation is absorbed by the atmosphere and is re-radiated in all directions
- D. The radiation is absorbed by the upper atmosphere then all re-radiated back to the surface of the Earth

[1 mark]

Question 5

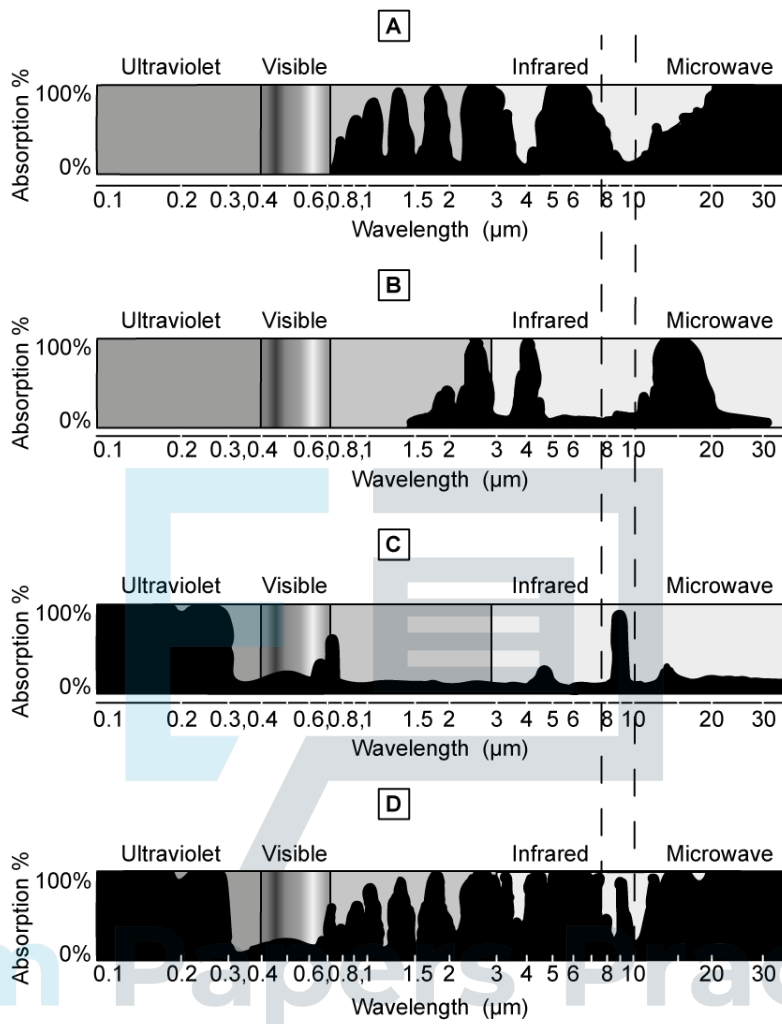
Which two assumptions are made when calculating the solar constant?

A.	I. The Earth is in an elliptical orbit around the Sun II. The Sun's output varies during its 11-year sunspot cycle
B.	I. Radiation from the Sun is incident on the Earth for one second II. Radiation from the Sun is incident on one square meter of the Earth
C.	I. Radiation is incident on the Earth, parallel to its surface II. The Earth is at its maximum distance from the Sun
D.	I. Radiation is incident perpendicular to the Earth's surface II. The Earth is at its mean distance from the Sun

[1 mark]

Question 6

Which diagram shows the absorption spectra for ozone?



[1 mark]