

## Part - II

### (Section - A)

Q No 2.

a) Differentiate between igneous rocks and Metamorphic rocks.

#### Formation

#### Igneous Rocks

Igneous rocks formed from molten rock

#### Metamorphic Rocks

Formed from rocks that have

been changed by heat or pressure

When magma or lava cools and solidifies, igneous rocks are formed

Formed when existing rocks are subjected to high heat, pressure or hot-mineral rich fluids

#### Composition

Can include quartz, feldspar, pyroxenes

Can include calc-silicate minerals such as garnet

#### Appearance

Lack foliation (layering)

Can have a

Day: \_\_\_\_\_

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

layered look, with bands of different colors

Types.

Intrusive igneous rocks

foliated metamorphic rocks and

Extrusive igneous rocks

non-foliated metamorphic rocks

Examples

Basalt

Marble

Granite

slate

b) Explain the phenomenon of Smog and give its types.

Smog:

A term derived

from two words smoke and fog

It is a kind of intense air pollution.

Smog is air pollution that reduces visibility.

## How is smog created?

Smog is the result of the reaction of emissions from automobiles, factories, and industries with the sunlight and atmosphere.

## Types of smog:

Smog can be classified into two types

1. Photochemical smog (Los Angeles smog)
2. Sulphurous smog (London smog)

## Photochemical smog:

It is created when sunlight reacts with nitrogen oxides and at least one volatile organic compound in the atmosphere. This kind of smog requires neither smoke nor fog.

## Nitrogen oxides

Nitrogen oxides are emitted in atmosphere from automobiles, power plants, factory emissions.

## Volatile organic compounds.

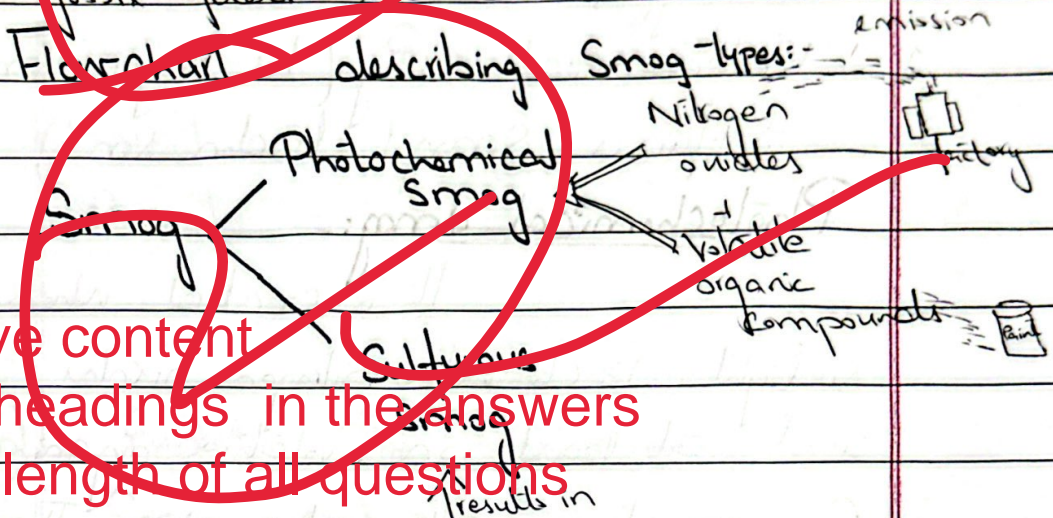
Volatile organic compounds are released in the atmosphere.

due to paints, gasoline & cleaning solvents.

## 2) Sulphurous Smog:-

Sulphurous smog is the result of a high concentration of sulphur oxides in the atmosphere.

Caused due to the burning of fossil fuels like coal.



Improve content

Make headings in the answers

Keep length of all questions equal

Understand the question carefully

Draw flow charts

Use scientific terminologies

Use scientific examples

Follow step by step method for maths problems

The answers are insufficient to fulfill the required criteria of the question and marks.

Follow proper pattern according to the question

c) Give the importance of Risk assessment in DRM

Risk assessment is a vital part of disaster risk management (DRM) because it helps identify risks and helps in long-term risk reduction.

Importance of Risk assessment in DRM:

Risk assessment is very important in disaster risk management. It helps in various ways such as Prioritizes risks.

It helps determine which risks are most severe and likely to occur. This allows resources to be focused on the most critical risks.

Helps create disaster management Plans

Risk assessments help determine the likely consequences of a

of a disaster, which helps create disaster management plans

Helps reduce losses:

Risk assessments help identify actions that can reduce the impact of a disaster on people, property and the environment.

Helps inform land-use planning

Risk assessments help identify

areas that are at risk and

inform land use planning decisions.

