

Day: _____

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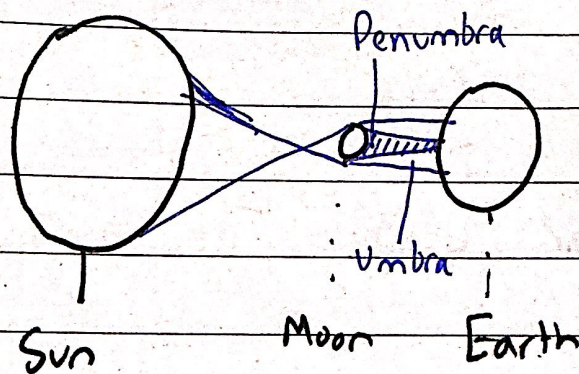
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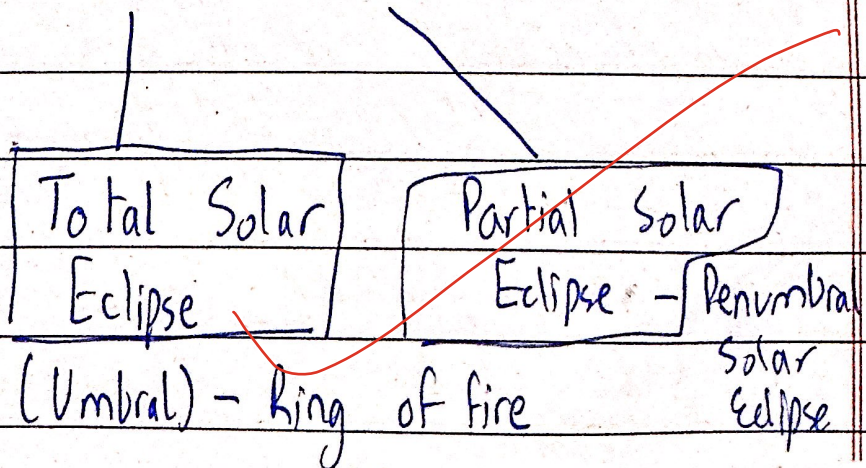
Question no. 1

What is Solar Eclipse

Solar eclipse is the phenomenon that occurs when the sun, moon and earth are situated linearly and the moon blocks the sun rays from reaching the earth.

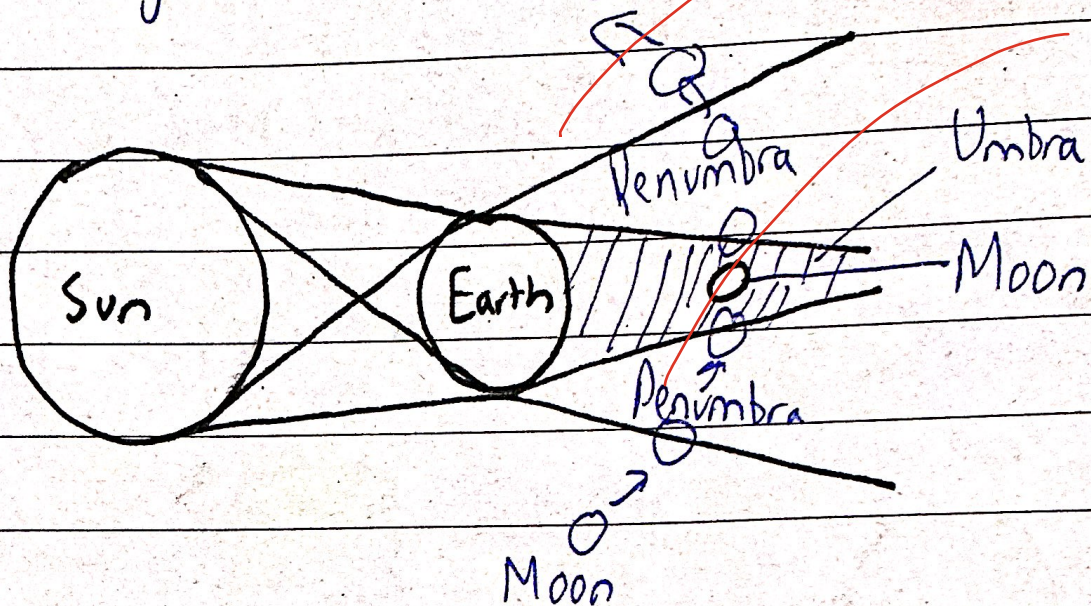


Types of Solar Eclipse



Lunar Eclipse:-

The phenomenon when sun, earth and moon are arranged linearly and earth blocks the sun rays from reaching the moon



