

Q1 (a) What is solar and lunar eclipses? Give the types of solar eclipse.

1. SOLAR ECLIPSE:

Solar eclipse occurs when moon moves between the Earth and the sun, during its orbit around the Earth and east obstruct sunlight from reaching the Earth.

- During the solar eclipse, moon casts a shadow on the earth.
- Solar Eclipse occurs during the new moon phase.
- It happens once every eighteen months.
- It is not safe to look directly to the sun during solar eclipse.

2. Types of Solar Eclipse:

(a) Total Solar Eclipse:

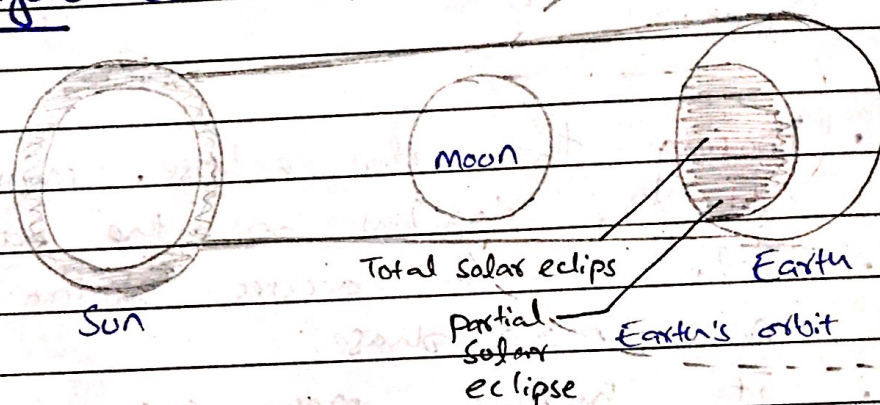
Total solar eclipse occurs when moon completely covers the sun.

(b) Partial Solar Eclipse:

It occurs when moon only partially covers the disc of the sun.

(c) Annular Solar Eclipse:

It occurs when moon appears smaller than sun and a ^{bright} ring of sun appears visible from the Earth.

Figure: Solar Eclipse3. LUNAR ECLIPSE:

Lunar eclipse occurs when earth moves between the sun and the moon and obscure the moon from sun's light.

- The Earth casts a shadow on moon.
- Lunar eclipse occurs during the full moon.

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- It happens twice every year.
- It is usually safe to look at so lunar eclipse.

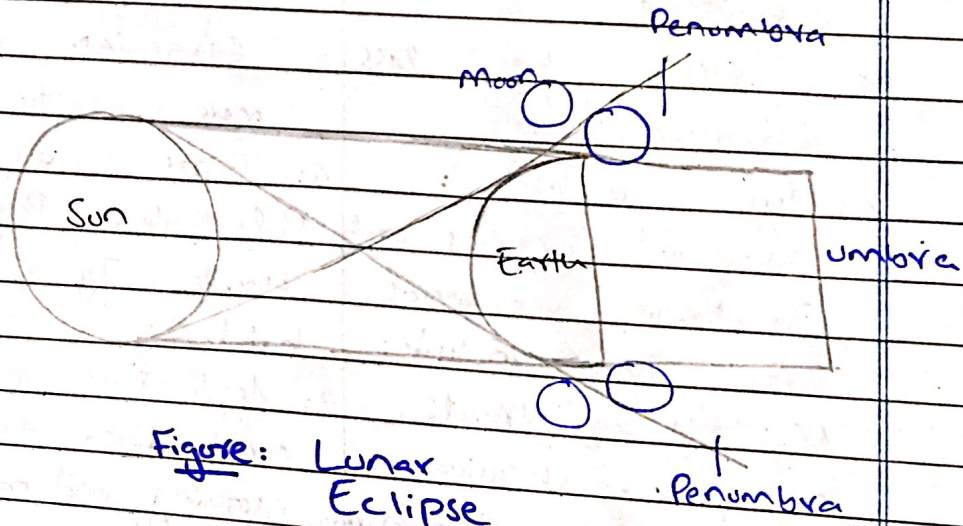


Figure: Lunar Eclipse

(b) Differentiate between ceramics and plastics and discuss the types and applications of ceramics.

1. CERAMICS

1: Ceramics are non-metallic inorganic solids made up of clay.

2: Main elements of ceramics include silicon, aluminium, oxygen and oxides.

3: Ceramics have high melting point

PLASTICS

2: Plastics are made up of large organic molecules

3: The molecules of plastics are composed of long chains of carbon.

3: Plastics do not have high

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point and are thermal resistors.

resistance to heat.

4: Ceramics are brittle

4: Plastics are non-brittle.

5: Ceramics have less elasticity.