Risk assessment helps in multiple ways

Helps inform insurance

helps in reduction efforts

Helps inform long-term investment

Risk assessment helps in DRM

emergency preparedness

Climate change adaptation Plan

d) Explain short and far sightedness  
Short sightedness:

Short sightedness is an eye defect that makes it difficult to see clearly. People with short sightedness can see nearby objects clearly, but distant objects appear blurry.

Myopia:

Short sightedness also known as myopia.

Causes of myopia:

It happens when light rays bend incorrectly, focusing images in front of the retina.

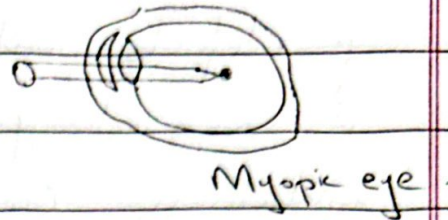
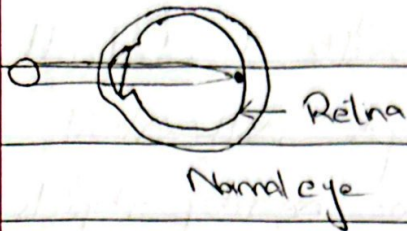
It can be caused by an elongated eyeball or a cornea or a lens that is too curved.

Myopia makes it difficult to see distant objects.

Treatment of myopia:

It can be corrected by a concave lens, which moves

The image of back to the retina



### Far-sightedness:

Far sightedness makes it difficult for an eye to see an objects that are close up.

### Hyperopia:

Far sightedness is also known as hyperopia.

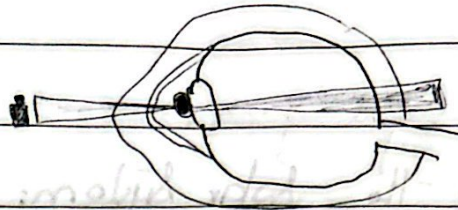
### Causes of Hyperopia:-

Blurred vision when looking up close, headaches, eye strain, and needing to squint.

### Treatment / Correction of hyperopia:-

It can be corrected with contact lenses or surgical vision correction.





Hyperopia



Q No 4 Write a note on Solar system.

Solar System:

Solar system comprises of the sun, the eight planets revolving around the sun, moon, comets, asteroids and dwarf planets etc.

Where is our solar system:-

Our solar system lies in the Milky way galaxy. Solar system is stationed in the orion-cygnus arm of the galaxy.

The distance from solar system to the center of the milky way galaxy (galactic disc) is roughly

27,200 light years

### Age of the Solar System:

The age of the solar system is to be estimated as 4.6 billion year.

### Components of the Solar System:

#### Sun:

Sun is the main component of the solar system. The planets revolve around the sun. Their rotation marks the day and night phenomenon.

#### Planets:

There are total of 8 planets in the solar system.

#### Inner Planets:-

Mercury, Mars, Venus, Earth considered as inner planet.

#### Outer Planets

Jupiter, Saturn, Uranus and Neptune are considered as outer planets.

#### Dwarf Planets

Any celestial body that fulfills the criteria of the dwarf planet according to the International Astronomical Union is considered as a dwarf planet.

### Examples of dwarf Planets:-

Pluto, Ceres, Haumea and Makemake.

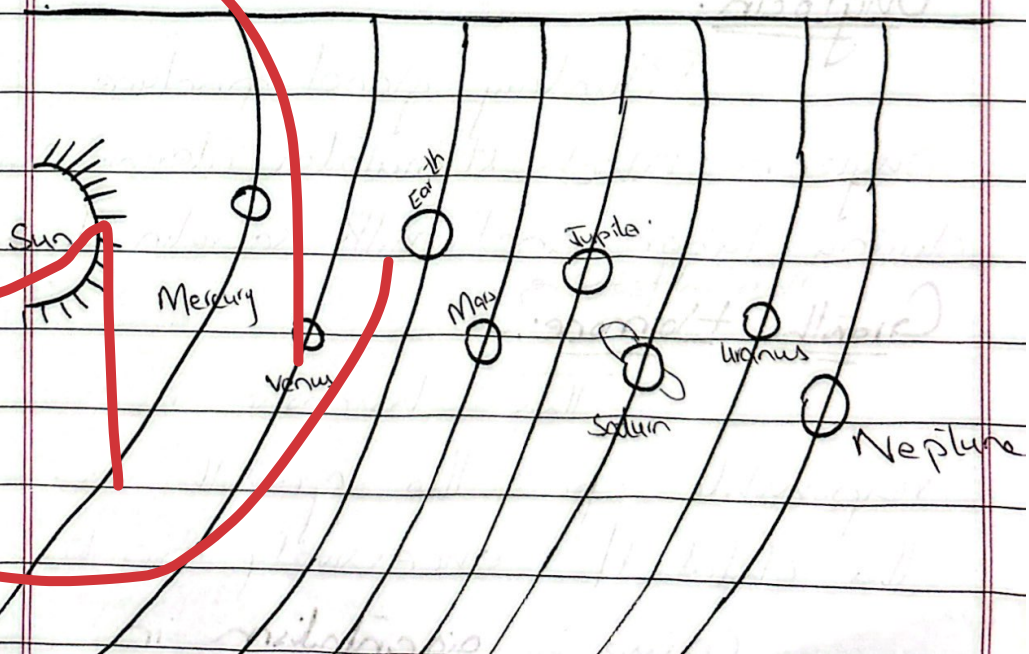
### Small Solar System bodies:-

Asteroids, comets are small solar system bodies.

