

Section - II

Question # 1

Q

Data

loan = 1200

Interest Paid = 432

Rate of interest = ?

Solution

formula of simple interest: Principle amount \times Rate of interest \times time period.

Interest amount = $P \times R \times T$

$P = 1200$

Interest amt = 432

Rate = x

Time = x

$IA = P \times R \times T$

$432 = 1200 \times x \times x$

$432 = 1200 x^2$

$x^2 = \frac{432}{1200}$

$x^2 = 0.362$

$x = \sqrt{0.36}$

$x = 0.06$

Rate of Interest = $x = 0.06 \times 100 = 6\%$ Ans.

$$\begin{array}{r}
 1200 \overline{) 4320} \quad 0.362 \\
 \underline{3600} \\
 720 \\
 \underline{7200} \\
 2200 \\
 \underline{2400} \\
 800
 \end{array}$$

B

Data

Average visitors on Sundays = 510

Average visitors on other days = 420

Month days = 30

Starts with Sunday so total Sunday = 5

Other days = 25

Solution

visitors on Sundays = $510 \times 5 = 2550$

visitors on other days = $420 \times 25 =$

visitors on average for a month =

$$= \frac{4350}{10} = 435 \text{ per}$$

$$\begin{array}{r} 420 \\ 25 \\ \hline 2100 \\ 840 \times \\ \hline 10500 \\ + 2550 \\ \hline 13050 \end{array}$$

C

Data

40% of a number = $\frac{2}{3}$ of another number.
ratios to first number to another = ?

Solution

Let's first number = x

Let's second number = y

$$40\% \text{ of } x = \frac{2}{3} \text{ of } y$$

$$\frac{40x}{100} = \frac{2}{3}y$$

Cross multiplication.

$$= 1200x = 200y.$$

$$\frac{x}{y} = \frac{200}{1200} = \frac{1}{6}$$

$$\begin{aligned} \text{ratio} &= x : y \\ &= 1 : 6 \end{aligned} \quad \text{Answer.}$$

D

Date

Two Dice thrown simultaneously

Probability of getting two numbers whose product is even = ?

Solution

$$\text{Total Probability} = 6 \times 6 = 36.$$

$$\left. \begin{array}{l} \checkmark \\ 1 \times 1, 1 \times 2, 1 \times 3, 1 \times 4, 1 \times 5, 1 \times 6, \\ 2 \times 1, 2 \times 2, 2 \times 3, 2 \times 4, 2 \times 5, 2 \times 6 \\ 3 \times 1, 3 \times 2, 3 \times 3, 3 \times 4, 3 \times 5, 3 \times 6 \\ 4 \times 1, 4 \times 2, 4 \times 3, 4 \times 4, 4 \times 5, 4 \times 6 \\ 5 \times 1, 5 \times 2, 5 \times 3, 5 \times 4, 5 \times 5, 5 \times 6 \\ 6 \times 1, 6 \times 2, 6 \times 3, 6 \times 4, 6 \times 5, 6 \times 6 \end{array} \right\}$$

Total odd products = 1, 3, 5 first dice
1, 3, 5 2nd dice
= $3 \times 3 = 9$

Probability of having odd products = 9

total
= Probability - total odd Probability = total even products

$$= 36 - 9 = 27.$$

Probability of getting even product = $\frac{\text{Total even products}}{\text{Total probability}}$

$$= \frac{27}{36} = \frac{3}{4} \text{ Ans.}$$

Question # 8

A

Data

- Ratio between length & breadth of rectangular Park = 3:2
- man cycling along boundary = 12 km/hr
- Time taken = 8 minutes.

Solution

convert hour to minutes.

$$= \frac{12^2}{60 \times 185} = \frac{1}{5} \text{ km/minute}$$

$$\text{Total distance covered} = \frac{\text{Speed} \times \text{time}}{5} = \frac{8}{5} = 1.6$$

Total distance = Perimeter of Pond.

