

# "General Science and Ability"

\* NOA-MOCK5 \*

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(PART-II)  
(SECTION-I)

\* Question #2 \*

\* A \*

Definition of Dengue :-

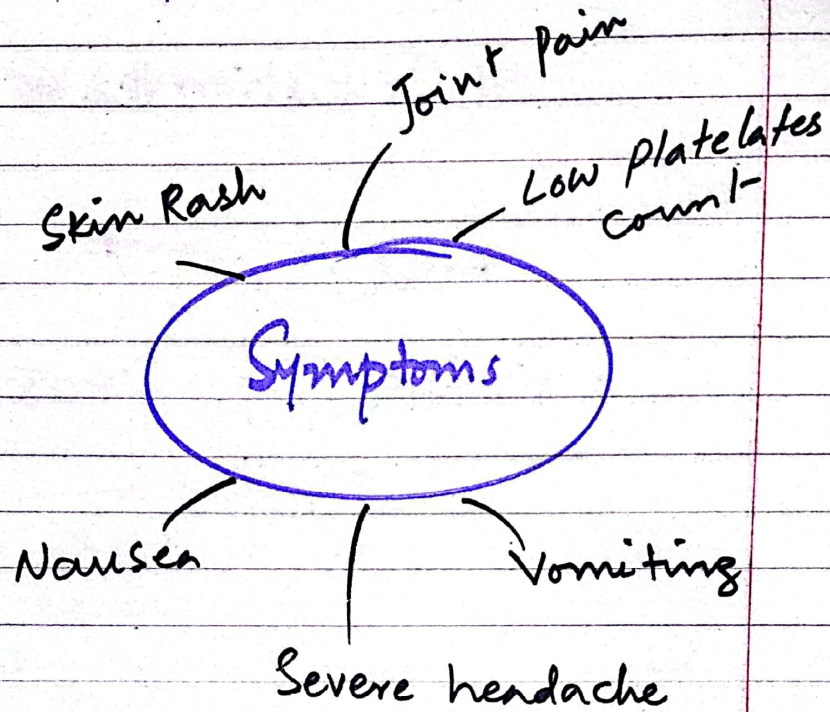
It is a viral infection transmitted by mosquitoes. It causes high fever, severe headache, and joints pain.

Causative Agents of Dengue :-

Dengue is caused by the dengue virus known as (DENV). It has four other types :-

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

## Symptoms of Dengue :-



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(B)

⇒ Dark Matter :-

It is one of the mysterious components of the universe. It is an invisible substance that does not emit light or energy. However, its gravitational effects help in holding galaxies together.

⇒ Dark Energy :-

It is a force driving the accelerated expansion of the universe.

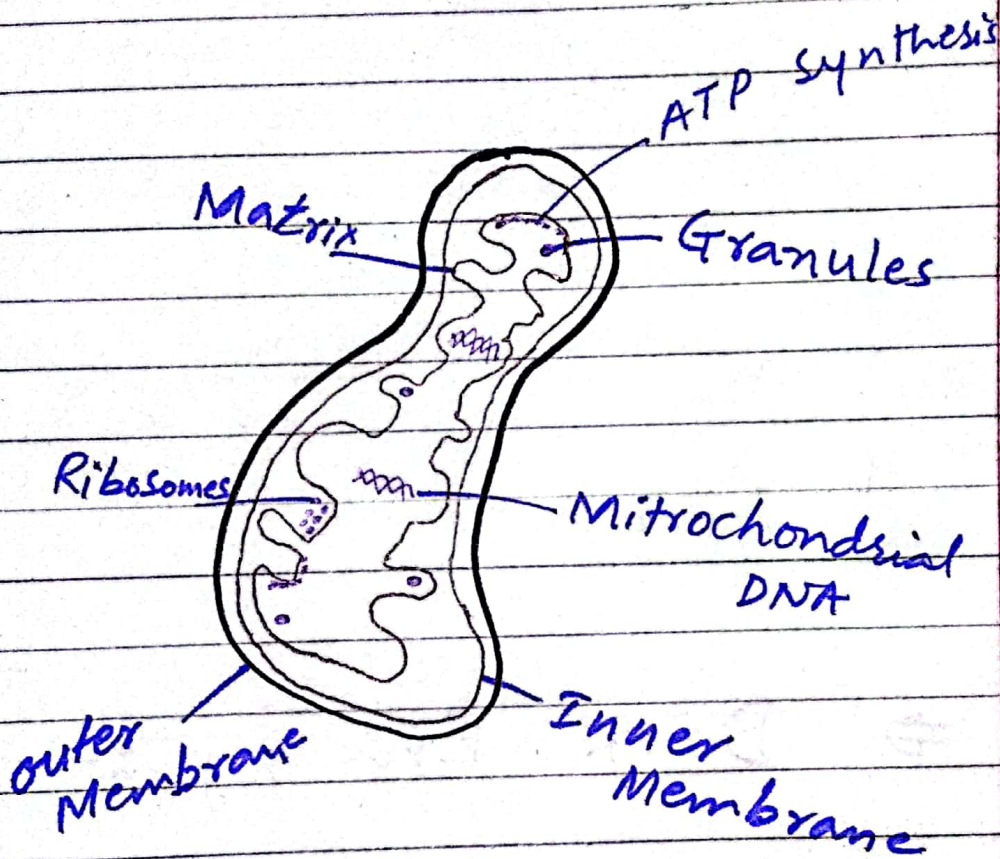
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(c)

