

PART : 2 :SECTION : 1 :

Q2.(a) What is dengue? Give a brief ...
... symptoms.

Ans: DENGUE:

Dengue is a viral infection transmitted to humans through the bites of female infected mosquitoes. Primary of the 'Aedes Aegypti' specie. The disease is caused by the dengue virus called (DENV), it has 4 types given below:

1. DENV - 1
2. DENV - 2
3. DENV - 3
4. DENV - 4

If a person gets infected by any one of the type and later recovers from it they gain life long immunity from it but can get infected from the other types.

SYMPTOMS :

The symptoms of dengue typically appear after 4-10 days. Starting with

high fever, following severe headache, pain behind the eyes, joint pain, vomiting, nausea, swollen glands and skin rash.

Severe dengue also known as dengue haemorrhagic fever can lead to bleeding, blood plasma leakage and even death if not treated properly.

(b) Explain dark matter ... energy.

Ans: Dark matter and dark energy are two of the biggest mysteries in modern cosmology as they make up 95% of the universe's energy density, ~~respe~~ with ordinary matter making up to 5% only.

DARK MATTER:

Dark matter is a form of matter that does not reflect, emit or absorb light and is invisible and undetectable, the only way of knowing that dark matter is even out there is its gravitational pull which is keeping the galaxies

bound together and influencing their rotational speed.

DARK ENERGY:

Dark energy is an unknown form of energy. The universe is filled with dark energy and is said to be responsible for the expansion and of the observable universe.

Its nature is not yet fully understood but it is hypothesized that dark energy is responsible for the and work as a repulsive force, counteracting the gravitational pull at large cosmic scales.

Both dark matter and dark energy remain subjects of extensive study because understanding them is the key to unravelling the nature of the universe.

(c) Discuss structure and function of mitochondria.

Ans: MITOCHONDRIA:

Mitochondria are double membraned organelle found in most eukaryotic cells

and are known as the cell's power house, due to their role of producing energy.

STRUCTURE OF MITOCHONDRIA:

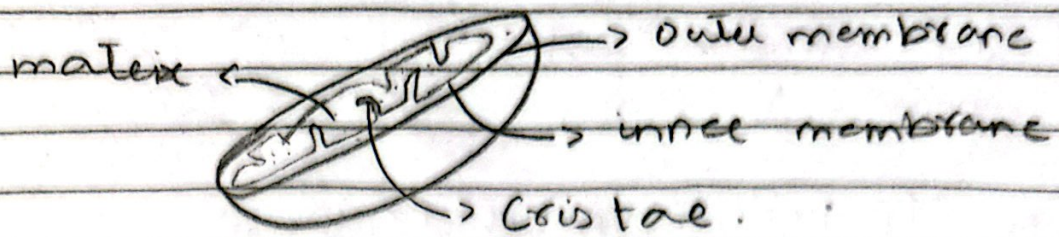
The outer layer of the mitochondria is smooth while the inner layer is highly folded into structures called 'cristae'. Inside the mitochondria is the matrix, which contains enzymes, DNA and ribosomes that are vital for mitochondrial function.

POWER HOUSE OF CELL:

Mitochondria produce energy through the process of cellular respiration. Where they convert oxygen and nutrients into adenosine triphosphate (ATP), the primary energy currency of cell. The electron transport chain located in the inner membrane plays a crucial role in ATP.

This energy production is why mitochondria is called

The power house of the cell.



(d) What are covalent bonds . . .
. . . structures .

Ans. COVALENT BONDS:

Covalent bonds are types of chemical bond which is formed by the sharing of electron pair between atoms. These shared electron allow each atom to attain the electronic configuration of noble gases and stabilize the atom.

Covalent atoms are formed between non metallic atoms.

TYPES OF COVALENT:

There are 3 types of covalent bond.

1. SINGLE COVALENT BOND:

Involves the sharing of single pair of electron (e.g. H_2 and Cl_2).

2. DOUBLE COVALENT BOND:

Formed by the mutual sharing of 2 pair of electrons. (e.g.) O_2 .

3. TRIPLE COVALENT BOND:

Formed by the mutual sharing of 3 pairs of electron (e.g.) N_2 .

MOLECULAR STRUCTURE:1. LINEAR:

Molecules like CO_2 exhibit a linear structure due to the arrangement of electrons pairs around the central atom.

2. TETRAHEDRAL:

Seen in CH_4 , where 4 covalent bond creates a symmetrical structure around the central atom.

3. TRIGONAL:

Seen in BF_3 , where 3 covalent bonds are formed at 120° angles.

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These structure influence the physical and chemical properties of the molecules. Including the melting point, boiling point and solubility.