

# GEO PHYSICS AND ASTRONOMY

01.

I	II	III	IV	V	VI	VII	VIII	IX	X
E	E	D	C	C	A	D	A	A	B

@ 01 Mark

02.

I	II	III	IV	V	VI
A	B	C	D	E	J

@ 1 mark

03. (a) An earth quake is a sudden vibration of the earth crust caused by rapid movement of the earth's rocky outer layer. (01 mark)

(b) i) Hypocentre (0½ mark)

→ Point where earth quake originate

ii) Epicentre (0½ mark)

→ Point on the ground immediately above the focus of an earth quake.

(c) i) Global warming is the increase in surface temperature of the earth due to increase in the amount of green house gases such as CO<sub>2</sub> in the atmosphere. (01 mark)

ii) Gases contributing to global warming

- Carbon dioxide (0½)

→ Burning of fossil fuels and wood. (0½)

- Methane (0½)

→ Natural gas, fermentation of decaying plants (0½)

- Nitrous oxide (0½)

→ From ploughing the soil and from burning of fossil fuels such as Coal and Petroleum. (0½)

- Chlorofluoro - Carbons (CFCs.) (0½)
- (0½) —• Aerosols, Sprays and refrigerants
- Ozone (0½)
- Ozone layer of the atmosphere. (0½)

04.

(a) i) Volcano - is a rupture on the earth crust that allows molten rock (magma), volcanic ash and gas to escape from the earth's interior. (01)

ii) Non Renewable energy sources are the sources of energy which can not be turned into use again after being used (01)  
Eg: Coal, Petroleum and Natural gas

(b) i) Merits of Volcanoes (02 marks)

- 01 {
- They add nutrients to the soil
  - Contribute to soil formation
  - Lead formation of island and mountains

Demerits of Volcanoes.

- 01 {
- They pollute environment
  - They destroy property and vegetation
  - Lead loss of plants and animal lives
  - Emit toxic gases which can harm living things

ii) Hazards of earth quakes (02 marks)

- Lead to land slides and avalanches
- Can cause Tsunamis



- They lead to gross destruction of infrastructure and property.
- They can tilt the ground and change direction of rivers.

(c) i) Disadvantages of non-sustainable energy sources (01 mark)

- They lead to pollution of the environment
- They lead to environmental destruction through excavations
- They may lead to death of living things around places where such resources are extracted.
- May lead to loss of bio-diversity and imbalance in the ecosystem
- They result to locking of nutrients and elements in their waste products.

ii) Application of energy generated from water. (02 marks)

- Production of electricity
- Cooling machines in factories.
- Driving machines used in various industries.

05. (a) i) Astronomy is the study of the origin, composition and motion of bodies in outer space. (01 mark)

ii) Importance of Astronomy (03 marks)

- Measurement of time and development of calendars.
- Navigation in high seas uses

## Knowledge of Astronomy.

- Space exploration uses the knowledge of Astronomy.

⑤ i) Galaxy is a grant collection of billions of stars and bodies which revolve around them while Planet is a large spherical object which revolves around a star and which has cleared its neighbourhood by its gravitational force. (01 mark)

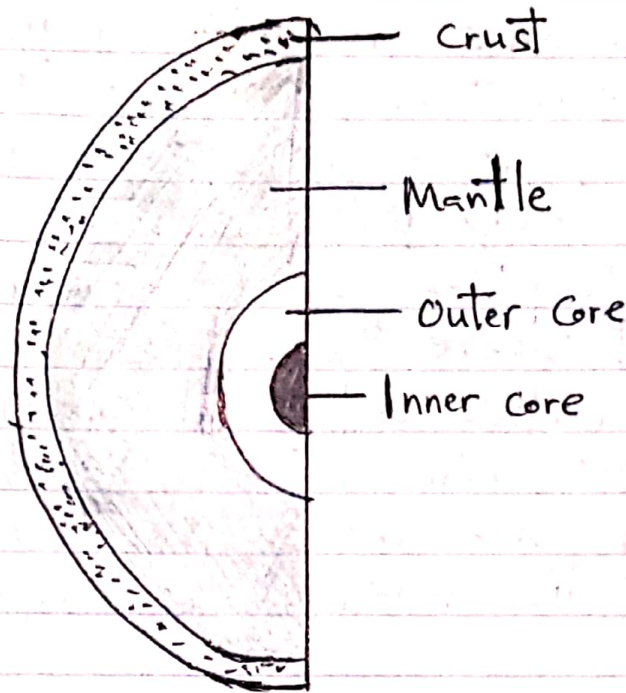
ii) Characteristics of a planet. (03 marks)

- It must be orbiting a star.
- It is massive enough to assume a spherical shape due to its gravity.
- It must have cleared its neighbourhood of most objects due to its gravity.

