

Part II

SECTION A

Q. 3

(i) How global warming can be reversed?

→ Global Warming:

The increase in temperature of the earth because of trapped Green House Gases such as CO_2 , CH_4 , CFCs in the atmosphere is called global warming. The Ultraviolet radiations coming from sun, after hitting earth, trapped in atmosphere and result in gradual increase of earth's temperature.

→ How global warming can be reversed?

Global warming can be reduced by taking following measures.

(a) Reduction in emission of GHGs:

The reduction in emission of green house gases such as CH_4 , CO_2 , CFCs etc can reverse global warming. To reduce GHGs, the international agreements like Kyoto Protocol, Montreal Agreements need to follow truly.

(b) Aforestation and Reforestation:

Trees are

natural absorber of CO_2 . One tree annually absorbs 25-ton CO_2 . To reverse global warming, afforestation and reforestation drives can help. Afforestation leads to plantation on barren lands while reforestation leads to re-planting of trees.

(c) Use of Green Technology:

Another way to reduce GHGs in the environment is use of green technology. Green technology involves solar panels, electric vehicles, recycling and energy-efficient appliances. It can conserve environment by reducing emission of green house gases.

(d) Switch to Renewable Energy Resources:

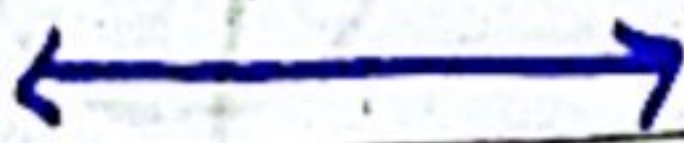
By switching to renewable energy resources, such as wind energy, solar energy and hydro power, the amount of CO_2 emission in the environment can be reduced which ultimately reverse the global warming.

(e) Filtering Industrial Processes:

The

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Industrial emission is major contributor in global warming. The direct release of gases into the environment is increasing global warming. To filter out industrial emission by using techniques of zig-zag pipes, Cobatta machines etc, the global warming can be reversed.



(ii) Ceramics?

→ Definition:

Ceramics are inorganic hard metal, non-metal or metalloids in which electrons are bonded ionically or covalently. They are burnt material.
 * Ceramics can be crystalline and non-crystalline.

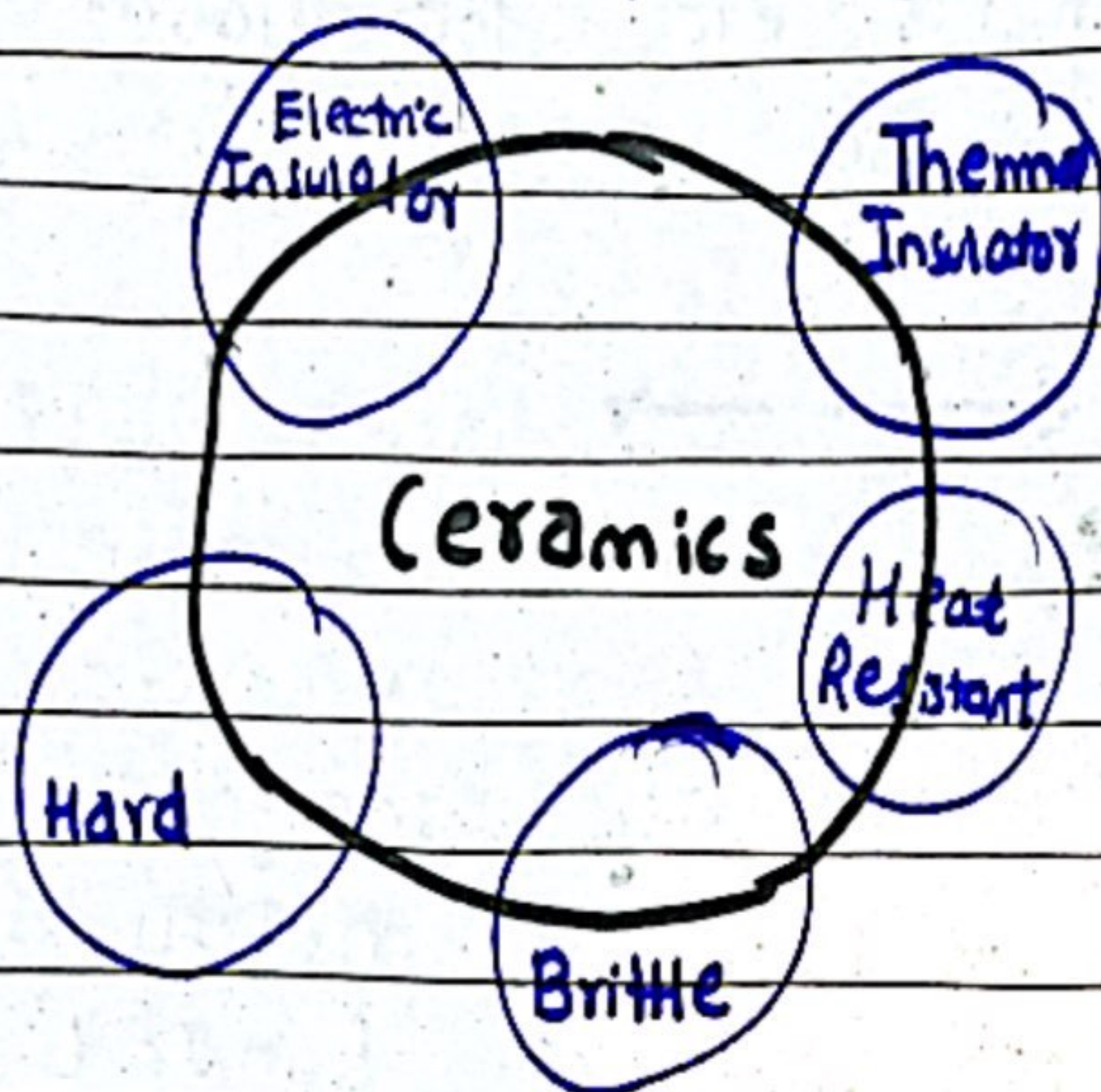
Crystalline	Non-Crystalline
They have 3D orderly arrangement of atoms.	They do not have orderly arrangement of atoms.
They can be formed on heating.	They can not be formed on heating.

