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Part-II

Q no 2

(a)

"Artificial intelligence is new electricity"

The global world changed after the innovation of electricity. The industrial, social, educational all of these sectors has changed. The output of production increased due to increase in time of working in all spheres of life due to "light" electricity.

Artificial Intelligence:

After the great impact of electricity, it is being estimated that (AI) will play bigger role than that. The integration of AI in modern world through technological advancements the utility is being maximised. AI is being integrated in health, education security, industry and many more

AI in Health:

The output of AI integrated medical machinery is more precised than human doctors. The precision of AI in medicine is 10x greater than humans.

AI in Education:

Students of modern time find AI more easy to adapt and understandable. AI is playing pivotal role in learning process of students.

AI in Security:

No war in future will be fought without the role of AI.

"Israel used AI to attack in Palestine and Lebanon"

In this sector, role of AI is same precise as in others.

Conclusion:

From the role of innovation of ~~elect~~ electricity to the integration of Artificial intelligence. The world has come a long way and current-time period is recognizing, "AI as new electricity".

(b)

CPU is the Brain of Computer

Human brain holds the role of functioning whole human body. Without its proper functioning, the body becomes useless. Same goes with Central Processing Unit in a computer. The CPU holds the responsibility of proper functioning of all the parts of a computer rather input or output.

How CPU resembles to Human Brain:

Comparing many of the functions of both, such as

i- Data Storage:

Brain has two kind of memories, i- Temporary memory ii- Permanent-memory. The temporary memory holds recent information for short period of time, while permanent memory holds information for longer time period. Same the case is with CPU

it controls Random Access Memory and Read only Memory. The RAM holds information for temporary time while ROM holds for the permanent time period.

ii- Functioning of all the connected parts,

CPU holds the power to junction all the connected devices. Such as mouse, keyboard, display, speaker or printer. Same Brain holds power to control eyes, hands, feet and each working of humans internal organs.

iii- Commands of Action:

The neurons and electric signals in brain convey the command from brain to body. Same from connected with mini-connections, CPU send signal to all the parts of computer as command.

Conclusion:

This is why CPU is called brain of computer. The functions of both are similar and both hold some level of importance for their particular bodies.

(c) Balanced Diet

Balanced diet in a body is very important to function in a healthy manner. Human body needs different kind of diet for different workings. Such as.

- i- **Carbohydrates**: required for the energy in body.
- ii- **Proteins**: for growth, repair and muscle building.
- iii- **Fats**: for energy of cells and organs.
- iv- **Vitamins and Minerals**: health of organs and functioning.
- v- **Fiber**: vital role in digestion.
- vi- **Water**: for hydration of body.

i) Deficiency of Vitamin A:

Vitamin A holds great importance for vision, eyes and gut health.

Sources:

Carrots, sweet potatoes, fish and dairy products.

Deficiency impacts:

Night blindness, dry eyes
weak immune system.

ii) Deficiency of Vitamin B:

Vitamin B is a complex vitamin and holds many random functions in human body.

Sources:

Whole grains, meats, eggs and leafy vegetables are great sources of vitamin B.

Deficiency impacts:

Weaker functioning of organs, weak immune system, cracks in mouth.

iii) Deficiency of Vitamin C:

Vitamin C is mainly important for fighting germs/bacteria in body and healthy skin.

Sources:

Citrusy fruits, lemon, kiwi, strawberry all are great sources of vitamin C.

Deficiency impacts:

Weak immune system, unhealthy skin conditions.

(d)

① Optical fiber:

Optical fiber is mainly used for networking and transfer of data. These are made of glass and high quality plastics. The signals are sent through these fibers at an angle. These are the fastest connected medium for data transfer.

Uses:

↳ Internet connections of high speed

↳ Networking

Shape:

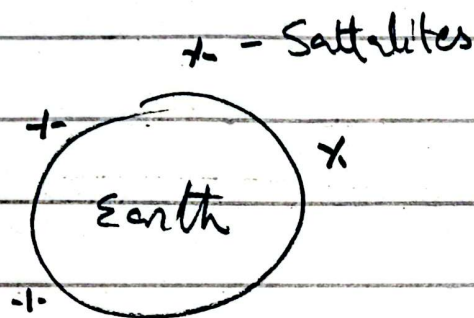
Optical fibers are very thin like hair. They are rounded up with multiple protected layers, which stop the chances of breakage and signal loss.

