

Part II

Section 1

Question 03

Bond of (a) atoms and Covalent Bond

i) Why atoms do form Chemical Bond?

Atoms form chemical bond in order to achieve "Stability". When bonding is formed, the weaker atoms gains a stability. For example, Ionic bond is formed for stability by atoms.

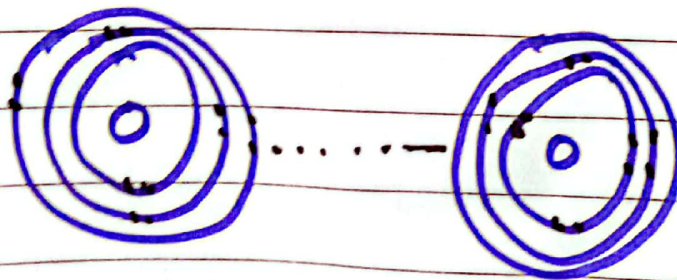


Fig: atom sharing for stability

ii) Covalent Bond

is formed by mutual sharing of atoms. As far as the purpose of this bond is concerned, it is also formed for stability.

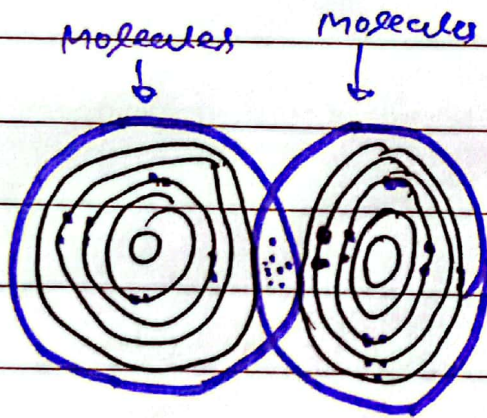


Fig: Showing formation of Covalent bond.

General Characteristics of Covalent Bond

- weaker than Ionic
- formed by mutual sharing

(b)

Doping

is a process through which impurities are added into chemicals. The pure chemical of periodic table undergone the process of doping by adding impurities.

Ex# The element from 5th group of periodic table known as phosphorus. It is a pure chemical. When the impurities mean other substances would be added into it. It would become a doped element.

Ceramics

are the non-organic material that are shaped into a desired result by heating. Most ceramics are made from clay.

Ex# Washroom items, plates, Shutter.

Types

Traditional

are made up of clay by heating.

- Bricks, washroom items, plates etc.

Modern

are not made up of traditional method and clay.

Rather, a chemical is used for their formation

Ex. Space shuttles
- Helicopters etc

(d)

Polio

is a dangerous disease that could result in either complete paralysis or death. Only Pakistan and Afghanistan are facing the threat of polio. It is also known as "polymelitis".

Symptoms

- Fatigue
- Weakness
- Fever
- Headache

- Cure

Polio vaccine is a best source for restricting this disease. Various doses are necessary

2-4 → 1 dose

4-6 → 2 dose

6-12 → Booster dose

⇒ Challenges in Pakistan for eradication of polio

- Lack of awareness about the disease
- Conservative attitude about polio vaccine: people consider it illegal
- Terrorism Threat: polio workers are killed ~~or~~ in tribal areas. In Feb, 2024, Two polio workers were killed
- Misinterpretation of Religion by Mullahs: Mullahs have announced it illegal
- Carelessness of the concerned authorities

(C)

Global Warming

It is not a region-specific phenomenon rather it has become a global issue. It refers to rise in temperature due to acceleration of green house gases.

~~IPPC~~ IPCC: global temperature will cross 1.5 degree celsius until 2050. due to global warming.

→ Merits and Demerits of Global Warming

→ Merits

- natural process of green house gases is beneficial for humanity
- necessary for human survival

→ Demerits

- excessive rise in temperature: IPCC report
- results in heat stroke
- Karachi: people were ^{died} killed due to heat stroke

- | | |
|--|---|
| <p>- necessary for Crops growth</p> | <p>• rise in global sea level</p> |
| <p>- necessary for maintaining balance of seasons on Earth</p> | <p>• melting of glaciers: Antarctic glaciers are melting</p> |
| | <p>• <u>Wild Fire</u>: Global Forest watch describes global warming the main cause</p> <p>• Food insecurity: Impacting agricultural productivity.</p> |
| | <p>• The demerits of global warming are more in number than its benefits</p> |
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Question 02

(9)

Artificial Intelligence

is a new technological advancement that has the potential to imitate human intelligence. This was firstly proposed by Alan Turing and Johan McCarthy.

