

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 the 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, pyroxene

Can include calc-silicate minerals such as garnet

Appearance

Lack foliation (layering)

Can have a

layered look, with
bands of different

Colors

Types

Intrusive igneous
rock and

foliated metamorphic
rock and

Extrusive igneous rock

non-foliated

metamorphic rock

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 reactions 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.

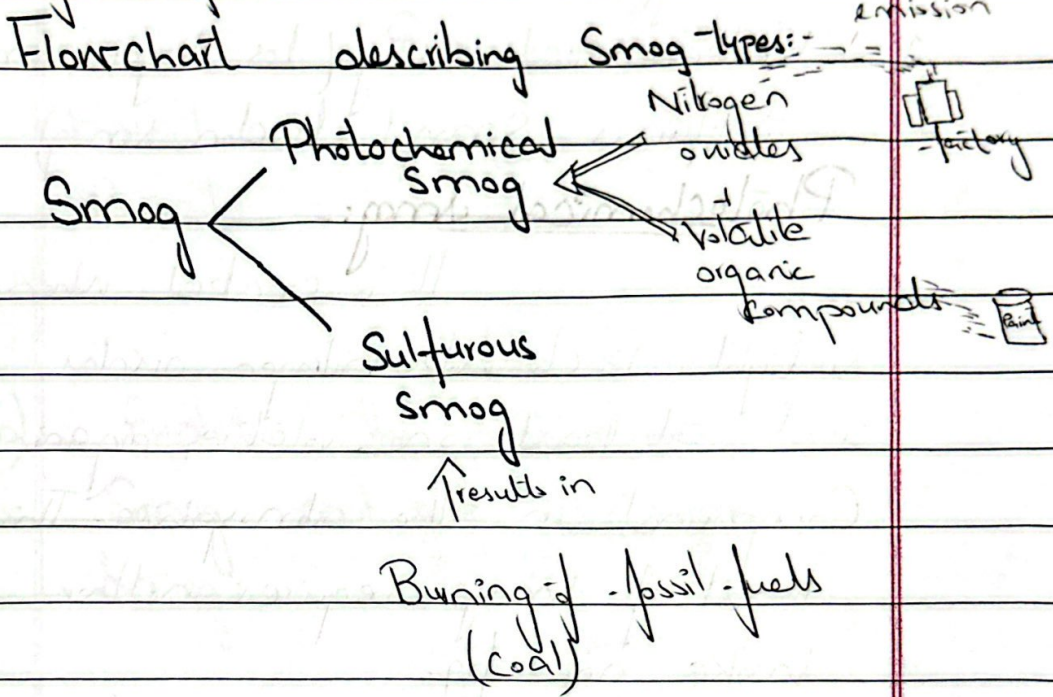
Volatile organic compounds are released in the atmosphere

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.



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 help 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