⑥ Importance of stratosphere to living things on the Earth's surface. (01 mark)

- It contains ozone which absorbs harmful radiations from outer space.
- It has air which supports life and other process on Earth.
- Aeroplanes fly in this layer.





DRg - 03  
lab - 06

07.

- (a) i) Asteroids are astronomical bodies smaller than planets that orbit the sun. (0½)
- ii) Astronomy is the study of the origin, composition and motion of bodies in the outer space. (0½)

- (b) i) Constellation is a small group of stars that form a pattern when viewed from the earth where as Galaxy is a giant collection of billion of stars and bodies around them. (0½ marks)
- ii) Meteor is an Asteroid which enters the earth's atmosphere and burns completely before reaching the ground where as Meteorites are asteroids that enter the earth's atmosphere and reach the ground before they are completely burnt. (0½ marks)

© How TIDES ARE FORMED . (05 marks)

- The moon's gravitational pull tries to pull everything around it including the Earth; but since the earth is heavy the moon only pulls the waters of the earth which bulge outwards towards it to a point where the moon's pull balances the earth's pull on the waters. When this happens, water on that side bulges towards the moon. Since the earth rotates on its axis two tides occur each day.

08.

(a) i) Zodiac light is the faint diffuse and roughly triangular white glow visible in the night sky extending from near the sun.

(01)

ii) Uses of the Earth satellites . (03 marks)

- The moon leads to ocean tides.
- Man-made satellites help to reflect radio waves used for communication and so facilitate communication between different parts of the earth.

(b) i) Jovian planets is the name given to the four biggest planets in the solar system and whose surfaces are not solid but gas. These are Jupiter, Saturn, Uranus and Neptune (01½)

• Terrestrial planets are planets whose surfaces are solid. They are also called inner planets. They are Mercury, Venus,



## Earth and Mars .

\* ii) Bodies in the solar system are kept in their position by a combination of gravitational force and their velocity .

© i) Morning star is the name given to the planet VENUS when it appears in the East before sunrise . (012)

ii) The 12 months of the year (02 marks)

→ Through Astronomy man was able to determine the beginning and end of the Month by observing the phases of the Moon . It also determined the year from the changing position of sunrise.

09. The force that keeps the earth in its position is the gravitational force which is the attractive force existing between any two objects that have mass .  
(15 marks)

10 .

(a) Layers of Atmosphere (06 marks)

- Troposphere .
- Stratosphere .
- Mesosphere .
- Thermosphere .
- Exosphere .

(b) • Troposphere — Most weather activity occurs in this layer

- Stratosphere - The layer absorbs ultraviolet radiations which are harmful to both animal and plant life on earth.
- Mesosphere - Most meteors burn in this layer while entering the earth's Atmosphere.
- Thermosphere - This layer plays an important role in communications.
- Exosphere - Also important layer for communications. This is the region where satellites orbit the earth. (05 marks)

© The ionosphere - Is the lower part of the thermosphere with a high concentration of charged particles called ions and free electrons. (04 marks)

11. (a) Global warming is the increase of the average temperatures near or on the surface of the earth as a result of what is known as green house effect. (01 mark)

- (b) • Carbon dioxide - Clearing and burning Vegetations.
- Methane - Agricultural activities
  - Dinitrogen oxide - Combustion of fossil fuels in vehicle and power stations.



- Chlorofluorocarbons — Sources of CFCs are Fridges, Air Conditions and Aerosols.

@ 02 marks

- ③ • Increase in the temperature of the oceans
- Rise in sea levels. @ 1 mark
  - Change in the world's climatic patterns
  - Acidification of the oceans.

- ④ • Implementation of energy - Conservation measures to reduce the use of fossil fuels. This measure includes use of public transport to minimise on the number of vehicles on the road.

- Use of cleaner alternative source of energy such as solar and wind.
- Check on deforestation and replant more trees to absorb Carbon dioxide.

(02 marks)

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