Types of Lunar Eclipse

- Partial Penumbral Eclipse
 - Partial Penumbral lunar eclipse
 - Partial Lunar eclipse
 - Complete lunar eclipse (Blood Moon)
- (Umbral Lunar eclipse)

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Properties	Solar Eclipse	Lunar Eclipse
Configuration of earth and moon	Moon in between sun and earth	Earth between Moon and Sun
Moon phase	New Moon	Full Moon
Safe to look at eclipse	No	Yes
Duration	A few minutes	~ 90 minutes
Frequency	Once every six months	Once every 18 months

(b)

Ceramics:-

Ceramics are inorganic non metallic solids formed by heating ^{of clay}. They have several types

Types of Ceramics

1. Traditional Ceramics

- Earthenware
- Glass

2. Advanced Ceramics

- Electroceramics
 - Optical Ceramics
 - Magnetic Ceramics
 - Piezoelectric Ceramics
- Advanced Structural Ceramics

Applications of Ceramics

1. Used in porcelain dishes
2. Used in crockery
3. Used in heat resistant baking utensils
4. Used in electric works

Plastics

Plastics are organic compounds composed of organic polymers. They are of two main types

Types of Plastics

(Can be remoulded
with heating)

Thermoplastics

- ↳ Poly Vinyl Chloride (PVC)
- ↳ Poly Ethylene
- ↳ Polystyrene

(Can be moulded
only once)

Thermosetting plastics

- ↳ Unsaturated Polystyrene
- ↳ Epoxy

Applications of Plastics

1. Used in PVC pipes
2. Used for shopping bags
3. Used for insulation of roofs
4. Used in packing materials

Ceramics

1. Are heat resistant

2. Costlier than plastics

3. Brittle

4. Non-Ductile

5. Non-malleable

Plastics

1. Somewhat resistant to heat

2. Cheaper than ~~plastic~~ ceramics
not-brittle

3. Ductile and Malleable

4. Ductile

5. Non malleable.

(C)

Properties	Food Contaminants	Food Adulterants
1. Definition	Unintentional addition of harmful substances to food	Intentional addition of substances to food for commercial gain
2. Types	1. Physical 2. Chemical 3. Artificial	Non-specific

3. Example

1. Physical (hair in food)
2. Chemical (salmonella in meat)
3. Artificial (Pesticide residue)

1. Milk in water
2. Food colors in food
3. Cheap oil instead of ghee

4. Commercial
Motives

None

Yes

5. Medical
Problems

More Frequent

Less Frequent

6. Detection

Chemical labs

Interrogation of source

7. Criminal
Liability

Only if leads to severe reactions

Yes ; depending on food laws.

