

# Ceramics :-

## Definition :-

Ceramic is an inorganic non-metallic solid made up of clay. It is shaped and hardened by heating it to high temperature.

**Examples:** It is all around us. It includes things like tiles, bricks, plates, utensils. It is also found in products like watches, automobiles, space shuttles, appliances, etc.

## Properties of Ceramics :-

Due to the wide range of ceramics properties, it has diverse applications.

- Ceramics are hard and strong material.
- They are wear resistant and durable.
- They are corrosion-resistant.
- They are oxidation-resistant.
- Ceramics are brittle and have little elasticity.
- Ceramics are non-magnetic.

# Classification of Ceramics:-

Ceramics are attributed in two main categories

## 1. Application Based Classification:

This classification further divide Ceramics into two types:

- a) Traditional Ceramics
- b) Advance Ceramics

### a. Traditional Ceramics:

Traditional Ceramics include Whitewares, structural Clay Products, Brick and tile, Abrasives, Refractories, and cement.

### (b) Advanced Ceramics:

Advance Ceramics include electroceramics and Advance structural ceramics. Various Ceramics like magnetic, optical, conductive, nuclear Bio ceramic, Auto motive Ceramics are part of this type.

## Q2#6) OPTICAL Fiber

**Optics :-** Study of property of light and its propagation

### Optical Fiber

These are the strands of glass which are used to transmit light signals from one point to another in telecommunication

#### Structure:

Optical fibre has two main parts

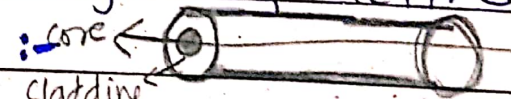
#### 1. Core :-

It is the central part having high density. It is generally made up of glass light propagates mainly along the core of the fibre. Core has high refractive index.

#### 2. Cladding :-

The core is surrounded by a layer of material called Cladding.

It is made of glass or plastic. It has low density and low refractive index.



### (iii) a GPS (Global Positioning System)

It is a navigation system to determine exact location (2D+3D) anywhere in the world.

This system provide capabilities to military, civil user around the world.

• It is the US-based system of satellite.

It consist of Three segments

- Space segment
- Control segment
- User segment

### (iii) b GIS (Geographic Information System)

It is a computer system for capturing, analyzing, storing geographically referenced information which is data identification according to the location

It plays an important role in an integrating technology.

Date:

## Q: Solid Waste Management:

**Def:-** The disposal of domestic refuse, commercial and industrial solid waste material is called Solid waste management.

It consist of garbage, waste treatment plants, construction debris and other material.

### Issues of Solid Waste Management:

- No proper waste collection system.
- Waste is dumped on streets.
- Different types of waste one not collected separately.
- Open burning is very common.

### Solid Waste Management system:

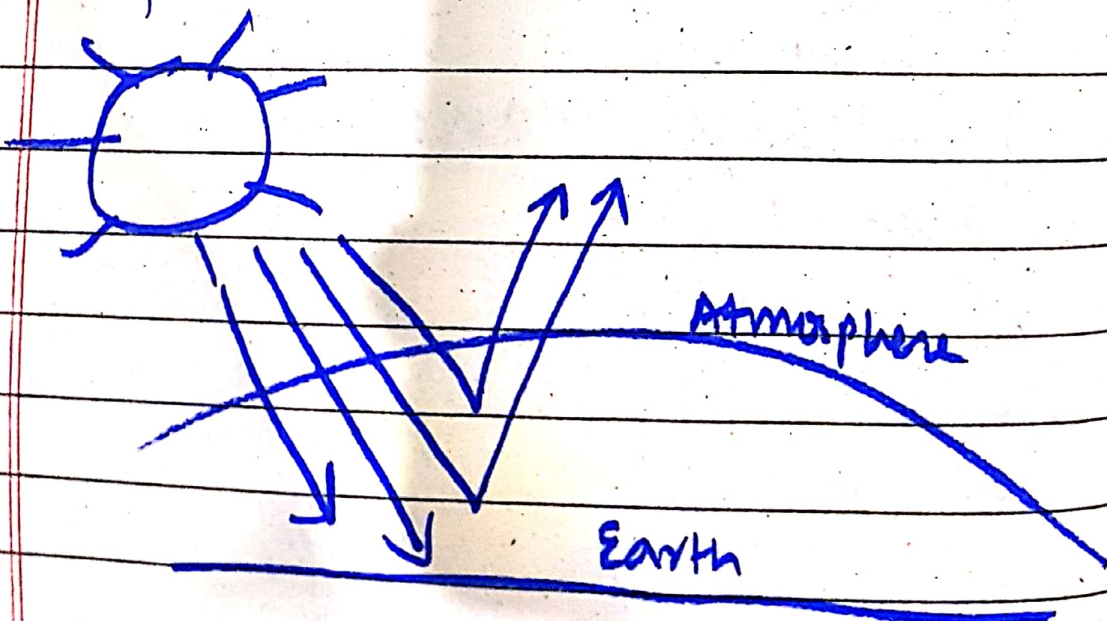
1. waste Generation
2. waste handling, processing
3. Waste Collection
4. waste Sorting
5. waste Transfer
6. waste Disposal