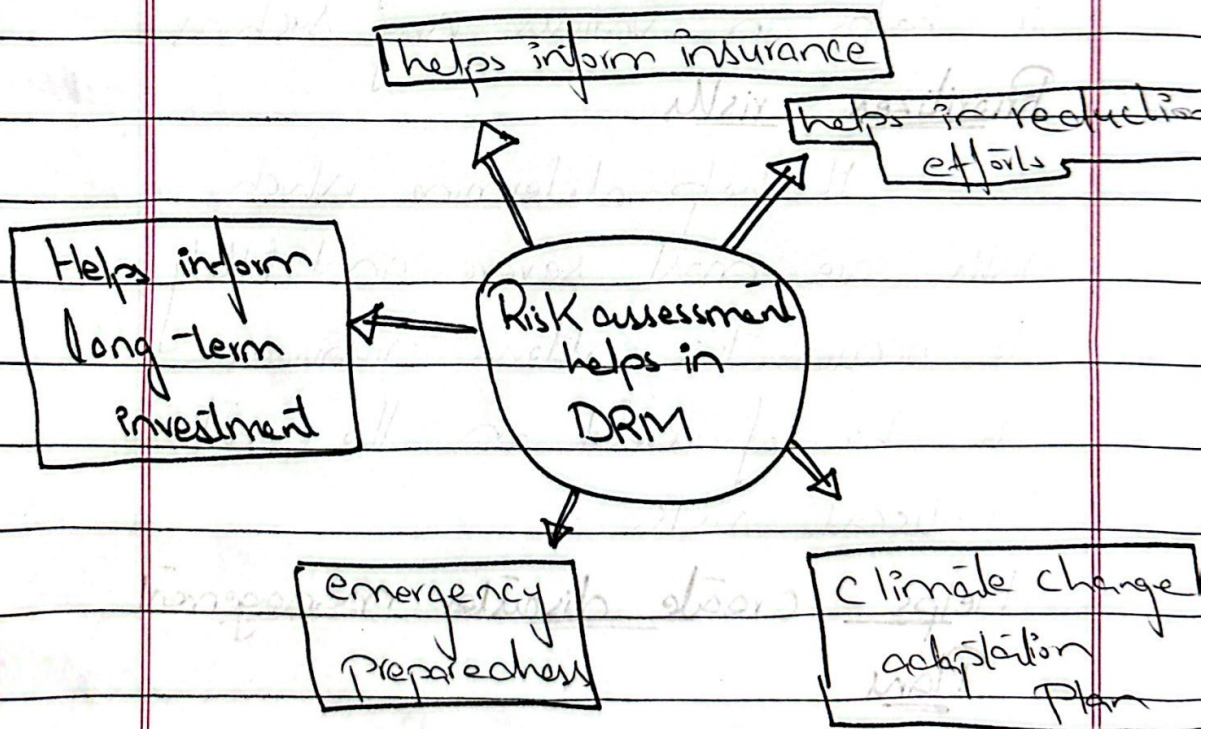
Helps reduces losses:

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



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.

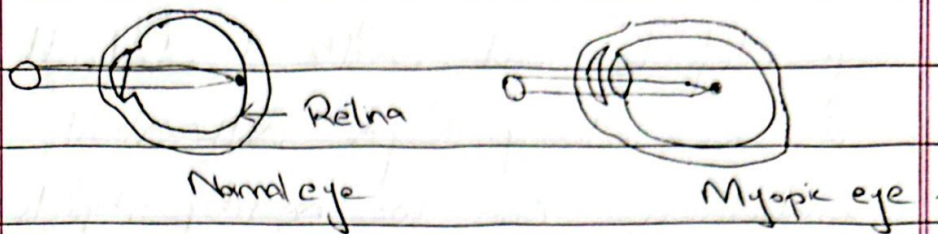
It can be caused by an elongated eyeball or a cornea or a lens that is too curved.

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:

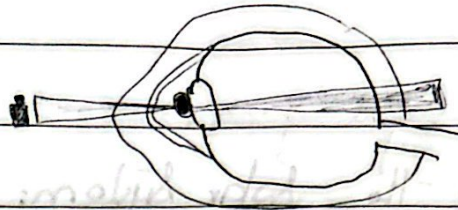
Far sightedness is also known as hyperopia.

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

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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.

