

Dos and Don'ts for General Science & Ability Paper

Hi there, you've done well. Know that acquiring knowledge is one thing and reproducing it in paper according to what's asked is another.

a) There are a few things I would like to highlight.

1. A 5 marks part requires at least 2 and at max 3 sides of a paper. Know that there can be two or three parts of a question and their marks are divided accordingly. So, address all of them in a just manner.

2. Focus on time management. You get 35 minutes to solve one question and about 8 minutes per 5 mark part. Manage your time accordingly.

3. You need to understand that your paper is supposed to look more scientific than theoretical. So, add flowcharts and diagrams where required.

4. Your handwriting and neatness can be really impactful. Avoid cutting and overwriting.

5. Focus on your spellings and your grammar.

Here, in CSA there's no deduction in marks but your expression will definitely create an impact.

6. In ability portion, give explanation for analytical ability question in words. You need to understand that a 5 mark part requires all steps written and explained.

Good luck for CSS 2025. You're gonna rock in sha Allah. :)

- Severe body pain
- High grade fever
- Nausea
- Vomiting
- Swollen glands
- Pain behind eye balls
- Rashes etc.

Prevention:

Prevention of Dengue involves vector control. Following methods must be employed to overcome spread of Dengue

- 1) Use of Mosquitoes net, esp in vector infested area.
- 2) Use of mosquitoes repellent
- 3) Use of pesticides in stagnant water
- 4) Mosquito killing sprays at municipality level.
- 5) Solid waste must be disposed off properly.
- 6) Mass awareness to curb the spread of disease.

c) Answer:

Mitochondria:

It is an essential organelle of eukaryotic cell playing vital role in energy making, required for functioning of the cell.

Structure:

- ⇒ It has a double membranous structure.
- ⇒ Outer membrane is smooth, while inner membrane is folded.
- ⇒ The folds form inside the outer membrane is called cristae.
- ⇒ These membrane contain electron pumps, which are crucial for its function.
- ⇒ It also contains some DNA, similar to a prokaryotic cell, showing its prokaryotic origin.

Functions:

- 1) Site of critical step of respiration process.

Date: _____

Day: _____

- 2) Linked reaction occur in spaces of cisternae.
- 3) Major process Krebs cycle occurs in matrix of mitochondria, generating maximum amount of ATPs.

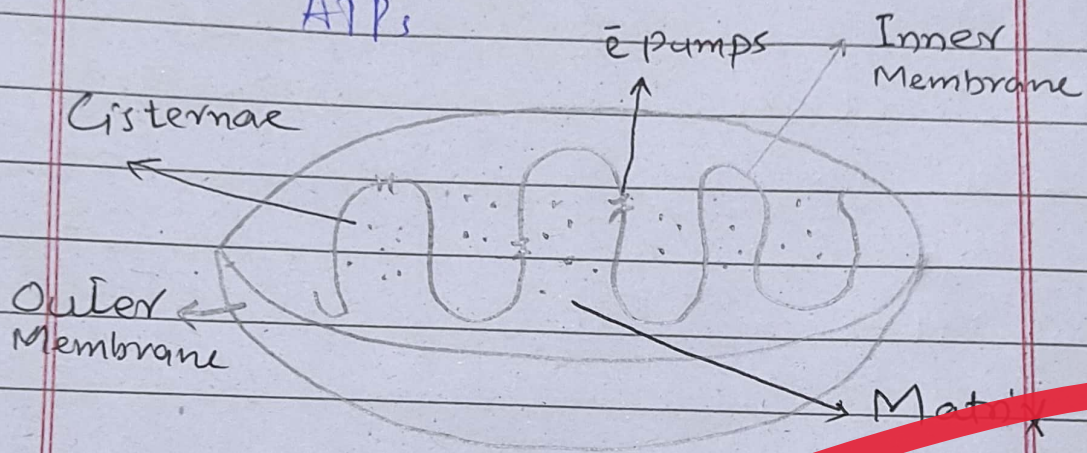


Fig: Mitochondria

Why it is the power House:

It is the power house of cell because of the production of ATPs in it during cellular respiration. Krebs cycle takes place in the matrix of mitochondria. During this process net 36 ATPs are generated.

Date: _____

Day: _____

which makes it the largest
ATP producing organelle.

d) Answers

Covalent Bond:

The bond formed by sharing of e^- between two atoms to achieve stability is called covalent bond.

Explanation:

Atoms with deficient electrons in valence shell try to complete their valence shell by forming bond. These bonds can be form by many way. One is by sharing of e^- , when two atoms share their electrons, each achieving stability, is called covalent bond.

Types of Covalent Bond:

i) Single Covalent Bond:

The covalent

Date: _____

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bond in which only one e^- is shared between 2 atoms. Is called single covalent bond.

