

Date: 20-08-24

Day: Tuesday

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Batch: 66

Subject: BSA

PART II

Section (I)

QNO 2 :-

- a) Define the term malnutrition, elaborate its major causes and consequences.

Malnutrition :-

Malnutrition refers to a condition where a person's diet does not provide adequate nutrients for proper health, growth and development. It can result from an imbalance in nutrient intake, whether from deficiencies, excess, or imbalance in nutrients.

Malnutrition is always categorized into two main types;

- 1) Undernutrition.
- 2) Overnutrition.

Major Causes :-

Some of the major causes

Causes of malnutrition are as follows;

1) Inadequate Dietary Intake:

- Insufficient food:

↳ limited access to food due to poverty or food scarcity.

- Unbalanced diet:-

↳ Lack of variety in food choices.

2) Health Conditions:-

- Chronic illnesses:-

↳ Disease that affect nutrient absorption or increase needs.

- Digestive Disorders:

↳ Diseases like celiac disease, Crohn's disease/Chronic diarrhea can affect nutrient absorption.

3) Environmental & Agricultural Issues:-

- Climate change:-

↳ Extreme weather events can disrupt food production and availability.

- Agricultural Practices:-

↳ Poor agricultural practices can affect the quality & quantity of food produced.

Major Consequences:-

1) Physical Health:-

- Growth Delays:-

In children, leading to stunted growth and developmental issues.

- Weakened Immunity:

Increased susceptibility to infections.

- Chronic Diseases:

Such as cardiovascular disease and diabetes.

2) Cognitive and Psychological Effects:-

- Impaired Cognitive Functions

Learning difficulties and poor academic performance.

- Mental Health Issues:-

Higher risk of anxiety and depression.

(b) Differentiate between food contamination and adulteration?

Food contamination and adulteration are two distinct issues that affect food safety, but they arise from different causes and have different implications.

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	Aspect	Food Contamination	Food Adulteration
①	Definition	Unlimited presence of harmful substances	Deliberate addition of harmful/inferior substances.
②	Causes	Bacteria, virus, parasites, pesticides.	- Cheaper ingredients - Unauthorized additives.
③	Sources	Dirty equipment, Environmental pollution	Fraudulent Practices, cost-cutting measures
④	Consequences	- Illnesses (stomach bugs), Health issues (infection)	- Poor quality - Health risks (allergies, toxins)
⑤	Intent	Accidental	Intentional.
⑥	Prevention	- Safe food handling, good hygiene, clean environment.	- Strict regulations - Quality checks

(c) What are computer Buses?
Differentiate RAM and ROM?

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Computer Buses:-

Computer buses are communication systems that transfer data between various components of a computer. They consist of a set of pathways (electrical or optical) and protocols that allow data to travel between the processor, memory, and peripherals.

Types:-

- Data Bus
- Address Bus
- Control Bus

Aspect	RAM (Random Access Memory)	ROM (Read-only memory)
1) Definition	Type of volatile memory used for temporary data storage and quick access.	A type of non-volatile memory used for permanent storage of firmware and software.
2) Volatility	Volatile: Data is lost when the power is turned off.	Non-Volatile: Data is retained even when the power is off.

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Purpose	stores data and instructions that are actively used or processed by the CPU.	Stores firmware, system BIOS, & essential instructions that do not change.
Read/Write	Data can be both read from and written to RAM.	Read-only: Data is typically written during manufacturing & cannot be modified easily.
Speed	Generally faster than ROM.	Typically slower than RAM.
Usage	Used for running applications, operating system processes and active data.	Used for booting the computer & storing critical system instructions.

(d) What are geo-stationary satellites?
Distinguish natural and artificial satellites, how

many satellites of Jupiter are there?

Geo-Stationary Satellites:

Geo-stationary satellites are satellites that orbit the Earth at the same speed the Earth rotates. This means they stay in the same spot above the equator, always facing the same part of the earth.

Difference between Natural and Artificial Satellites :-

Aspect	Nat. Satellite	Art. Satellite
Definition	Objects that orbit planets or other bodies naturally	Man-made objects launched into space.
Examples	- The Moon - Moons of Jupiter	GPS, Weather satellites, Space telescopes
Origin	Formed naturally (from space rocks)	Built and launched by people.