② GPS

Global positioning system (GPS) is a system that collects

signals from multiple satellites and by measuring distance of each signal in receiver, it provides accurate and consised location of any thing.

Working:



Thousands of satellites are revolving around earth. The signals between these satellites and receivers (devices) create accurate location. This system is called GPS.

2D locations:

Two dimensions (2D) locations are measured by atleast- Three satellites. The one gets longitude of location and other gets the latitude.

3D locations:

Third dimension is added by an added satellite, which provide the altitude (height above earth) of the location.

Q No 8:

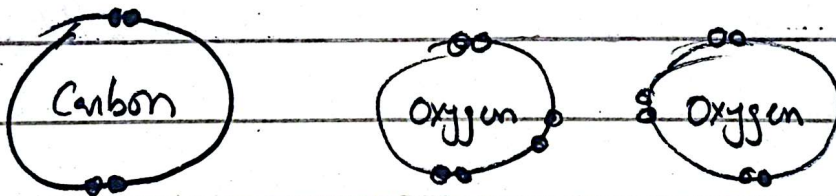
(a)

Why atoms form chemical bonds:

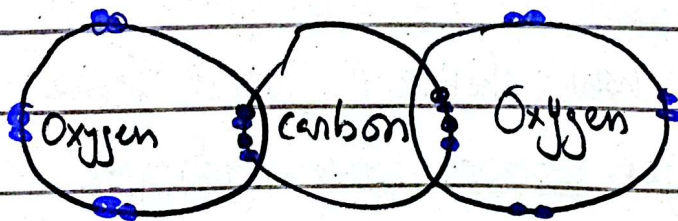
The natural tendency of all the atoms to fulfill their extreme shell by required electrons. This is also known as Octet rule.

This formulae $2(n)^2$ is made for this rule. First shell needs 2 electrons and needs $2(2)^2$ means 8 electrons and goes on.

CO₂



- i) Carbon has 4 electrons in 2nd shell
- ii) Oxygen has 6 electrons in 2nd shell.
- iii) According to $2(n)^2$, Second shell needs 8 electrons. Then

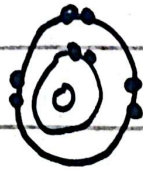


A chemical bond CO₂.

Covalent bond of Water molecule

Water is made up of two atoms. One is Oxygen the other is Hydrogen. The water molecule is known as H_2O .

i- Oxygen

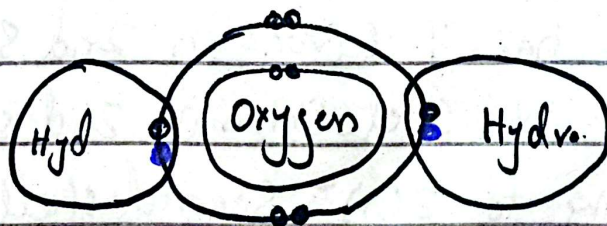


ii- Hydrogen



i- Oxygen needs two electrons in its outermost shell.

ii- Water needs one electron in its first shell.



H_2O - Water molecule.

This is how chemical bond between one Oxygen and two Hydrogen is made.

(c)

Introduction:

Global warming is a growing concern of current world. It has many negative impacts for the existence of humanity, but it also has some positive impacts too. The impacts of negative are as much that human being can neglect its positive impacts.

Merits of Global Warming:

There are some merits of global warming, such as

i- New travel route for global trade:

The melting ice of arctic region is allowing some new routes to open for global north and south.

ii- Travel and tourism increase:

The snow regions whom could offer only two to three months for tourism, now are offering five months seasons.