For example:

Bond between Hydrogen and Hydrogen to form (H_2) .

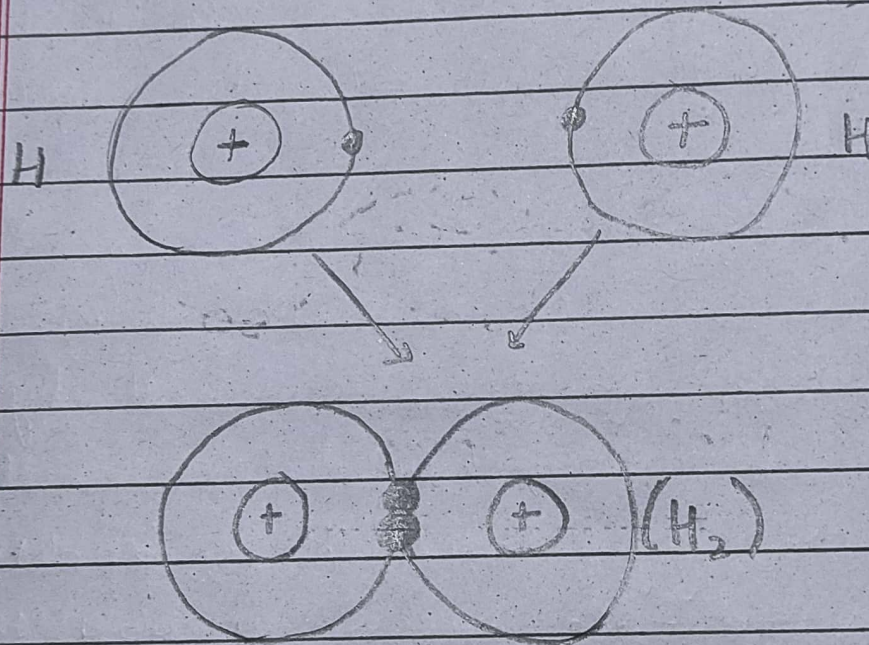


Fig: Single Covalent Bond.

Double Covalent Bond:

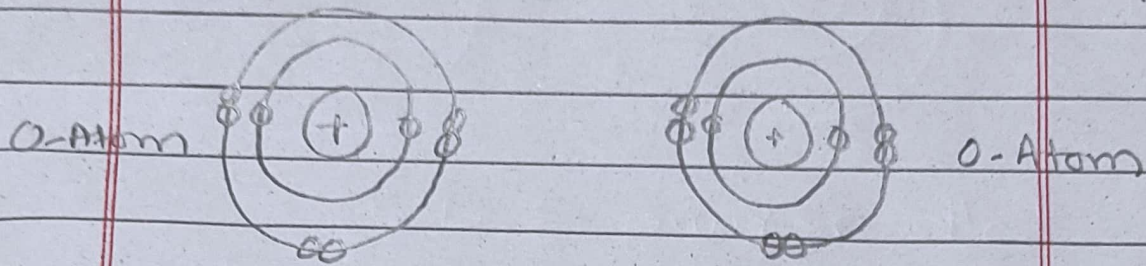
The type of covalent bond in which two electrons are shared to form a covalent bond is called double covalent bond.

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Example:

Double covalent bond exists in O_2 .



Both requires two electrons.

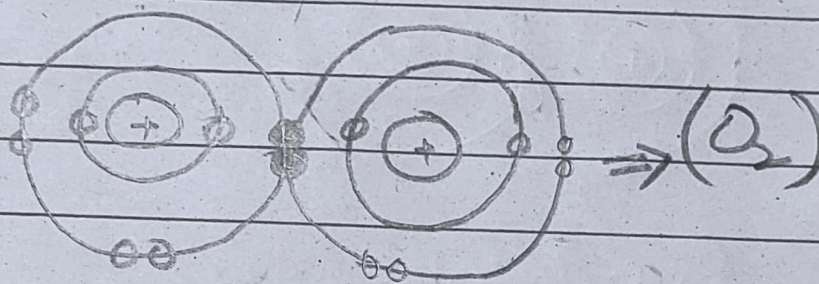


Fig: Double Covalent Bond.

Triple Covalent Bond:

It is formed by sharing of 3 electrons between 2 atoms

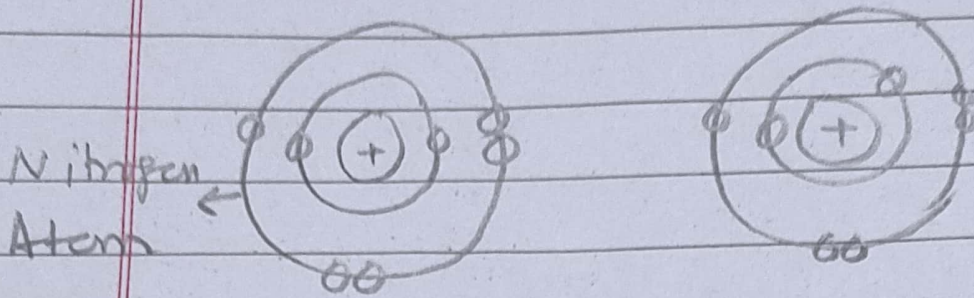
Example:

It is shown by nitrogen, where each atom

Date: _____

Day: _____

is deficient in three electrons.