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Purpose	Influence natural events (tides)	Serve specific functions; (communication, weather)
Duration	Exist as long as their main body (earth) exists.	Operate as long as they work or until their mission ends.
Movement	Orbit based on gravity.	Follow planned paths set by their launch.

Artificial Satellites of Jupiter:-

Jupiter has a large number of artificial satellites, few notable satellites are as follows;

- 1) Jupiter Icy Moons Explorer
- 2) Europa Clipper.
- 3) Juno.

Q NO 3 :

- (a) What is meant by the term double circulation. Briefly describe how the heart is adapted to keep blood flowing in a double circulation.

Double Circulation :-

Double circulation means blood travels through the heart twice in each full cycle of the body.

Types :-**1) Pulmonary Circulation :**

Blood goes from the heart to the lungs to get oxygen, then back to the heart. This is where oxygenated blood gets

2) Systemic Circulation :

Oxygenated blood is pumped from the heart to the rest of the body and then returns to the heart.

Heart Supports double Circulation :-

The heart supports double circulation with its four chambers: the right side

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pumps deoxygenated blood to the lungs, while the left side sends oxygenated blood to the body. The septum keeps blood separate, and valves ensure one-way flow. The right side has lower pressure for the lungs and the left side has higher pressure to circulate blood throughout the body efficiently.

(b) Liver is a chief chemist.
Comment.

The liver is often referred to as the chef of the body because it plays a central role in various biochemical processes. It performs numerous functions that are critical for maintaining overall health.

1. Metabolism :-

The liver processes nutrients from food, converting them into energy or storing them for later use. It

regulates blood sugar levels by storing and releasing glucose.

2. **Detoxification:-**

It detoxifies harmful substances, such as drugs and alcohol, and converts them into less toxic forms that can be excreted.

3. **Synthesis of Proteins:-**

The liver produces important proteins like albumin (maintains blood volume) and clotting factors essential for blood clotting.

4. **Bile Production:-**

It produces bile, which helps in the digestion and absorption of fats and fat-soluble vitamins.

5. **Storage :-**

The liver stores essential vitamins and minerals, such as vitamin A and iron, and releases them as needed.

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(C) Comment the greenhouse effect is a blessing. Also discuss enhanced greenhouse effect and its relation in global warming.

The Greenhouse Effect: A Blessing

The greenhouse effect is a natural process that warms the Earth's surface. It occurs when certain gases in the Earth's atmosphere, known as greenhouse gases, (such as carbon dioxide, methane & water vapor), trap heat from the sun. This trapped heat keeps the Earth's temperature at an average of about 15°C (59°F), which is necessary for life.

Without this natural greenhouse effect, the earth would be too cold to support most life forms.

Enhanced Greenhouse Effect:-

It results from increased greenhouse gases due to human activities, such as

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- burning fossil fuels and deforestation. This leads to:
- Global Warming:
Rising average temperature.
 - Melting Ice Caps:
Increase sea levels.
 - Extreme weather:
More intense storms and heatwaves.
 - Ecosystem Disruptions:
Changes in habitats and species.

Relation to Global Warming:

The enhance of greenhouse effect is directly related to global warming. As human activities increase the concentration of greenhouse gases in the atmosphere, more heat is trapped, leading to a gradual increase in earth's average temperature. This process is a major driver of global warming which has wide spread environmental and climate consequences.

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- (d) Write a note on the following:
- Working of GPS.
 - Working of Mobile phones.

a) Working of GPS :-

Global Positioning System (GPS) is a navigation system that determines your exact location anywhere on earth using satellites.

How it works :-

1) Satellite :-

Orbit earth and send signals with their location and the time the signal was sent.

2) Receiver :-

Picks up signals from at least four satellites.

3) Triangulation :-

Calculates the distance of each satellite and determines the exact location by intersecting these distances.

4) Correction :-

Adjusts for errors to provide accurate location data.

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b) Working of Mobile Phones:-

Mobile phones operate through a network of interconnected cells and towers.

How they work :-

1) Signal Transmissions:-

Mobile phone sends a signal to the nearest cell tower.

2) Cell Towers:-

The tower forwards the signal to a central switching center.

3) Routing:-

The switching center directs the signal to the recipient's cell tower and then to their phone.

4) Reception.

The recipient's phone receives and converts the signal back to voice or text.

Mobile phones use a network of cell towers and switching centers to ^{enable} communication.