→ Properties of Ceramics:

Following are the

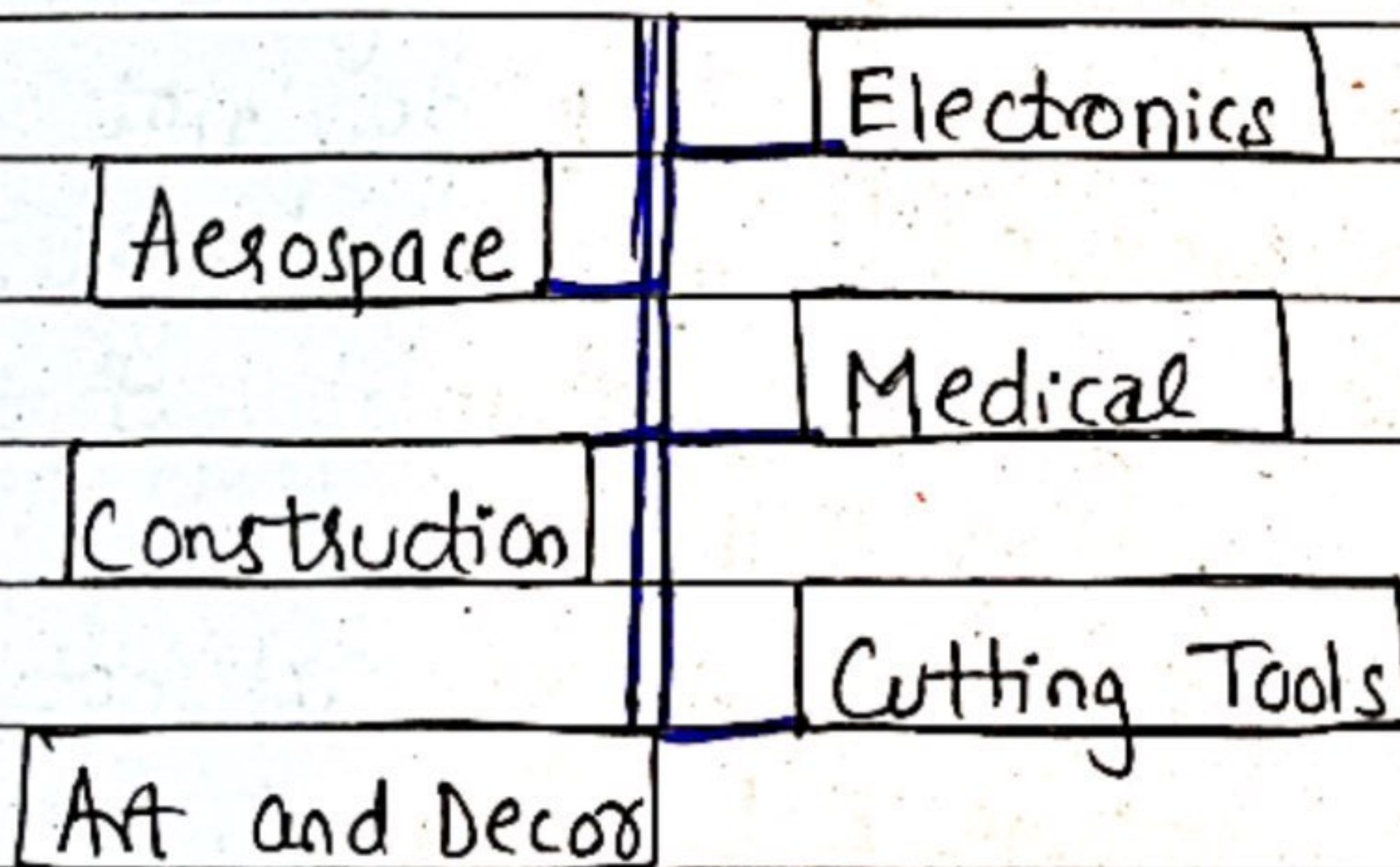
properties of Ceramics.

- (a) They are hard material.
- (b) They are thermal insulators.
- (c) They are electrically insulators.
- (d) They are brittle.
- (e) They are heat resistant.



→ Applications of Ceramics:

Following are the application of ceramics.



(a) Electronics:

Ceramics are used in electric equipments such as semi-conductors, insulators and in smart-phones.