## The Structure of Mitochondria:-



(C)

## Functions of Mitochondria :-

- i. Mitochondria are the power houses of the cells.
- ii. They generate energy in the form of ATP.
- iii. They also help in regulation of cell metabolism.
- iv. Calcium storage

## How Mitochondria is powerhouse?

Mitochondria are called the powerhouse of the cell because they produce ATP. However, ATP is known as cell's main energy currency. This energy fuels various cellular activities.

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(D)

## What are covalent Bonds ?

Covalent bonds are chemical bonds formed when two atoms share pairs of electrons to achieve stability. This type of bonding typically occurs between nonmetals.

Example,  $H_2O$  and  $O_2$

### → Types of Covalent Bonds and Their Structures :-

#### i. Single Covalent Bond:

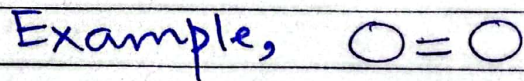
It involves one pair of shared electrons between two atoms.

Structure Example,  $H-H$

P.T.O

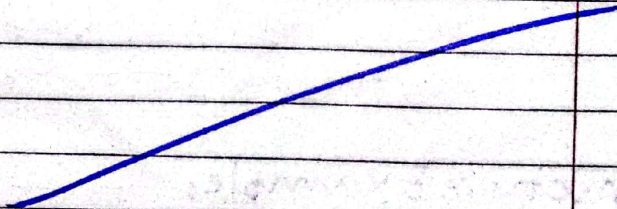
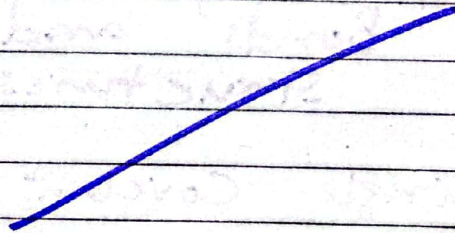
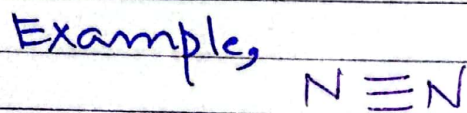
ii. Double Covalent Bond:

It involves two pairs of shared electrons.



iii. Triple Covalent Bond:

It involves three pairs of shared electrons.





## \* Question #04 \*

(A)

### Noise Pollution :-

Noise pollution is the excessive level of noise in the environment. It is more often caused by traffic, industrial activities, construction and loud music.

### Noise Pollution Effects:-

- i. Hearing loss
- ii. Sleep Disturbance
- iii. Stress and Anxiety
- iv. Reduced Quality life
- \*  
v. Negative Impacts on wildlife

## WAY FORWARD to Curb Noise Pollution :-

To curb noise several strategies can be implemented that are outlined below:

- i. Regulation of Noise levels
- ii. Promoting Quiet Zones
- iii. Use of Technology
- iv. Public Awareness
- v. Use of sound-absorbing materials
- vi. Designing cities with noise barriers.

(B)

## Importance of Fiber in Diet :-

Fiber is an essential component of healthy diet. It provides several important benefits:

- i. Fiber aids in promoting overall digestive health.
- ii. High-fiber foods control appetite and reduce overall calorie intake.
- iii. Blood Sugar Control
- iv. Fiber can lower cholesterol levels, which is better for Heart Health.
- v. Nutrient Absorption
- vi. Fiber-rich foods often contain important vitamins and minerals.