New electricity

is known as new electricity because of its resemblance with electricity

Resemblance in functioning of electricity and AI

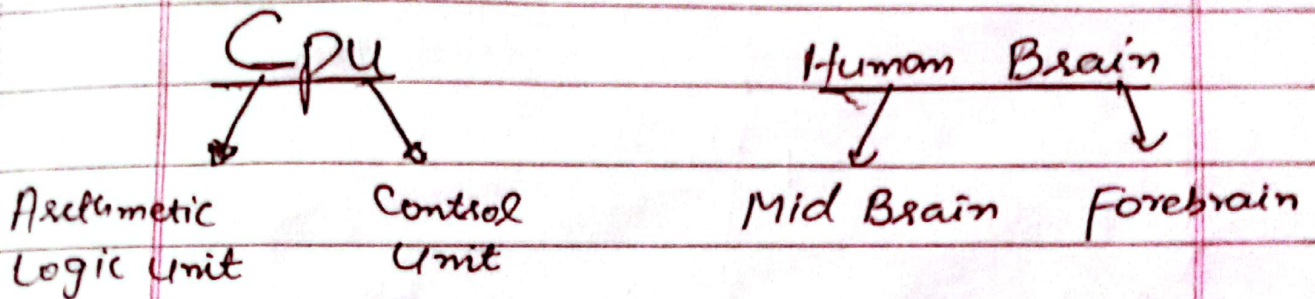
AI	Electricity
• reducing human burden of work	reduced human burden of work

- | | |
|---|--|
| • Accelerating the pace of work with robots | Accelerated the pace of work |
| • replacing many jobs through the process of automation | Replaced many jobs such as home industries |
| • Killing humans with autonomous weapons | proved lethal as it can take human life |
| • Bringing revolution as well | Brought revolution in human life |
- Stephan Hawking:
"AI is revolutionising, revolutionising this generation"

(b)

CPU

is known as "Central Processing Unit". It is a brain of a computer and it also has resemblance with the working of human brain.



Resemblance in Functioning

CPU	Human Brain
<ul style="list-style-type: none"> • Solely responsible for the functioning of whole of the computer 	<ul style="list-style-type: none"> • Solely responsible for the functioning of whole of human body
<ul style="list-style-type: none"> • Controls the functioning of other parts of Computer 	<ul style="list-style-type: none"> • Controls the functioning of human organs

- | | |
|---|---|
| <ul style="list-style-type: none">• defines the tasks of the computer | <ul style="list-style-type: none">• Orders human organs to perform a task |
| <ul style="list-style-type: none">• Stores essential information of computer | <ul style="list-style-type: none">• stores the memory of human beings |
| <ul style="list-style-type: none">• Without CPU, Computer is just a box of material | <ul style="list-style-type: none">• Without Brain, humans are a collection of bones and meat. |
| <ul style="list-style-type: none">• ALU performs division, subtraction, addition | <ul style="list-style-type: none">• Human brain solves problem afflicting humans |

(iii) Balanced Diet

is known as a diet that includes all the essential nutrients for the complete growth of human body. The deficiency of one nutrient result in poor growth. WHO has recommended balanced diet for every humans.

Components of Balanced Diet

- * Carbohydrates
 - * Protein
 - * Minerals
 - * Vitamins
 - * FATS
 - * Water
- provide energy to body

Excessive intake of one nutrient can also create problem. For instance, excessive intake of protein could create "Heart related" problems.

Deficiency of Vitamin A B C

Vitamin A

Sources: Vegetables of green leaf
Milk

Deficiency: Results in "Night Blindness"

Vitamin B Complex

→ B₁, B₂, B₃, B₆, B₁₂, B_y

Sources: Vegetables, Milk, Egg,

Deficiency: Results in "Beri Beri"

Vitamin C

Sources: Citrus Fruit, Orange
Vegetables,

Deficiency:

(iv)

Working of Optical Fiber

Optical fiber has replaced traditional copper wires for the transfer of signal. It effectively transmits signal. First of all signal go into transmitter of fiber that convert them into electrical signal or light. The they travel towards receiver and receiver again converts them into voice.