(b) Aerospace:

Ceramics are used as component in heat shields, rocket component and thermal production.

(c) Medical:

Ceramics are used in manufacturing of medical equipments such as dental crown and prosthetics.

(d) Construction:

Ceramics are used in tile, bricks, refractory material and other construction processes.

(e) Cutting Tools:

Ceramics are used in cutting processes as tool for machinery.

(f) Art and Decor:

Ceramics are used as art and decorative purposes such as pottery and sculptures.

(c) Working of Optic Fibers and Mobile phones?

→ Working of Optic Fibers:

Optic Fibers are thin and narrow strand. They are working on the principle of Total Internal

Reflection.

Total Internal Reflection is phenomena in which light hits a medium with a lower refractive index at steep angle and gets totally reflected back into the original medium.

In fibres optic, when light enters into it, it bounces back and fro. It does not come out due to structure of optics fibres. It reflected back and off till the end.

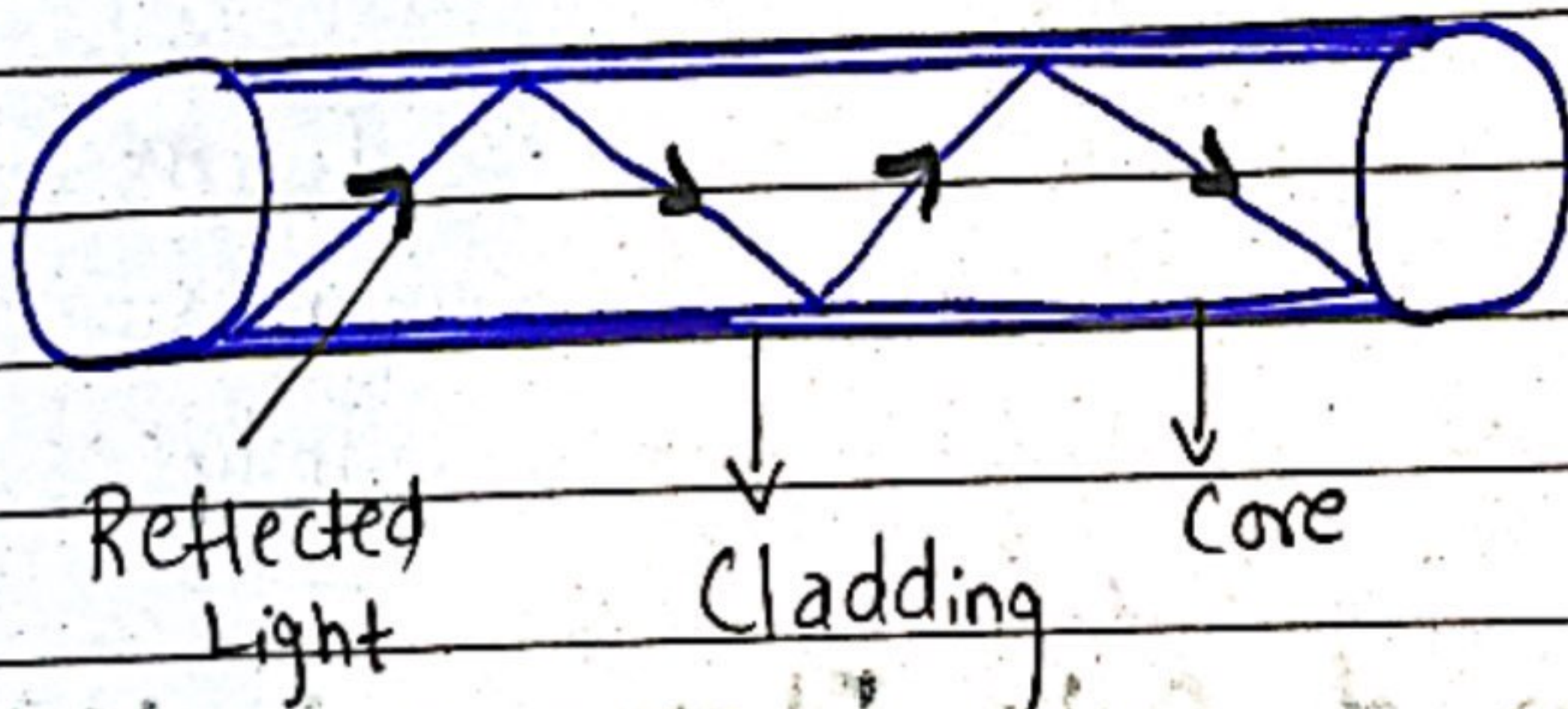
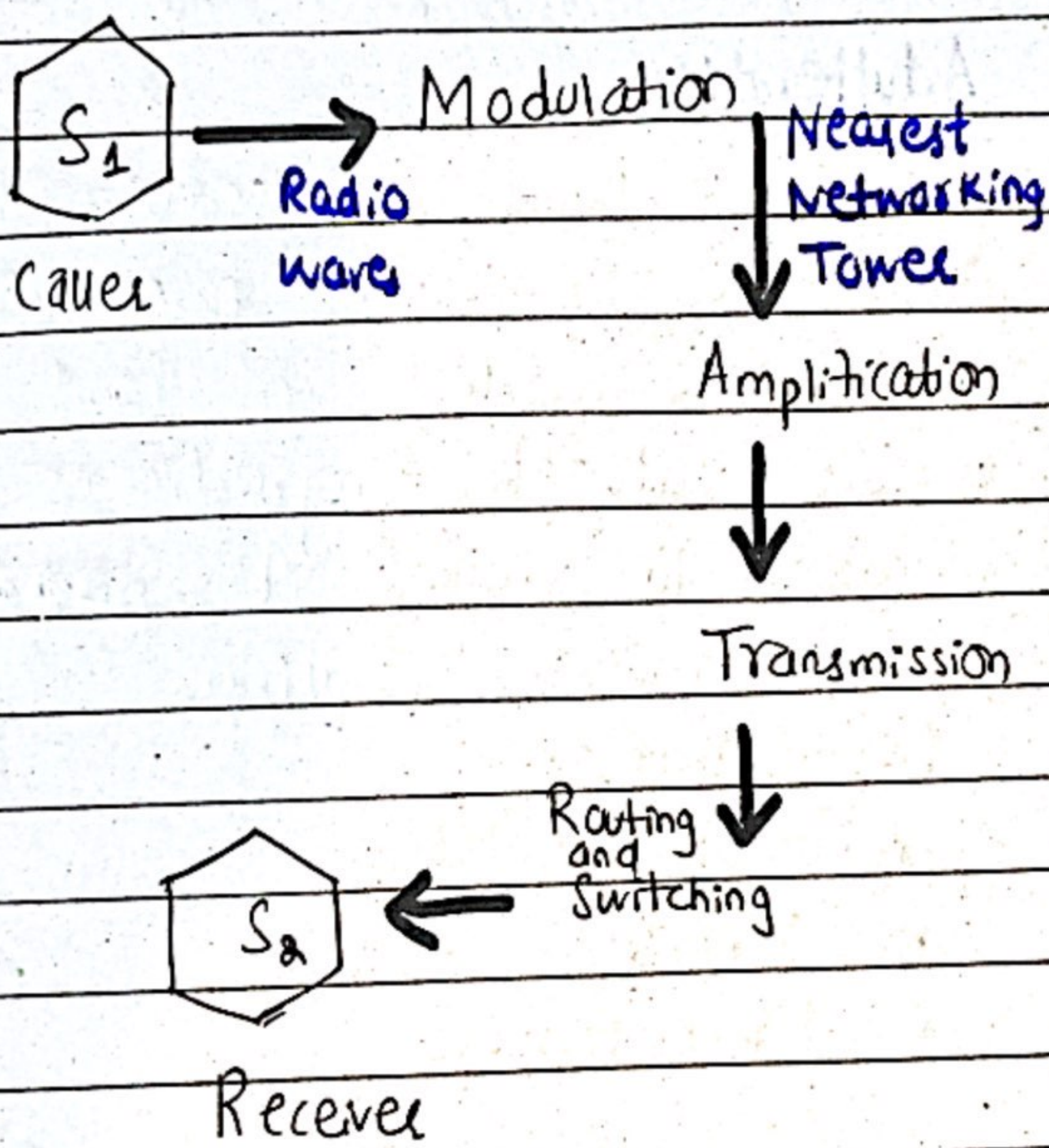