8. Intention

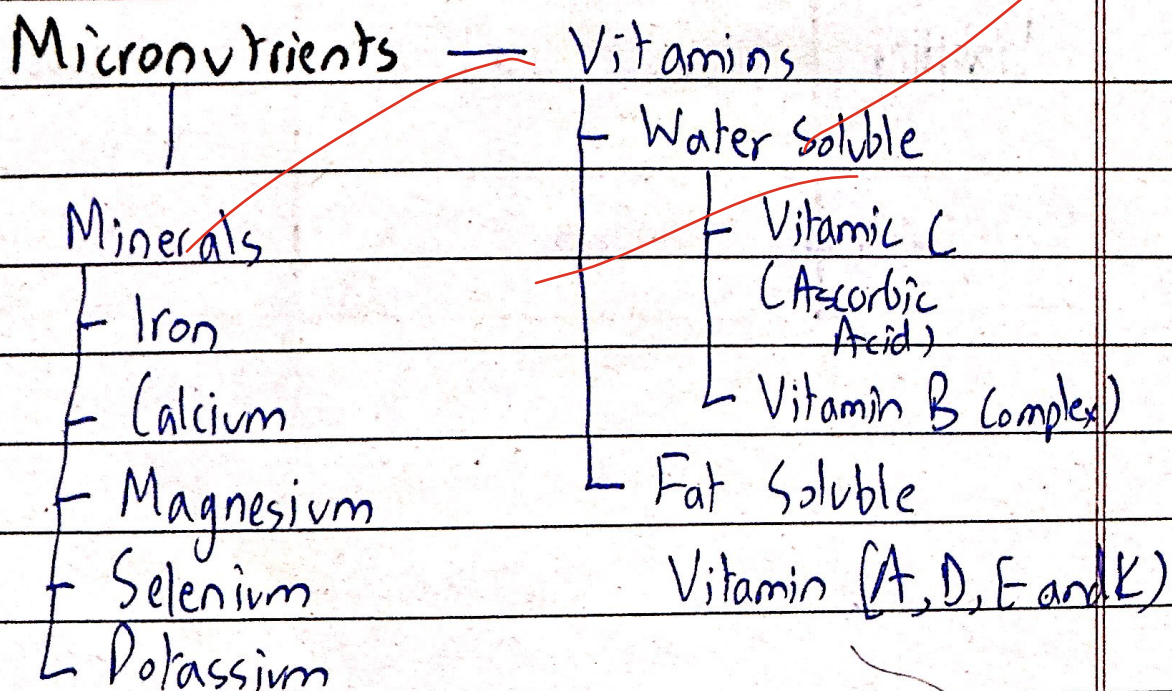
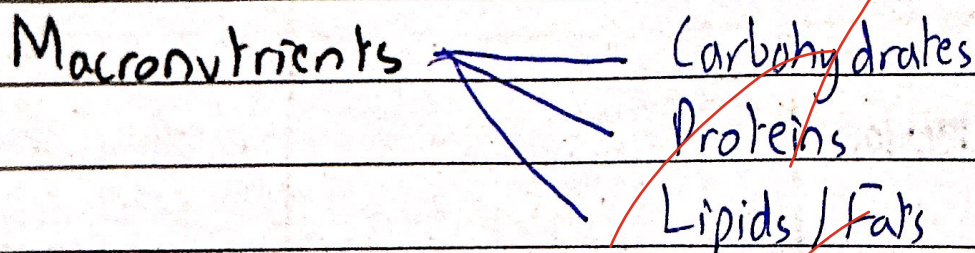
Unintentional

Deliberate

(d)

Imbalanced Diet

An imbalanced diet is a diet that is insufficient to provide basic nutritional needs. It can lack in either macronutrients (proteins, carbohydrate, lipids) or micronutrients (vitamins and minerals) or lack in both.



Major Consequences of Unbalanced Diet

Unbalanced diet could be due to deficiency or excess of macronutrients and micronutrients.

Deficiency can lead to malnutrition

Deficiency of food (starvation) → Marasmus.

Deficiency of proteins → Kwashiorkor

Combined effect → Stunted growth

Deficiency of — Iron — Anemia

Deficiency of Vitamin A — Night blindness

Vitamin C — Scurvy

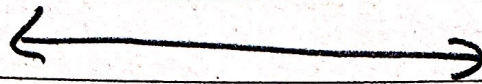
Vitamin D — Rickets

Vitamin K — Clotting disorders

Vitamin B complex — Beriberi,
Pellagra

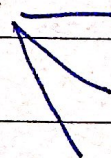
Excess of essential nutrients
can lead to medical anomalies

- Diabetes Mellitus
- Cerebrovascular Accident (Stroke)
- Raised blood pressure; hypertension
- Myocardial Infarction



Question no. 2

Food Preservation Methods

Several food preservation methods
exist to increase  food quality,
shelf life,
food appearance.