## Green House Effect :-

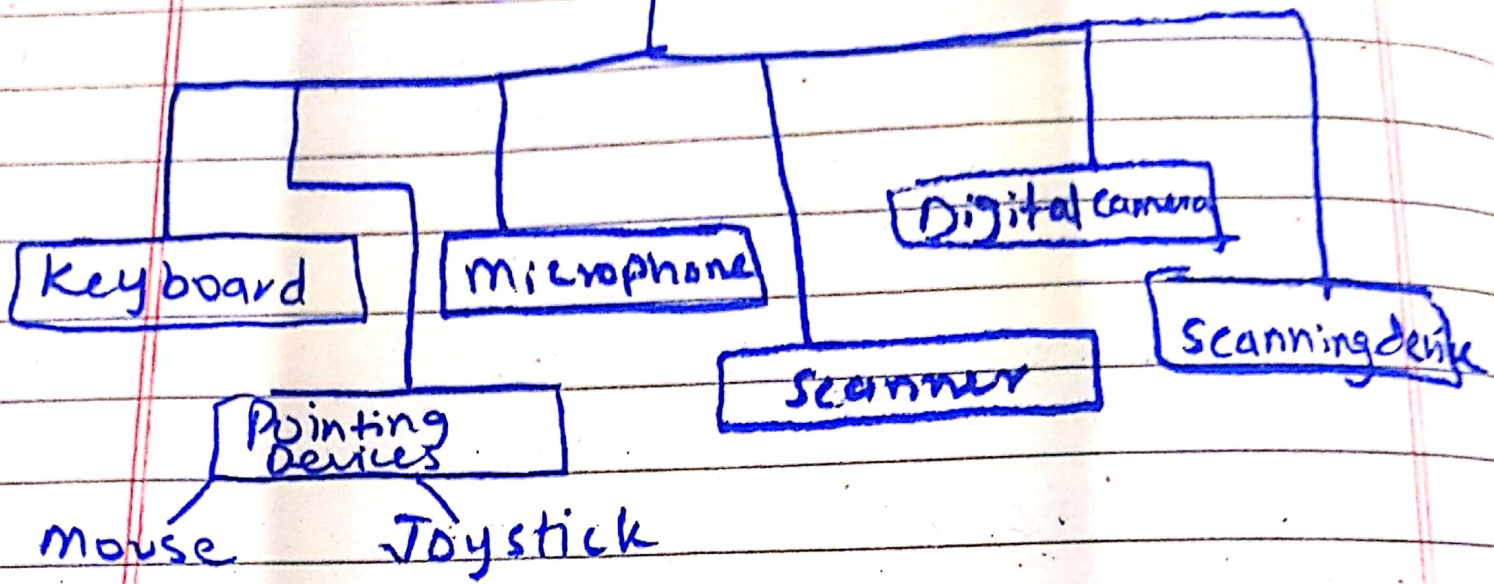
Green House gases acts like a blanket, making Earth warmer than it would do otherwise. This process is called GHE.

When sunlight reaches the Earth surface, some reflected back into space while some got absorb by Earth. The absorb one produce / release energy back into atmosphere as heat.