### Satellites:

Artificial & natural satellites all constitute the solar system.

### Sequence of Planets in Solar System:-



b) Give the importance of Pituitary gland:-

Pituitary gland:-

Pituitary gland is a small gland that lies below the brain and is responsible for the secretion of the hormones and control the endocrine system.

Importance of the Pituitary gland:-

The importance of the Pituitary gland lies in the secretion of

the hormones responsible for the growth, reproduction and production.

Oxytocin:

Pituitary gland produce oxytocin which stimulates uterine contraction during labor and milk secretion during <sup>breastfeeding</sup> Growth hormone:

This hormone is responsible for the growth in the child. If excessively produce can cause gigantism in

Child and if increase in  
adult cause. Acromegaly

### Prolactin:-

This hormone is responsible  
for the milk production in  
women.

### Thyroid-stimulating hormone:-

This is responsible  
for the production of thyroid  
hormone from thyroid.

### Melanocyte-stimulating hormone:-

(MSH)

It regulates appetite and sex  
drive, and stimulates melanin  
production in the skin.

### Antidiuretic Hormone:-

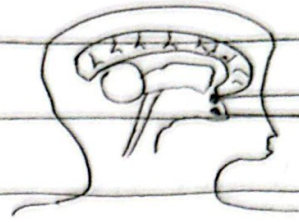
Also known as Vasopressin.

ADH control water retention  
and fluid balance.

### Adrenocorticotrophic hormone.

Regulates the body  
response to the stress.

# Location of Pituitary gland:



Hypothalamus  
Pituitary gland.

# Functions of Pituitary gland

Master gland

Pituitary gland

Produces and releases hormones

responsible for

Reproduction

Growth

Metabolism

Stress response

Oxytocin  
↓  
LH  
FSH

GH

ADH  
TSH

ACTH



c) Differentiate RAM & ROM, also define the terms Nibble, USB and mother board.

### RAM

- RAM stands for Random Access memory.
- Stores the data on which no currently work, it is volatile in nature (loses power, data disappears).

- It is expensive than ROM.

- Data can be modified, erased or read.

- Temporary storage space.

### ROM

- ROM stands for Read only memory.
- ROM refers to permanent memory.

- It is non-volatile (data remains, if power loses).

- It is cheaper than RAM.

- Data in ROM can only be read, it cannot be modified or erased.

- Permanent storage space.

Blackboard is like a RAM, that is constantly overwritten with new data. Audio-video disk resembles ROM.

### Nibble:

A nibble is the second smallest unit of information for data transmission and storage.

A group of four bits, or half a byte is sometimes called a nibble, nybble or nyble.

### USB

USB is Universal Serial Bus. It is a common platform that allows communication between devices and a host controller.

Such as PC (computer).

It is used to connect peripheral devices to computers.



Day: \_\_\_\_\_

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

Motherboard :-

A motherboard is the main printed circuit board (PCB) in a computer. The motherboard is a computer's central communications backbone connectivity point, through which all components and external peripherals connect.



Day: \_\_\_\_\_ Date: \_\_\_\_\_  
d) COP-29 - targets to limit temperature rise upto  $1.5^{\circ}\text{C}$ . Comment.

COP-29

COP-29 is the 29th Conference of the United Nations related to the climate work.

Event of COP-29 :-

COP-29 occurred in Baku, Azerbaijan on 11<sup>th</sup> of November to 22<sup>nd</sup> of November. 200 Countries attended this conference.

Target of COP-29 to limit temperature rise upto  $1.5^{\circ}\text{C}$  :-

Reduce emission of Green house Gases :-

The target of COP-29 is to reduce 90% Green house gases emissions.

Carbon targeting is the main focus of the COP-29.

To limit Global warming :-

200 Countries together at Baku, Azerbaijan discussed

Day: \_\_\_\_\_

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

to limit the temperature rise upto  $1.5^{\circ}\text{C}$  which seems impossible. It is only implementable when all developed countries contribute to this.

Finance of 300 billion dollars by 2035.

To target the limitation of the rise of the temperature to  $1.5^{\circ}\text{C}$  and to reduce the green house gas emissions and to do carbon trading, COP 29 agreed that developed countries to contribute 300 billion dollars till 2035.