Fig: Optic Fiber

Core is internal part and cladding is outer part which is thick and prevent losses of light.

Working of Mobile Phone:

Mobile phones are meant and use for communications. Mobile phone works in area where network is present. The radio waves of caller device are received by near network tower. After modulation, it receives by receiver, as mobile switching center finds the recipient's network and routes.



(d) Define the following?

(i) Food Additives

Food additives are added in food to enhance colour, taste and texture of food.

For-example;

- * Emulsifiers
- * Cake agents
- * Food colours

(ii) Food Adulteration

Food adulteration is a phenomena in which harmful substances are added in food or remove valuable ingredients from food to make it adulterated or unsafe for consumption.

For-example;

- * Heavy metals
- * Viruses
- * Sand, stones

(iii) Food Preservatives

Food preservatives are addition of preservative in food to keep it safe and fresh.

For-example;

- * Freezing
- * Dehydration
- * Salting

(M) Food Contamination

Food contamination is a process in which food got contaminated with harmful particles. It can be biological, physical and chemical contamination.

For example;

- * Bacteria (E-coli)
- * Viruses
- * Parasites



Q.5
(M)

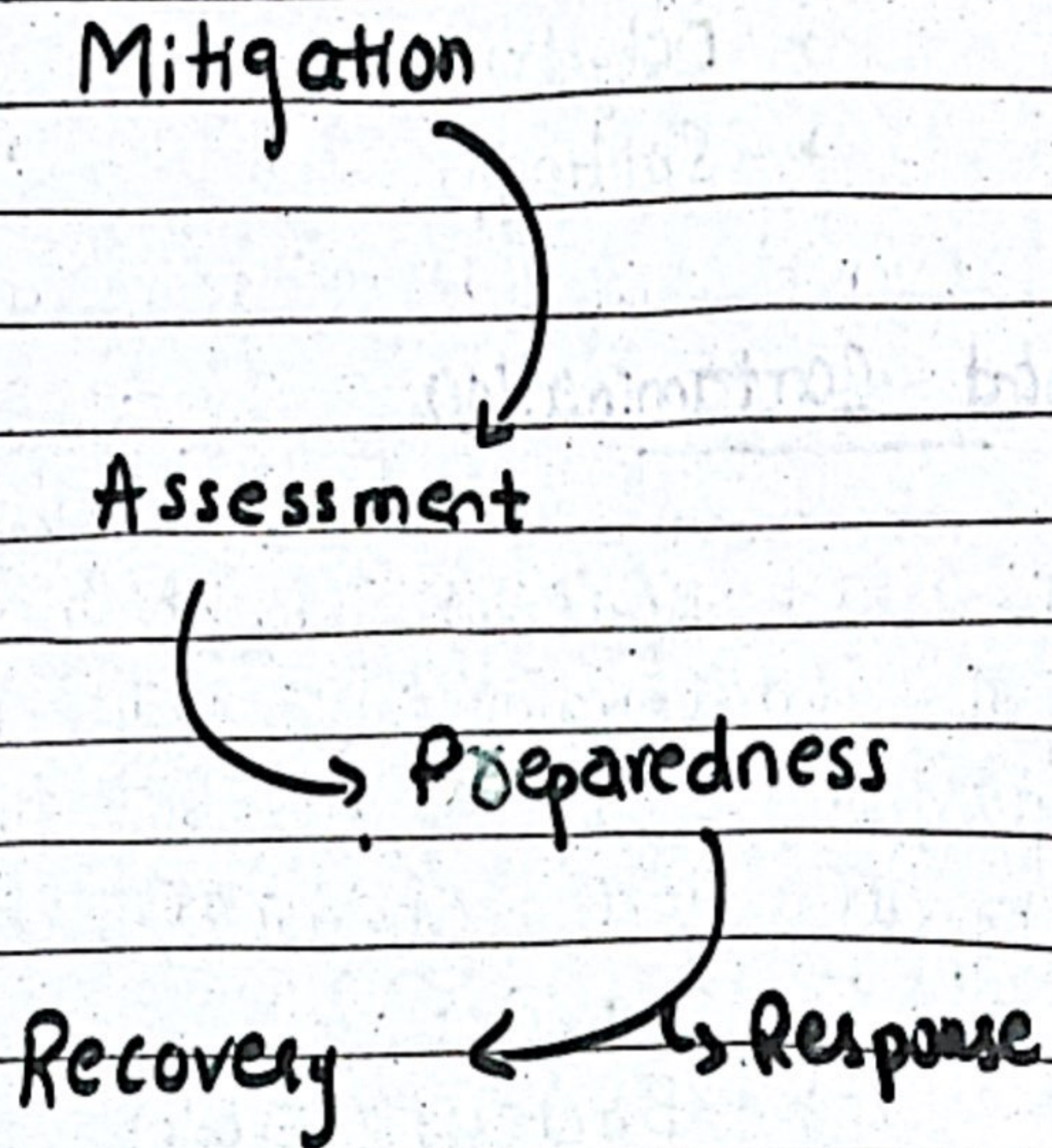
DRM ? Importance ?

→ Disaster Risk Management:

Disaster

Risk Management (DRM) is a process of identifying, assessing and reducing risks to minimize the impacts of disasters on communities and ecosystem.

It consists of different steps to early control the damage and rescue affectees.



Disaster Risk Management

→ Risk Assessment:

Risk assessment is a first and foremost step in Disaster Risk Management.

It adds: in assessment of possible outcomes of natural disasters at social and economic levels.

- * Risk assessment involves;
- a) Hazard identification
- b) Vulnerability analysis
- c) Likelihood impact
- d) Risk evaluation

→ Importance of Risk Assessment:

Following is

importance of risk assessment.

(i)

Reduce Losses

Risk assessment helps in reduction of losses by informing early and evaluation of people.

(ii)

Inform Decisions

Risk assessment informs decisions early. It is a proactive approach. The authorities incorporate assessment in their decisions.

(iii)

Enhance Resilience

Risk assessment enhances resilience of people by adaptability and building preparedness.

(iv)

Boost Preparedness

Risk assessment boosts preparedness by guiding people and policy-makers.

(v)

Allocate Resources

Risk assessment allocates resources to the area where it needed most to mitigate disaster.



b) Biofuels? Method of Production?

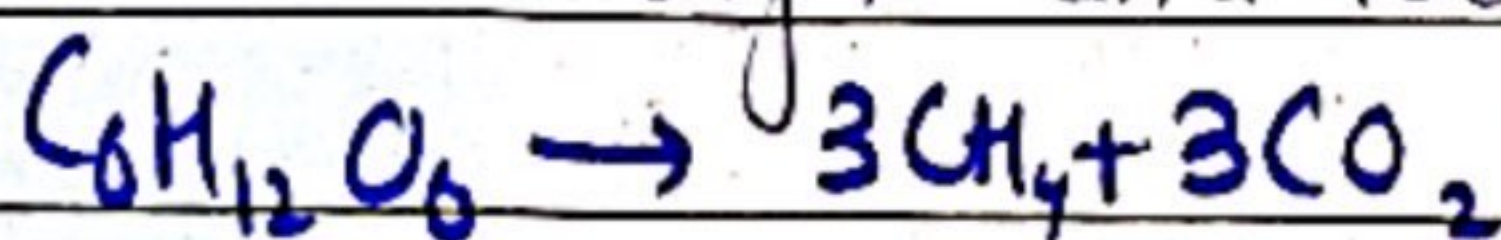
→ Biofuels:

Biofuels are fuels made up from organic matter like plants, waste and algae. They are renewable biological alternatives to fossil fuels.