Both requires 3 electrons so they will share 3 valence electrons.

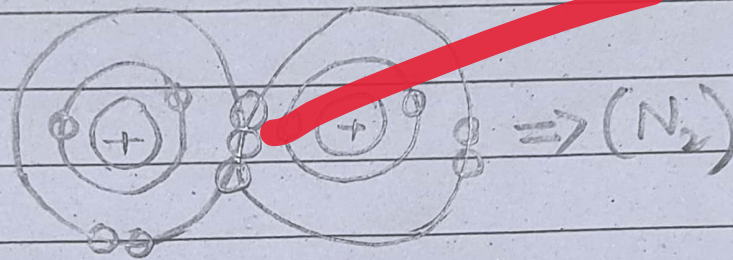


Fig: Triple Covalent Bond.

No 3

a) Answer:

Lunar Eclipse:

when the earth cast its shadow on the moon it is called lunar Eclipse.

Explanation:

when the Earth

Date: _____

Day: _____

comes in between Sun and Moon, the shadow of Earth is cast on the Moon such as obscure the light of the Moon. And this phenomenon is called lunar Eclipse.

Diagram:

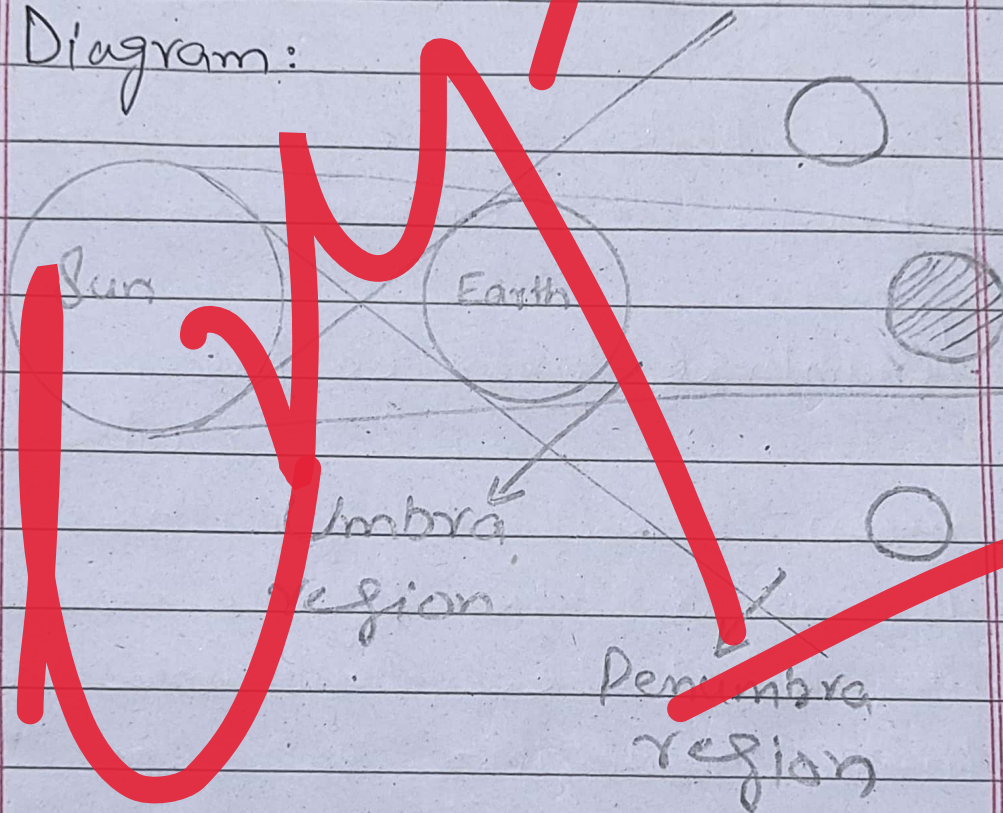


Fig: Lunar Eclipse

Types of lunar Eclipse:

Base on the presence of moon in Umbra or Penumbra region there are following types.

i) Total lunar eclipse:

when full moon passes through the Umbra region it is called total lunar eclipse.

ii) Partial lunar eclipse:

when some parts of moon pass through the umbra region.

iii) Penumbral lunar eclipse:

when moon passes through the penumbral region of the moon it is called penumbral lunar eclipse.

b) Answer:

Enzymes:

Define

These are biological chemicals which speed up the process of biological reactions. They do not use

in reaction but expedite the process and come out unused.