5: ~~Ceramics~~ ^{Plastics} are more elastic

6: Types include :
Advanced ceramics and
Traditional ceramics

6: Types include :
Polyethylene, Polyvinyl-
chloride, Tyflon,
baklite.

7: Applications include:
Military equipments,
aerospace, abrasives,
and computers & electronics.

7: Applications include :
construction, utensils,
clothing and packaging.

2. TYPES OF CERAMICS :

Ceramics are divided into 2 types :

Application Based Classification of Ceramics

Advanced Ceramics

Electroceramics

→ Electronic substrate,
Package ceramics

→ Magnetic ceramics

→ Optical ceramics

→ conductive ceramics

Advanced Structural Ceramics

nuclear ceramics

Bio ceramics

Auto-motive

Ceramics

Traditional Ceramics

→ Whiteware

→ Brick and
Tile

→ Cement

→ Refractories

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3. Applications of Ceramics:

(a) Consumer Usage:

Ceramics are used in homes like glassware, pottery and home electronics.

(b) Aerospace:

Ceramics are used in the formation of parts of space shuttle, rocket & space stations.

(c) Military Equipments

Structural components for ground, air and naval vehicles are made from ceramics.

(d) Medical (Bioceramics):

Ceramics are used in dental fillings and bone fillings, and in bone implants.

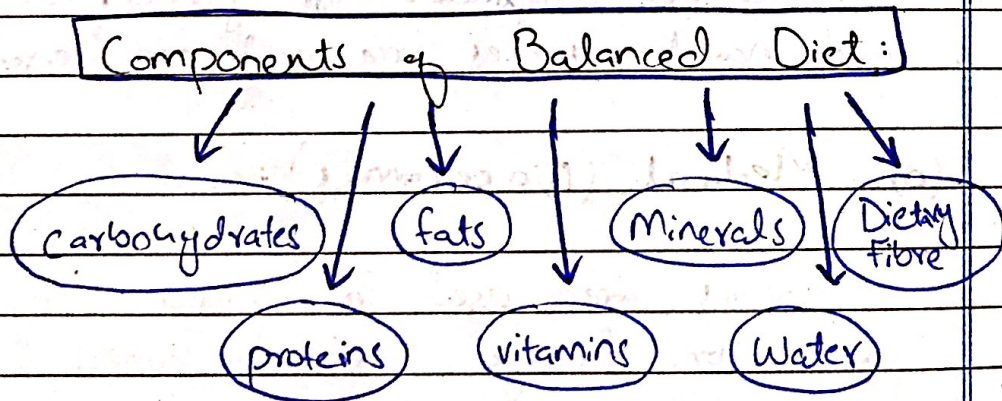
(e) Computers and Electronics:

Computer parts like, resistors, insulators, superconductors and capacitors are made of ceramics.

(d) What is imbalanced diet?
What are the major consequences
of un-balanced diet?

1: IMBALANCED DIET :

A diet that is not balanced which contains more carbohydrates and fats and less proteins, processed and artificially sweetened food, increased intake of salt, minimal intake of fruits, vegetables, fish and whole grains is known as imbalanced diet.



2. MAJOR CONSEQUENCES OF UNBALANCED DIET:

(a) Malnutrition :

An unbalanced diet leads to malnutrition which is an

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imbalance between the nutrients ^{the} body needs to function and the nutrients it gets.

(b) Bowel Changes:

A lack of daily nutrients affect human's gut, often leading to lasting discomforts such as lazy bowel syndrome, dysbiosis and disvitaminosis.

(c) Decrease Energy levels (Fatigue):

Diets high in salt, sugar and processed foods can lead to spikes and crashed in blood sugar, leaving you feeling lethargic and low in energy.

(d) Obesity:

It also leads to obesity which is the excessive accumulation of body fat that can be dangerous to health.

(e) Reduced Immunity:

Eating poorly can also decrease body's ability to fight off illness. Research was found that those with a poor diet are more likely to fall ill.

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(c) Differentiate between the food contamination and food adulteration.

FOOD CONTAMINATION

FOOD ADULTERATION

1: Food contamination is the presence of harmful toxic chemicals and pathogens in food products that can cause diseases in living beings.

1: Food adulteration is the act of intentionally debasing the quality of food offered for sale either by the admixture or substitution of inferior substances.

2: In most cases, contamination of food happens naturally.

2: Adulteration of food is completely a man-made process.

3: Food contamination is an unintentional process.

3: It is done intentionally.

4: It does not have any economic gains.

4: It is motivated by economic gains.

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Names of Food Contaminants:

1: Furan

2: Benzene

3: Acrylamide

4: Perchlorate

5: Bacterias