Examples; Ethanol
Biodiesel
Biogas

→ Production of Biogas:

Biogas is produced through anaerobic digestion.



Feedstock collection

(gather manure, organic wastes)



Digester

(a tank where feedstock goes)

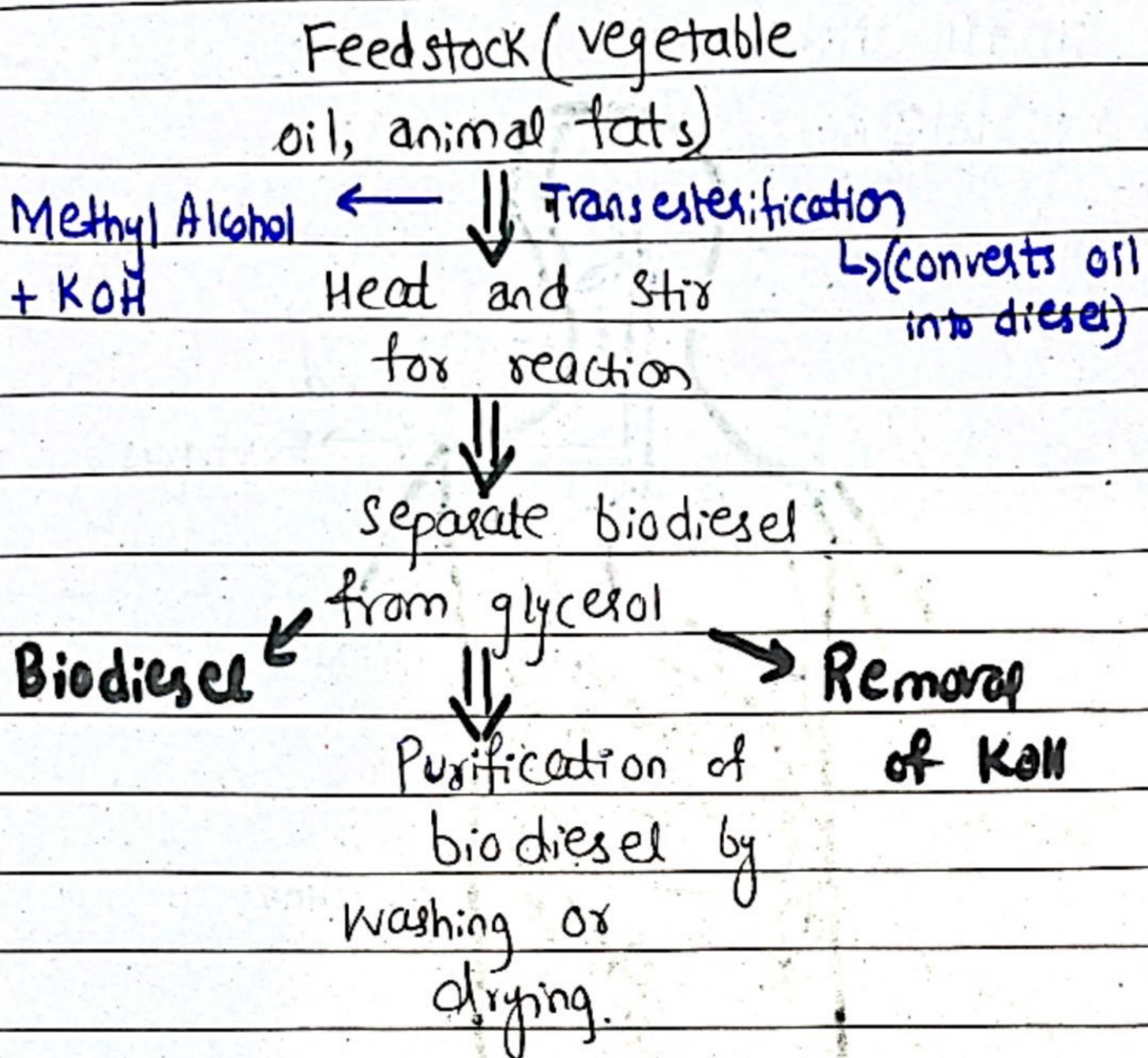


Anaerobic digestion:

* Micro-organisms break down waste without oxygen, producing bio gas.

Production of biodiesel:

Biodiesel production involves a process called transesterification.



c) Digestive system and Role?