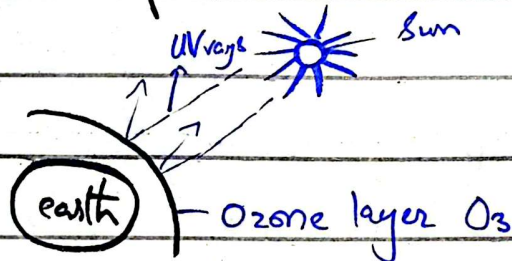
iii) New resources are being found:

The thousands of years old ice melts is showing some valuable minerals and resources.

Demerits of Global Warming:

There are countless demerits of global warming. Such as

i. - Ozone Depletion:



Ozone layer used to reflect ultra violet rays before reaching to earth surface. After depletion of ozone layers those rays are reaching to earth's surface which are very harmful for the earth's environment.

ii. - Melting Glaciers:

The rapid melting of glaciers are causing floods and disasters. Pakistan is the one of the most affected of this. The other problem is the loss of fresh waters.

iii. - Loss of Biodiversity:

Thousands of living organisms

are dying due to the rise of temperature on earth.

" Earth has rose 1.5°C

avg temperature since
time of industrialization"

Inter Governmental Panel on Climate Change.

iv- less agriculture output:

The quantity of agricultural output is constantly decreasing as the rise of temperature. This is due to rapid evaporation of water from earth's surface.

v- Increased Natural Disasters:

The numbers of natural disaster has increased. The ratio of floods and irregular rain season causing many harms.

" 40% of global population

is coastal. All of them are

in danger due to rising sea levels"

Conclusion: It is evident that the merits of global warming are negligible, as compared to the demerits.

(d)

What is Polio:

Polio is the shorter form of the disease "poliomyelitis". This is spreaded through polio virus. This virus is spreaded by touch, water, food and stored eatables. It targets the spinal cord of human body and multiplies there.

Spinal cord is the hub of connectedness. If polio targets spine then the injected gets problems of walking, moving, irregular feet sizes and paralysis.

Polio is mostly formed in children, ~~young~~ ageing from 1-10 years. Their growth disturbs and may lead to death.

"Whole world is polio free, except Afghanistan and Pakistan"

World Health Organization (WHO)

Challenges in eradication of Polio from Pakistan:

There are multiple factors that are creating challenges for Pakistan in eradication of Polio.

- ↳ Security issues for Polio vaccine workers, and they are targeted by terrorist organization due to their belonging to UN.
- ↳ Lesser educated people believing in that polio can affect the hormones resulting into a stop in generational growth.
- ↳ Porous border of Pakistan - Afghanistan maximizing human migrations from one to another country.
- ↳ Afghanistan being the only country where almost equal to zero efforts regarding polio eradication. This carelessness bring those infected one into Pakistan.
- ↳ Lesser accountability of polio workers, allow them report maximum vaccination without in reality.
- ↳ No reach of polio vaccine organization to the lesser well-off state areas, creating difficulty for them to cover whole region.

(b)

Doping:

It is a process of applying coatings to the valuable assets. Such as mirrors, cars, furnitures etc. Through this process the life of the applied products increases.

Example:

Ceramic coated car paint has 8x better shine, dust proof and dust resistant as compared to normal one.

Types of Ceramics:

- ↳ One is used as protective layer.
- ↳ One is used as dust resistant.
- ↳ One is used as life maximiser.

Section II

Q no 7

A)

Loan = 1200 , interest = 432, no of years = ?

i - Suppose the loan is in years

ii - lets suppose 7 years with 7% interest

iii = 7% of 1200 \Rightarrow 84

$$84 \times 7 = 588 \quad (x)$$

iv = lets suppose 6% for 6 years

$$= 6\% \text{ of } 1200 = 72$$

$$= 72 \times 6 \Rightarrow 432$$

v. = Sagib took loan for 6 years with 6% of simple interest

B) i) 520 visitors on Sunday.

ii) 30 days month start with Sunday

$$30/7 = 4 \text{ means } 4 \text{ more Sundays.}$$

iii) 5 Sundays and 25 weekdays.