~~Information~~ Food preservation takes place
by preventing spoilage of food due
to microbial activity.

1. Traditional Food Preservation Mechanisms

These include:

1. Dehydration
2. Jugging
3. Curing

2. Modern Food Preservation Mechanisms

These include:

1. Canning
2. Refrigeration
3. Freezing

Advantages of Food Preservation

1. Improve food appearance
2. Improve food quality
3. Improve shelf life
4. Prevent spoilage
5. Are commercially beneficial to retailers

Disadvantages of food preservation

1. Can be costly (freezing and canning)
2. Can reduce ~~we~~ food quality
3. Traditional methods take more time

4. Antioxidants can ~~can~~ tamper with food.

(b)

Internal Structure of Earth

The internal ~~structure~~ of earth can be understood by its chemical composition and physical characteristics.

Chemical Composition of Earth

Crust - Aluminium Silicate

Mantle - Silicon, Magnesium

Core - Nickel, Iron

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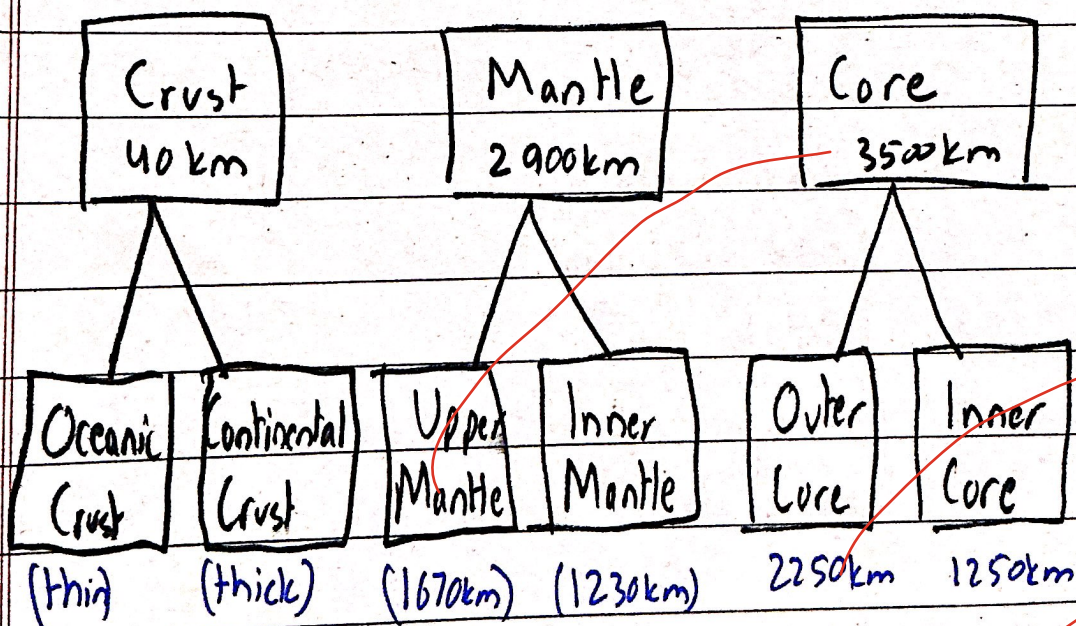
Physical Characteristics of Earth

1. Radius of Earth = 6400 km
- It consists of 4 main layers

Layers of earth

1. Lithosphere - Oceanic crust + upper portion of Upper Mantle
2. Asthenosphere - Rest of Upper Mantle
3. Mesosphere - Inner Mantle and Outer Core
4. Centrosphere - Inner Core

Earth



(C)

Electromagnetic Radiations

Electromagnetic radiations are waves that do not require a medium to travel. They are transverse waves between perpendicular magnetic and electric fields that travel in the direction of wave. In vacuum, they travel at a speed of light, $c = 3 \times 10^8 \text{ m/s}$.