## How would be a Platter of food considered balanced?

A balanced food platter includes a variety of foods groups in appropriate manner. It includes:

- i. At least half of the platter should consist of colourful fruits, and vegetables.
- ii. Grains such as brown rice for carbohydrates and fiber.
- iii. Incorporation of chicken and fish for protein requirements.
- iv. Addition Nuts, seeds and olive oil for healthy fats
- v. Include serving of Dairy for calcium and Vitamin D.

(C)

## Drinking Water Quality :-

Drinking water quality refers to the chemical, physical, and biological characteristics of water. It determines its suitability for human consumption. Key components are outlined below:

- i. Drinking water should be free from micro-organisms, like Bacteria, Viruses, etcetera.
- ii. Water should not contain harmful levels of chemicals. Like, Pesticides, Herbicides, etc.
- iii. Clear, colorless water with low turbidity is ideal for consumption.

## Standards of Drinking Water:-

The key standards include:

- i. Ideal drinking water pH is 6.5 - 8.5
- ii. pH of pure water - 7
- iii. pH level less than 6 is contaminated water.
- iv. pH level greater than 8.5 is also not suitable for consumption.

## SECTION - II

### Question #6

(A)

Data:-

Given series = 9, 8, 10, K, 12

Arithmetic Mean = 15

Required:-

Determine the value of K?

Solution:

Since,

$$15 = 9, 8, 10, K, 12$$

By using Arithmetic mean formula,

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

$$\Rightarrow 15 \times 5 = 9 + 8 + 10 + K + 12$$

$$75 = 39 + K$$

$$75 - 39 = K$$

$$\boxed{36 = K}$$

Hence the required value.

B(C)

Data:-

Radius of football =  $r$   
= 12 cm

Required:-

Find the volume of  
Football ?

Solution:-

Since, the football  
is spherical shape.

Then,

The volume of sphere =

$$\Rightarrow \frac{4}{3} \pi r^3$$

Now Football volume is,

$$V = \frac{4}{3} \left(\frac{22}{7}\right) (12)^3 \quad \because \pi = \frac{22}{7}$$

$$= \frac{4}{3} \left(\frac{22}{7}\right) (1728)$$

$$V = 7241.1 \text{ cm}^3$$

Hence the required  
Answer.



(D)

Data:-

Series  $-10, -8, +6, 40, 102, ?$

Required :-

Required missing  
number ?

Solution:-

$-10, -8, +6, 40, 102, 200$

Answer

(Question #08)

(C)

Data :-

$$A = \{10, 11, 12, 13, 15\}$$

$$B = \{10, 12, 14\}$$

$$U = \{10, 11, 12, 13, 14, 15, 16, 18\}$$

Required :-

$$(A \cup B)' = A' \cap B'$$

Solution :-

Since, according to De Morgan's first law

$$(A \cup B)' = A' \cap B'$$

Now,

T.L.H.S  $(A \cup B)'$

$$(A \cup B)' = U - (A \cup B)$$

$$= \{10, 11, 12, 13, 14, 15, 16, 18\} - \{10, 11, 12, 13, 14, 15\}$$

$$= \{16, 18\}$$

Now T.R.H.S  $A' \cap B'$

$$A' = U - A =$$

$$= \{10, 11, 12, 13, 14, 15, 16, 18\} - \{10, 11, 12, 13, 15\}$$

$$= \{14, 16, 18\}$$

$$B' = U - B$$

$$= \{10, 11, 12, 13, 14, 15, 16, 18\} - \{10, 12, 14\}$$

$$= \{11, 13, 15, 16, 18\}$$

Now,

$$A' \cap B' = \{14, 16, 18\} \cap \{11, 13, 15, 16, 18\}$$

$$= \{16, 18\}$$

$$\therefore \text{L.H.S} = \text{R.H.S}$$

$$\therefore (A \cup B)' = A' \cap B'$$

Hence Proved

(A)

Data:

Brian formula =  $\text{£}20 + 4n$

House windows = 7

$n$  = represents windows

Required:

How much Brian charge?

**Solution!**

Since,  
Brian charging formula,  
 $= 20\$ + 4n$   
 $= \$20 + 4(7) \quad \because n=7$   
 $= \boxed{\$20 + 28}$

Since, each pound in  
PKR = 350 approx

Therefore

$$\begin{aligned} \text{Brian charging} &= (350)(20) + 28 \\ &= 7000 + 28 \\ &= \boxed{7028 \text{ PKR}} \end{aligned}$$

Required Answer