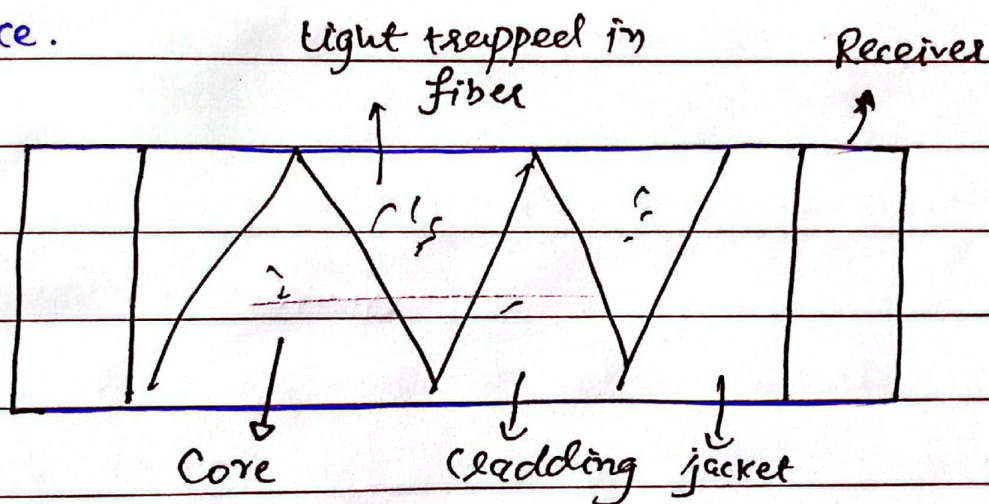


Fig: Showing the working of optical fiber

GPS

is referred as "Global Positioning System". It is used

for determining the location. Navigation satellites are used for it. Currently one navigation of US is being used for all people across the world.

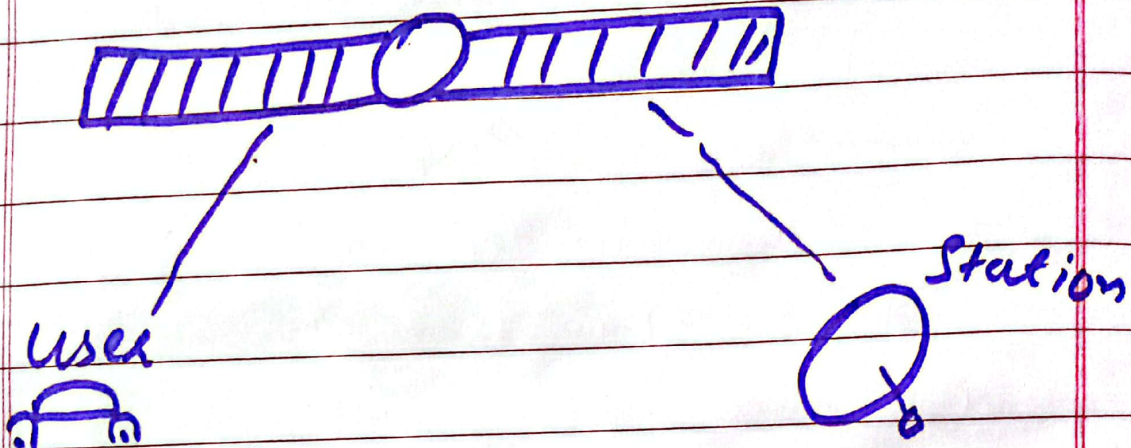


Fig: Working of GPS

Measurement of Location

Satellites measure locations with the help of sensors and light emitted by objects. The satellites capture the image or location of an object with the assistance of sensors and light.

Date _____

Section II

Question of

(d)

Given data Jumbled words

i) Teninsupelled ii) hweti

Required: Arrangement of words.

First we take Teninsupelled
it could be arranged as

= Unprecedented

= Unprecedented

Secondly, we can arrange hweti

as

= White

(b)

Cost of shoe original = 80\$

discount = 15%

Sales Tax = 10%

Final price = ?

Let's find discount

$$\frac{15}{100} \times 80$$

$$= \frac{15 \times 8}{10}$$

$$= \frac{120}{10}$$

$$= 12$$

$$= 12$$

$$= 80 - 12 = 68 \text{ discount price}$$

Now find Sales Tax

$$= \frac{10}{100} \times 68$$

$$= \frac{680}{100}$$

$$= \frac{68}{10} = 6.8$$

Now we add discount price & sales tax

$$= 68 + 6.8$$

$$= \boxed{74.8} \text{ Final price}$$

Question 08

(d)

Distribution of 4320 among Zain

Aslam Ashraf

Zain = 2 parts

Aslam = 3 parts

Ashraf = 7 parts

Total number of part = $2 + 3 + 7 = 12$

Distribution

Zain

$$\begin{aligned} & \frac{2}{12} \times 4320 \\ &= \frac{2 \times 4320}{12} \\ &= \boxed{720} \end{aligned}$$

Aslam

$$\begin{aligned} &= \frac{3}{12} \times 4320 \\ &= \frac{3 \times 4320}{12} \\ &= \boxed{1080} \end{aligned}$$

Asmaf

$$= \frac{7}{12} \times 4320$$

$$= \frac{7 \times 4320}{12}$$

$$= \boxed{2520}$$

(b)

→ 8000 Total pocket money

- Hassam, Ali, Akbar, Shahbaz pocket money?

Hassam gets $\frac{1}{3}$ rd of Ali

$$H = \frac{1}{3} \text{ of Ali}$$

Ali five times much than Akbar

$$A = 5K$$

Akbar has thrice much as Nasir

$$AK = 3$$

Shahbaz equal to Nasir & Ali

$$Sh = \underline{\text{Nasir}} = \underline{\text{Ali}}$$