$$\rightarrow 5 \times 520 + 25 \times 240$$

$$\Rightarrow 2580 + 6000$$

$$\Rightarrow 8580$$

$$\text{Avg (iv)} \Rightarrow \frac{8580}{30} \Rightarrow 285$$

$$12 \overline{) 432}$$

112

$$15 \overline{) 120}$$

120

120

120

144

1112

156

$$2 \overline{) 432}$$

$$2 \overline{) 216}$$

$$2 \overline{) 108}$$

$$2 \overline{) 54}$$

$$3 \overline{) 27}$$

$$3 \overline{) 9}$$

$$3 \overline{) 3}$$

$$2$$

84

7

588

72

6

432

c)

i) Supposing the number as 10

ii) 40% of 10 = 4

iii) $4 = \frac{2}{3}x$

$$x = \frac{4 \times 3}{2} \Rightarrow 6$$

iv) First number 10, second is 6

$$\Rightarrow 10 : 6$$

$$\Rightarrow 5 : 3$$

d)

i) Total number of outcomes = $6 \times 6 = 36$

ii) If product with even outcome is even

iii) Odd numbers on a dice = 1, 3, 5

iv) Odd numbers on both side = $3 \times 3 = 9$

v) Subtracting odd outcomes from total.

$$36 - 9 = 27$$

vi) Probability

$$\frac{27}{36} \Rightarrow \frac{3}{4}$$

Q no 8:

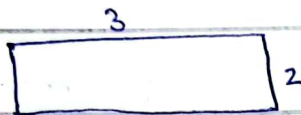
a)

i) Distance of man travelled

$$12 \text{ km/h} \times \frac{8 \text{ minutes}}{60}$$

$$\frac{8}{5} \Rightarrow 1.6 \text{ km}$$

ii)



$$\text{Total Boundary} = 1600 \text{ m}$$

$$\text{if divided by } 10 = 160 \text{ m}$$

$$160 \times 3 = \text{length} \Rightarrow 480 \text{ m}$$

$$160 \times 2 = \text{breadth} \Rightarrow 320 \text{ m}$$

$$\text{iii) Area of park} = 480 \text{ m} \times 320 \text{ m}$$

$$= 153600$$

2,

$$\begin{array}{r} 480 \\ 320 \\ \hline 600 \end{array}$$

B)

i) Suppose X = girl, A = uncle

$$\begin{array}{r} 1360 \times \\ 1440 \times X \\ \hline \end{array}$$

ii) Daughter of uncle's father is uncle's sister.

$$153600$$

iii) ~~Da~~ Uncle's sister is Aunt

iv) Son of Aunt is cousin.

v) Boy is the cousin of the girl.

c)

i) Two digit number $1 = \overset{\text{unit}}{\cancel{\text{tens}}} 2 = 10^{\text{th}}$

ii) Unit $\overset{-}{\text{tens}} 2 = 10^{\text{th}}$

iii) $(\text{unit} + 10^{\text{th}}) \times (\text{unit} \times 10^{\text{th}}) = 144$

Suppose the number unit is 4 then 10^{th} is 2

$(4 + 2) \times (4 \times 2) = 144$

$6 \times 8 = 48 \quad \times$

Suppose 6 and 4

$(6 + 4) \times (6 \times 4) \Rightarrow 10 \times 24 \Rightarrow 240$

d) LCM = 48

Two numbers are in 2:3 mean $2n : 3n$

| | |
|---|----|
| 2 | 48 |
| 2 | 24 |
| 2 | 12 |
| 2 | 6 |
| 3 | 3 |
| | 1 |

$2 \times 3 \times 8 = 48$

$6n^2 = 48$

$n^2 = 8$

Suppose number 8

$2 \times 2 \times 2 \times 2 \times 3$

$2(8) : 3(8)$

$16 : 24$

| | |
|---|--------|
| 2 | 16, 24 |
| 2 | 8, 12 |
| 2 | 4, 6 |
| 2 | 2, 3 |
| 3 | 1, 3 |
| | 1 |

Sum of two number

B. $16 + 24 = \boxed{40} \checkmark$

$3 \times 2 \times 2 \times 2 \times 2 = 48$