Challenges regarding the climate change can be tackled.

Analysis of COP-29.

Overall the COP 29 was a remarkable step as it highlighted the global warming issue and 200 countries attended the conference. It is an achievement. But it failed to create

Day: \_\_\_\_\_

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

The amount needed to tackle  
the global warming in the  
countries.

Section B: *harder*

Q No 7

a) Average of 7 consecutive numbers is 20. Find the largest of these numbers.

Solution

let  $n$  be the smallest number.

Then according to the given conditions

$$n + n+1 + n+2 + n+3 + n+4 + n+5 + n+6$$

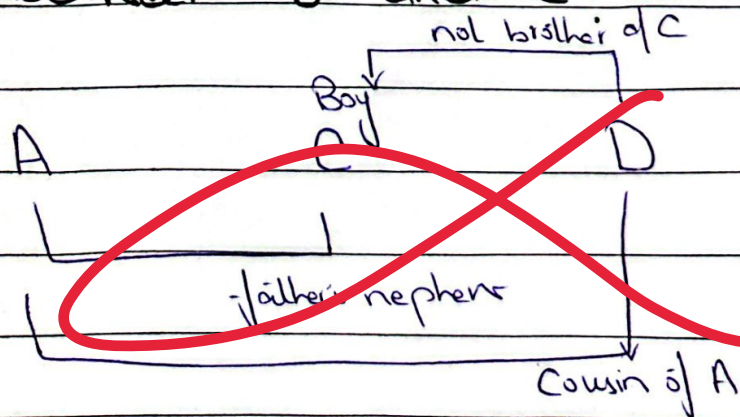
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$$\therefore n+3 = 20 \Rightarrow n = 17$$

Largest number is  $n+6 = 23$ .

B A told B that C is his father's nephew. D is A's cousin but not the brother of C.

What relationship is there between D and C?



C and D are brother and  
Sister where D is the sister  
of C.

c) Find the missing numbers in  
the sequence.

i) 4, 18, 48, 100, 180, 294, 448

Solution

$$2^3 - 2^2 = 8 - 4 = 4$$

$$3^3 - 3^2 = 27 - 9 = 18$$

$$4^3 - 4^2 = 64 - 16 = 48$$

$$5^3 - 5^2 = 125 - 25 = 100$$

$$6^3 - 6^2 = 216 - 36 = 180$$

$$7^3 - 7^2 = 343 - 49 = 294$$

So correct one is 48

ii) 1, 2, 10, 37, 101, 226

Solution

$$1 + 1^3 = 1 + 1 = 2$$

$$2 + 2^3 = 2 + 8 = 10$$

$$10 + 3^3 = 10 + 27 = 37$$

$$37 + 4^3 = 37 + 64 = 101$$

$$101 + 5^3 = 101 + 125 = 226$$

ii)  $11, 17, 39, 85, 163$

Given series

$$11 + (3^2 - 3) = 11 + 6 = 17$$

$$17 + (5^2 - 3) = 17 + 22 = 39$$

$$39 + (7^2 - 3) = 39 + 46 = 85$$

$$85 + (9^2 - 3) = 85 + 78 = 163$$

iv)  $13, 24, 46, 90, 178$

Solution

$$24 - 13 = 11$$

$$46 - 24 = 22$$

$$90 - 46 = 44$$

$$178 - 90 = 88$$

double 88 we get 176

$$\text{Hence } 178 + 176 = 354.$$

v)  $4, 36, 144, 400, 900, 1764$

These square root

$$2^2 \quad 6^2 \quad 12^2 \quad 20^2 \quad 30^2 \quad 42^2$$

$$2 \quad 6-4 \quad 12-6 \quad 20-8 \quad 42-12$$

Q No 8

b) Find out the correct word from the jumbled spellings given below.

SONCCOISIENT

Conscientious

E I V E N F R A O S T

Personalive

U O R S I U L D C

Locusul

UNSPREEE

Piveness

N M I L A O P C

Complain

c) Draw & write the total number of lines of symmetry in a regular hexagon and octagon. How many lines of symmetry in circle

Hexagon

A regular hexagon with <sup>six</sup> equal sides has six lines of symmetry

Octagon

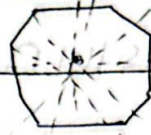
A regular octagon has eight lines of symmetry



## Circle.

A circle has an infinite number of lines of symmetry. Because any line that passes through the center of a circle is a line of symmetry.

## Symmetry.



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d) If the base of the pyramid is rectangular having length is 7cm and the width is 5cm and the height of the pyramid is 10 cm, then find its volume.

Solution

Right Rectangular pyramid

$$V = \frac{1}{3} lwh$$

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Day: \_\_\_\_\_

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

$$V = 116.67$$