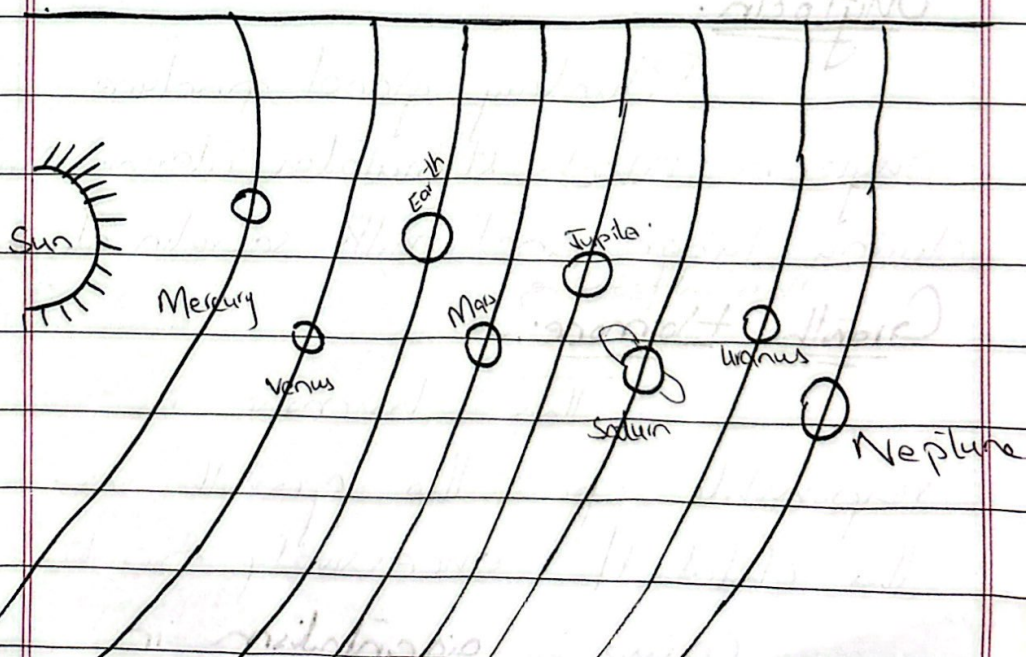
Small Solar System bodies:-

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 its 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

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.

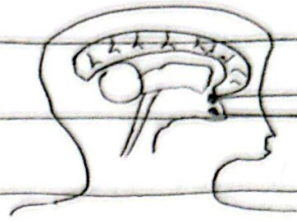
Antidiuretic Hormone:-

Also known as Vasopressin.
ADH control water retention
and fluid balance.

Adrenocorticotropic 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: _____

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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°C . Comment.

COP-29

COP 29 is the 29 conference of the United Nations related to the climate work.

Event of COP-29 :-

COP-29 occurred in Baku, Azerbaijan on 11th of November to 22nd of November, 2023.

Countries attended this conference -

Target of COP-29 to limit temperature rise upto 1.5°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°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°C and to reduce the green house gas emissions and to do carbon trading, COP 29 agreed the 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: _____

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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

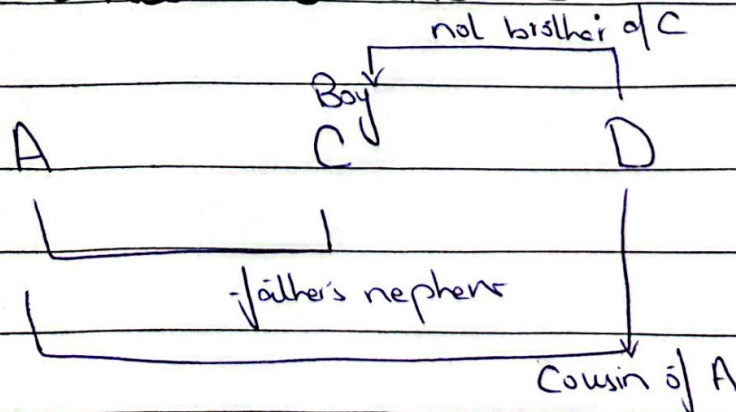
$$n + n+1 + n+2 + n+3 + n+4 + n+5 + n+6$$

$$\therefore 7n + 21 = 20 \times 7 \Rightarrow n = 17$$

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

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.

SONCCUOISIENT
Conscientious

EIVENPRAOST

Personalive

UORSIULDC

Loculus

UNSPRESE

Pureness

NMILAOPC

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 ⁶ equal sides has six lines of symmetry

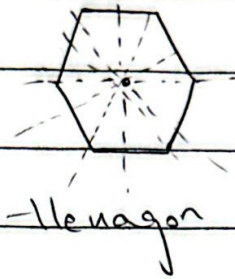
Octagon

A regular octagon has eight lines of symmetry

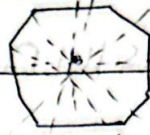
Circle.

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.



Hexagon



Octagon

- 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

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

Day: _____

$$V = 116.67$$

Date: _____