→ Digestive system:

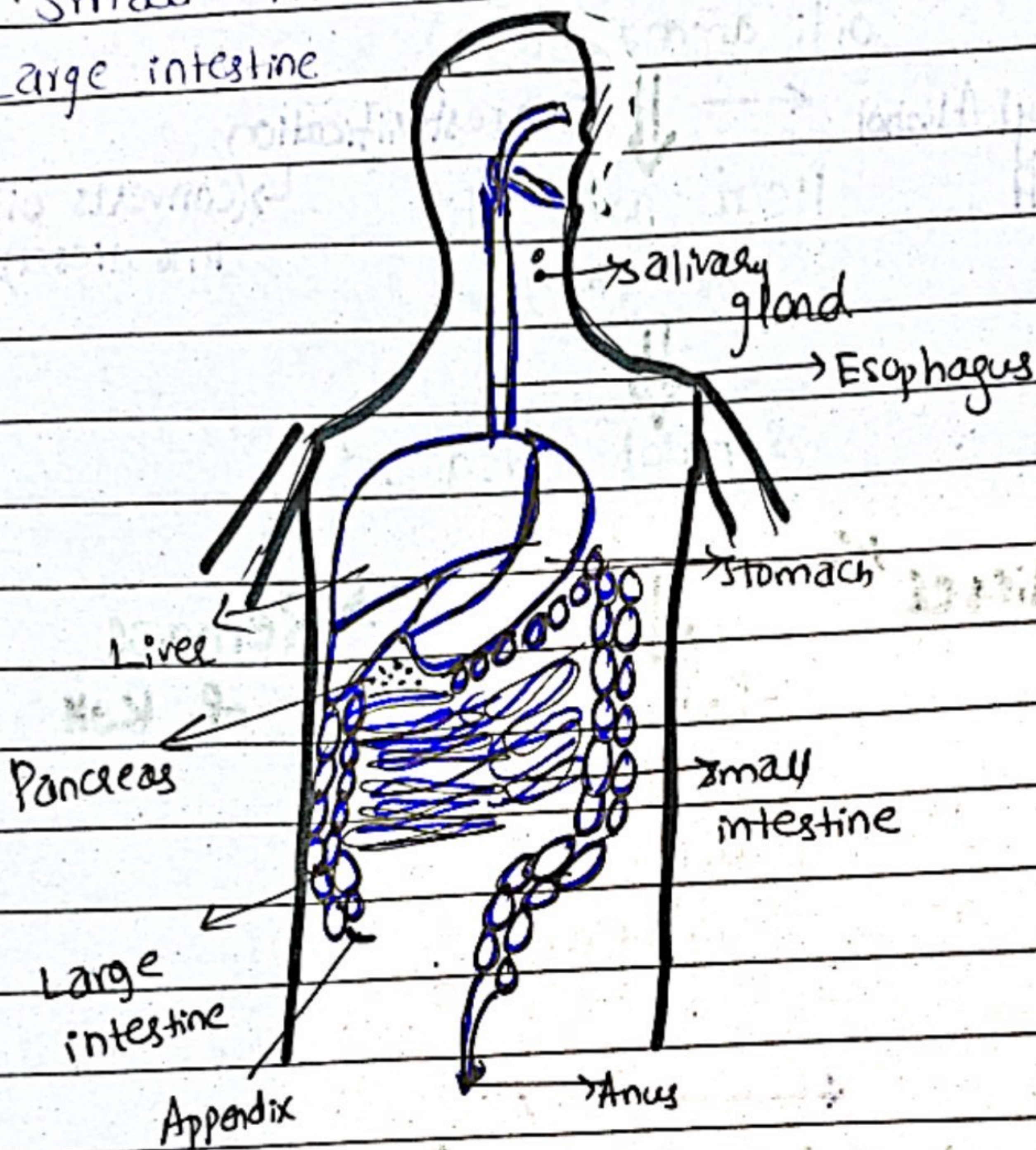
Digestive system consists of organs that involve in digestion of food. It involves breakdown of food into smaller particles.

* It involves following organs:

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- (i) Mouth
- (ii) Esophagus
- (iii) Stomach
- (iv) Pancreas
- (v) Liver
- (vi) Small intestine
- (vii) Large intestine



→ Role of Stomach:

Stomach is like a muscular bag. At upper end, there is pyloric sphincter and lower side is a Cardia sphincter. Between them is a stomach. It consists of 3-layers and different types of cells.

⇒ Mucous cell They release mucus.

⇒ Parietal cell They secrete HCl and kills the microorganisms.

⇒ Zymogen cells They secrete pepsinogen which changes the protein into peptones and polypeptides.

→ Role of small Intestine:

Small intestine is six-meter long. It has three parts:

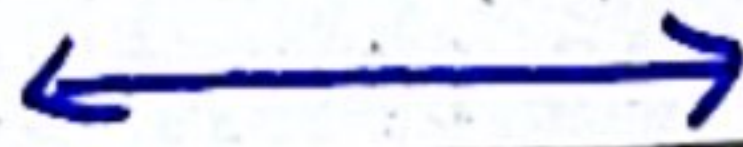
⇒ Duodenum When food enters into duodenum, it causes the release from pancreas and liver. They pour their secretions in duodenum. Duodenum itself secrete one enzyme called enterokinase.

⇒ Jejunum Food is completely digested into jejunum. Secretions of jejunum are collectively called intestinal juice.

⇒

Ileum

Absorption of food takes place in ileum. It has finger like projection called villi. It helps in absorption of food from jejunum.



d)

→

Plastics:

Plastics are synthetic materials that are synthesized from polymerization or polycondensation processes.

For-example: polyethylene
PVC

→

Types of Plastics:

Plastics are of two types.

⇒

Thermoplastic

Thermoplastic can be softened on heating and hardened on cooling. It can be altered in different shapes.

⇒

Thermosetting Plastic

Thermosetting plastic can not be moulded or altered once it is heated.