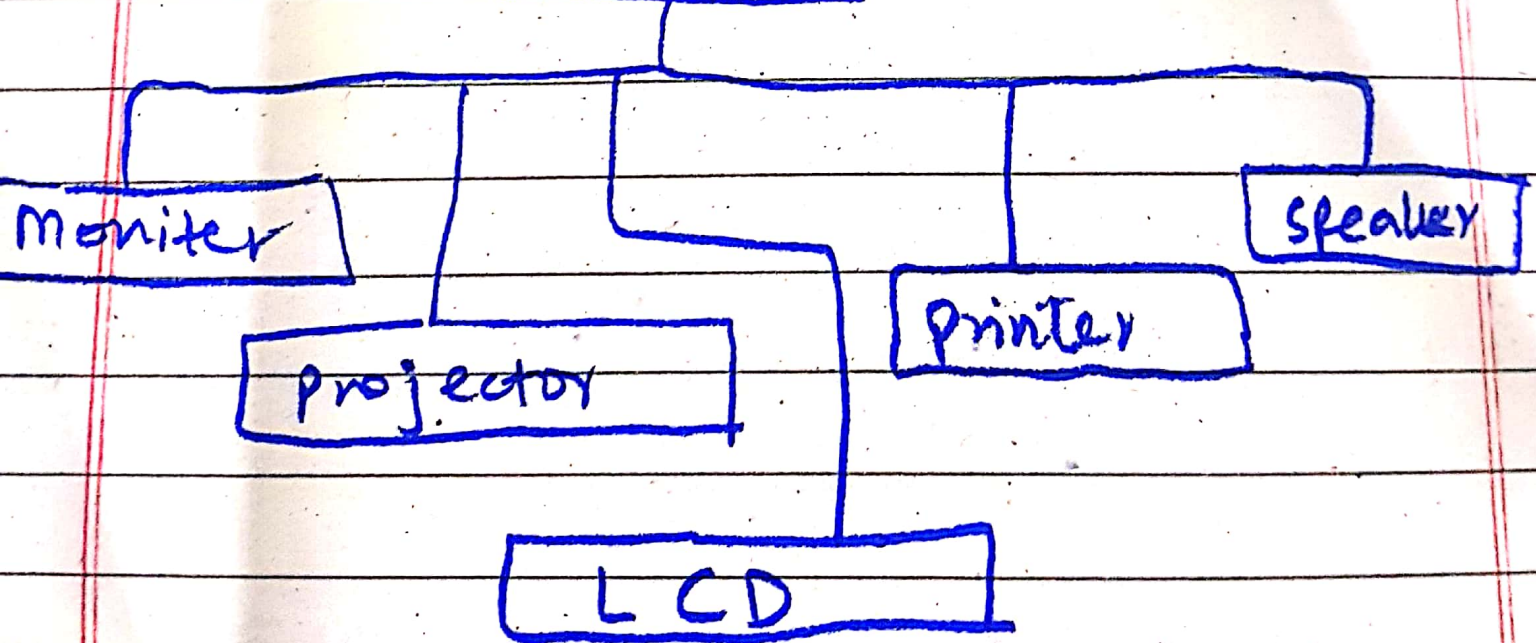
The Green house gases included  $\text{CO}_2$ ,  $\text{CH}_4$ ,  $\text{N}_2\text{O}$ ,  $\text{O}_3$  and others which increase the Earth's surface temperature with it self.



# Input Devices



# Output devices



Date: \_\_\_\_\_

M T W T F S

## Answer # Q 8 (d)

Solution :-

$$\begin{aligned} \text{Mean} &= \frac{\text{Sum of values}}{\text{Total no. of values}} \\ &= \frac{15, 15, 16, 16, 16, 17, 17, 18, 19}{9} \\ &= \frac{149}{9} \end{aligned}$$

$$\text{Mean} = 16.55$$

$$\begin{aligned} \text{Medium} &= \frac{n+1}{2} \\ &= \frac{9+1}{2} \\ &= \frac{10}{2} \\ &= 5 \end{aligned}$$

19  
18  
17  
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149

$$\text{Medium} = 5$$

As the 5<sup>th</sup> value is 16 so,  
Its the medium

$$\text{Mode} = 16 \text{ (as most frequent)}$$

$$\begin{aligned} \text{Range} &= X_m - X_0 \\ &= 19 - 15 \\ &= 4 \end{aligned}$$

So, Range is 4.



Date: \_\_\_\_\_

M T W T F S

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Date: \_\_\_\_\_

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Q7(c)

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149

Q # 8(a)

B R O T H E R

Q D G S N Q A

By observing the pattern  
the comparison is made  
on the basis of previous  
letter.

S I S T E R

↓ ↓ ↓ ↓ ↓ ↓

R H R S D Q

So, the word SISTER  
would be R H R S D Q.

A B C D E F G H I

J K L M N O P Q R

S T U V W X Y Z

Date: \_\_\_\_\_

Q 8 # (ii)

Solution :-

(a) 8

S = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

let,  $n(x) = 8$

$$P(x) = \frac{n(x)}{n(S)}$$

$$P(x) = \frac{1}{12}$$

The probability of drawing a card 8 from box will be  $\frac{1}{12}$

b) An Even Number

let  $x$  as an Even No.

$n(x) = 2, 4, 6, 8, 10, 12$

$$P(x) = \frac{n(x)}{n(S)}$$

$$P(x) = \frac{6}{12}$$

$$P(x) = \frac{1}{2}$$

→ probability will be  $\frac{1}{2}$

### c) Perfect Square

let  $x$  as Perfect Square

$$n(x) = 1, 4, 9$$

$$P(x) = \frac{n(x)}{n(S)}$$

$$P(x) = \frac{3}{12}$$

$$P(x) = \frac{1}{4}$$

d) A Negative number  $n(x) = 0$

$$P(x) = \frac{n(x)}{n(S)}$$

$$P(x) = \frac{0}{12}$$

$$P(x) = 0$$

e) A Number less than 13

$$n(x) = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12$$

$$P(x) = \frac{n(x)}{n(S)}$$

$$P(x) = \frac{12}{12}$$

$$P(x) = 1$$