Functions of enzymes:

Enzymes	Functions.
Amylase	Break down of carbohydrate into glucose.
Sucrase	Breakdown of sucrose, BT
Pepsin	Secretes in stomach and performs breakdown of complex of proteins.
Trypsin	Release in pancreatic secretion and perform breakdown of protein in Duodenum.
Lipases	These are also secreted in pancreatic juice and perform breakdown of Lipids.

Date: _____

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Hydrolases: mainly present in lysosomes and perform process of lysis.

peroxidases: They are highly toxic enzymes mainly present in lysosomes and destroys any foreign antigen.

3) Answer:

Electromagnetic Radiations:

These are those radiations which do not require any medium to travel in, such that they can travel in space or vacuum.

EMR Spectrum:

It is the range of electromagnetic radiation which contain a range of wavelengths and frequencies.

Date: _____

Day: _____

	Frequency (ν)	Wavelength (λ)
Gamma rays		
X-rays		
Ultra-Violet		
Visible range	Violet Indigo Blue Green Orange Yellow Red	
Intra-red		
Micro waves		
radio-waves		

- 1) The frequency of the waves in EMR spectrum decreases as we move from top (Gamma ray) to bottom (radio waves).
- 2) Similarly, Energy of the waves also decreases down the order.

3) On the other hand, Wavelength increases down the order and decreases when we go from bottom to the top.

d) Answer:

Earthquake

The vibration of earth surface due to the release of energy in form of seismic waves.

Volcano:

The movement of lava from earth through a vent is called Volcano.

The interconnection between Earthquake and Volcanic eruptions:

Yes, the earthquake is interconnected with volcanic eruption. Because of the phenomenon behind both of the processes is same. And that phenomenon

is explained by Theory of
Tectonic Plates.

Understanding the theory:

According to this theory, Earth consist of large slates known as Tectonic Plates. Due to process of convection these plates move, when they move they collide at there edges. Due to this colliding, a huge amount of energy is generated which is observed in form of earthquake. But, on the other hand, when these plates move slight openings develops at the edge which allows the lava to flow out through those vents creating volcanic eruptions.

Date: _____

Day: _____

SECTION # II

a) Answer:

Given:

$$\text{Mean} = 15$$

$$\text{Numbers} = 9, 8, 10, K, 12$$

Required:

$$\text{value of } K = ?$$

Solution:

As we know that

$$\text{Mean} = \frac{\text{Sum of all numbers}}{\text{Total numbers}}$$

Put the values

$$15 = \frac{9 + 8 + 10 + K + 12}{5}$$

$$75 = 39 + K$$

$$K = 75 - 39$$

$$K = 36$$

Conclusion:

$$\text{The value of } K = 36$$

Date: _____

Day: _____

c) Answer:

Given:

radius of Football = 12 cm

Required:

Volume of Football?

Solution:

As we know that
Football is a sphere

So,

$$V = \frac{4}{3} \pi r^3$$

Put the values

$$V = \frac{4}{3} (3.14) (12)^3$$

$$V = \frac{4}{3} (3.14) (1728)$$

$$V = \frac{4}{3} (5425.9)$$

$$V = \frac{21703.6}{3}$$

$$V = 7234.5$$

The volume of Football
with radius 12 cm is 7234.5

Q#7

c) Answer:

Given:

2 coin tossed 500 times

Two heads = 105

one head = 275

no head = 120

Required:

Probability of the given events = ?

Solution:

As we know that

$$\text{Probability} = \frac{\text{Nr of occurrence}}{\text{total outcomes}}$$

Total outcome = 2 x 500 times

Total 4 = 2000

$$\text{Probability of two heads} = \frac{105}{2000}$$

$$= 0.051$$

$$\text{Probability of one head} = \frac{275}{2000}$$

$$= 0.1375$$

Date: _____

Day: _____

Probability of no head = $\frac{120}{200}$

$$= 0.6$$

Conclusion:

Probability of

Two heads = 0.05

One head = 0.375

No head = 0.6

d) Answer:

Given:

Jamie = 11

Dad = 41 (Presently)

After 14 years will be 2x of
Jamie

Required:

Sum of Jamie's and
Dad's age = ?

Solution:

As given in the statement

After 14 years:

Day: _____

Date: _____

$$x + 14 = 2x$$

$$\underline{14 = x}$$

As we know:

Jamie's age $x = 14$

Dad's age $4x = 4(14)$
 $= 56$

the present ages are

Jamie = 14

Dad = 56

Sum of the ages are:

$$\begin{array}{r} 14 \\ + 56 \\ \hline 70 \end{array}$$

Conclusion:

So, the sum of the present ages of Dad and Jamie is 70.