→ Properties of Plastics:

Following are the properties of plastics:

- (i) They are hard in texture.
- (ii) They are light in weight.
- (iii) They are durable.
- (iv) They can be moulded into different shapes.
- (v) They are thermal and electric insulator.
- (vi) They are resistant to corrosion.

→ Applications of Plastics:

Following are the applications of plastics:

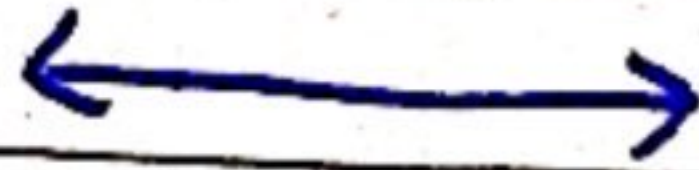
- (i) They are useful in kitchen utensils.
- (ii) They are used in making toys.
- (iii) They aid in packaging of bottles, containers etc.
- (iv) They are use in electronics such as phone cases and computer parts.
- (v) They are use in construction sector such as in pipes, insulation and roofing.
- (vi) They are use in medical equipments.

→ Environmental Risks:

Plastic pose

following environmental risks.

- (i) Burning of plastics form smog around and over.
- (ii) Plastics choked water channels and excretion pipes, lead to urban flooding.
- (iii) Plastics increase land pollution as they do not decompose.
- (iv) Plastics contaminate food chain.
e.g microplastics



SECTION-B

Q. 6

(A)

Woman is the "mother" of Anson.



(D)

The two numbers are 16 and 24,

$$= 16 : 24$$

$$2 : 3$$

$$\Rightarrow \text{Sum of } 16 + 24$$

$$= 40$$



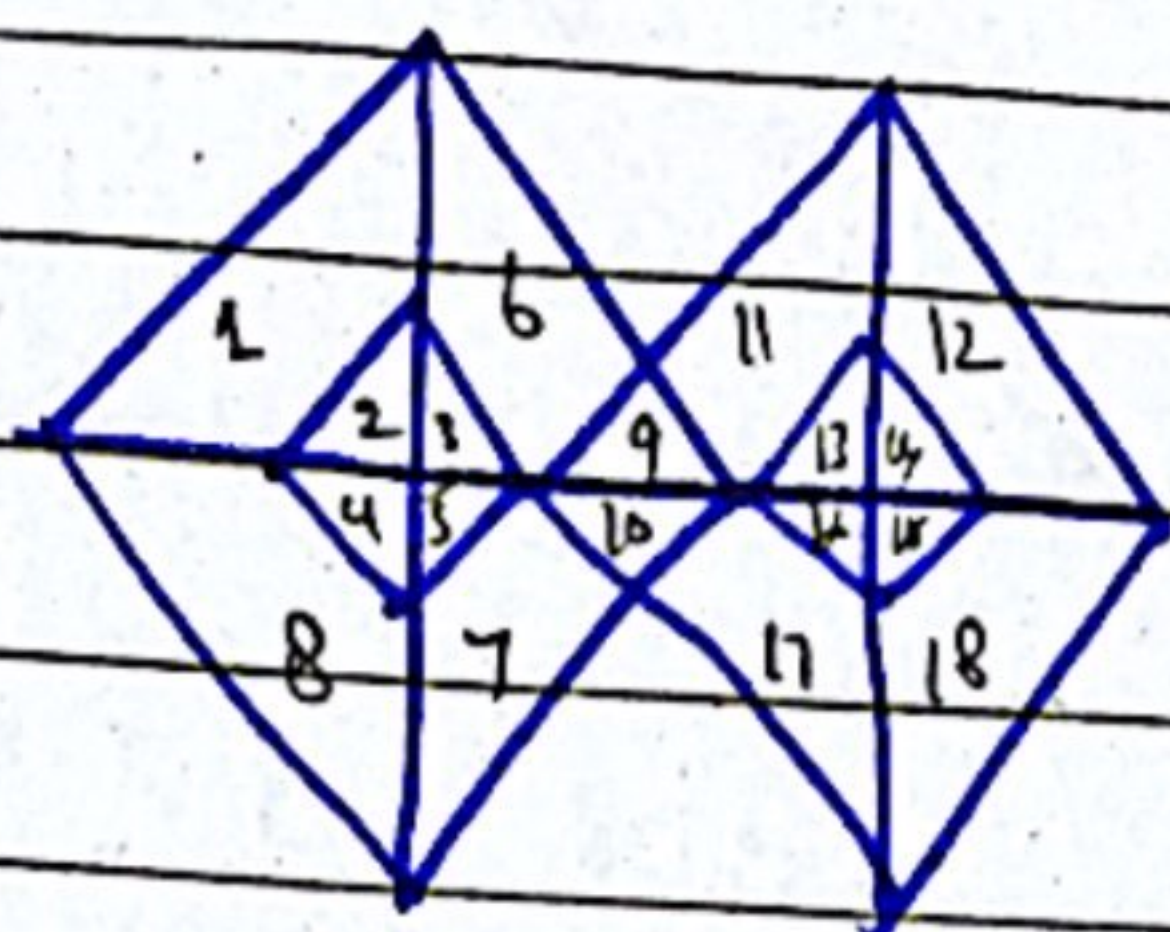
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Q.8

(A)

Total triangles in the figure
are = 18



(A)

The order of houses is like,

C D B A E

⇒ The middle house is B.