Types of Electromagnetic Radiations

1. γ - Rays
2. X- Rays
3. Ultraviolet Rays
4. ~~X-Rays~~ Visible light
5. Infrared rays
6. Microwaves (M waves)
7. Radio Waves

All these waves travel with speed of light in vacuum.

Properties of Electromagnetic Waves

1. Travel with speed of light, c
 $c = 3 \times 10^8 \text{ m/s}$ in vacuum.

2. Obey laws of reflection, refraction, interference and diffraction

3. Obey the law $v = f\lambda$
 where $v = \text{velocity}$
 $f = \text{frequency}$
 $\lambda = \text{wavelength}$.

4. As speed of all electromagnetic radiation is same, their frequency and wavelength varies. (γ -rays have highest frequency and Radio waves have highest wavelength).

5. Visible light is composed of a spectrum between wavelength $420\text{nm} - 750\text{nm}$

Violet
 Indigo
 Blue
 Green
 Yellow
 Orange
 Red.

Applications of Electromagnetic Radiations

Their applications vary depending on the type of electromagnetic wave.

X-rays - Food sterilization

X-rays - Medical imaging

UV-rays - Sterilization, dental procedures.

Visible light - Photography

Infrared - Thermal imaging

Microwaves - Satellite communication

Radio Waves - Radar, Broadcasting

(d)

DRM :

DRM stands for Disaster Risk Management. It is the process of administration

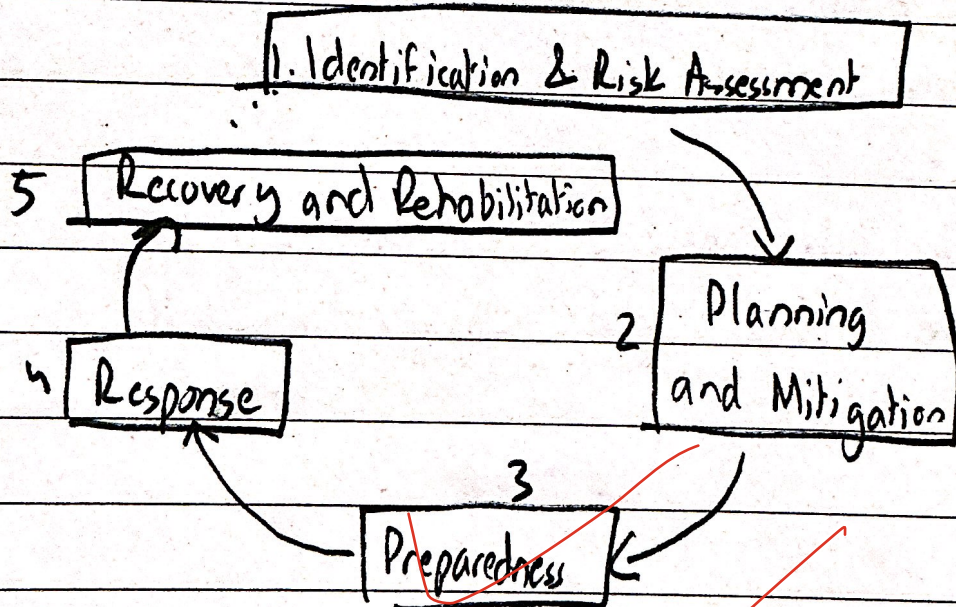
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decisions, skill building, capacity building for implementation of strategies, policies and programmes that limit the adverse impacts of natural and human induced disasters.

Components of Disaster Risk Management.

It is a very elaborate and scientifically designed process that includes Identification and Risk Assessment, Planning and Mitigation, Preparedness, Response, Recovery and Rehabilitation.



Importance of Risk Assessment in Disaster Risk Management.

Risk Assessment is the first step

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In responding to a disaster, it is the foundation of all future strategies.

→ It enables the team to get scientific and verifiable data regarding the upcoming disaster.

→ GIS and Geospatial is utilised to get an idea of probable damage and vulnerable sites.

→ It leads to planning for the response to disaster; capacity building, preemptive warnings, logistics and team formations.

→ It acts as a blueprint for all future recovery and rehabilitation endeavours.