$$\text{Perimeter} = 2L + 2W.$$

$$\text{Let length} = 3x$$

$$\text{Breadth/width} = 2x.$$

$$\text{Perimeter} = 1.6 \text{ km} = 1.6 \times 1000 = 1600 \text{ meters}$$

$$1600 = 2(3x) + 2(2x)$$

$$1600 = 6x + 4x$$

$$1600 = 10x$$

$$x = \frac{1600}{10} = 160$$

Area of rectangle = $L \times W$

$$L = 3x = 3(160) = 480$$

$$W = 2x = 2(160) = 320$$

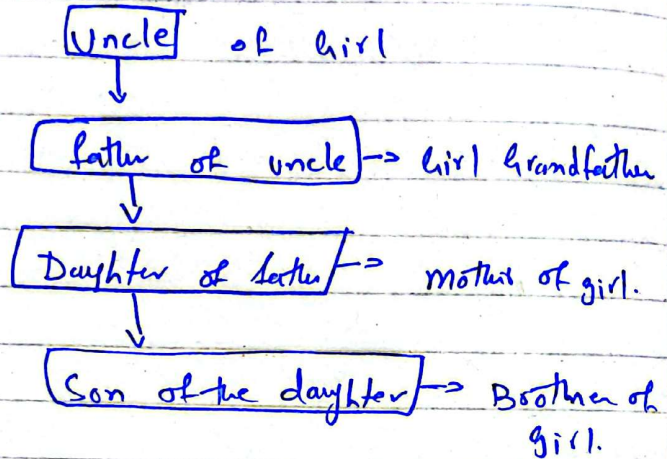
$$\text{Area} = 480 \times 320$$

$$\text{Area} = 153600 \text{ meter/square}$$

$$\begin{array}{r} 480 \\ \times 320 \\ \hline 9600 \\ 96000 \\ \hline 153600 \end{array}$$

B

Data:



Answer

The boy was a brother of the girl.

D

Data

LCM of two numbers = 48

Ratio of two numbers = 2:3.

number = x

Solution

$$2:3 = 2x : 3x$$

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

$$6x = 48$$

$$x = \frac{48}{6} = 8.$$

$$\text{Number} = 2x : 3x$$

$$= 2(8) : 3(8)$$

$$= 16 : 24$$

$$\text{Sum of two numbers} = 16 + 24 = 40$$

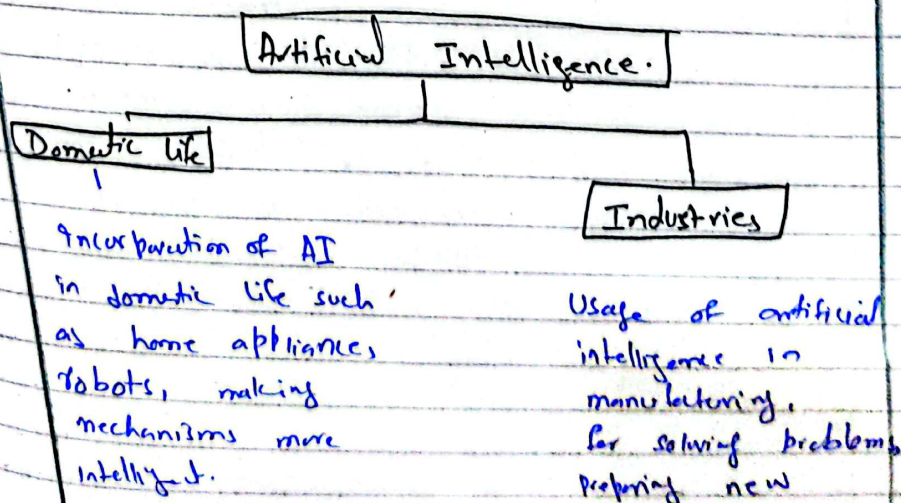
Section - 1

Question # 2

Q:

Artificial Intelligence is the New
Electricity:

It is said that the artificial intelligence is the new electricity as the world is moving towards more technical advancements in all fields of life which incorporates and make Artificial Intelligence an important and integral part of life. Just like an electricity which is essential in human life whether in personal, or professional, industrial, manufacturing and the list goes on. Same is the condition with artificial intelligence.



In education

↓
Students use artificial tools in their education to prepare a topic in multiple dimensions.

eg ChatGPT, Perplexity, Google's Gemini, WhatsApp's Meta AI, and many more.

All above helps students in education. Moreover, use of Zoom classes. Specially in Covid-19.

Solutions, new mechanisms.

AI based machines are more smarter and efficient.

In Advertisement sector

↓
Through artificial intelligence advertisement industries monitor buying behaviours of customers and plan their marketing techniques accordingly. So that profit can be maximised as well as provide best to customers.

B

CPU: Brain of Computer:

CPU: Central Processing Unit of computer is taken as a brain of computer as it receives signals from input devices regarding assigned tasks and work on it accordingly. Later after process completed it provides desired result to users through giving signals to output devices.

Resemblance with Working of Human Brain:

Just like a CPU, human brain works similarly. Human brain receives signals from other parts of the body through its different parts like fore brain, mid brain and back brain. → cerebellum, cerebrum, brain stem. Every part of brain has its relevant functioning like a CPU in computer. One part of brain provides reasoning and logics which is done by fore brain. On the other hand one part of brain which is attached with spinal chord gives signals to the brain and brain process that signal.

and give command to other body parts to function accordingly - e.g. movement of hands, sitting, standing, taste of food.

For example: tongue give signal to brain → brain process that signal and produce the taste of the food.

- Similarly, when a person gets hurt or hit by with something, brain receive signal to diagnose the pain and react accordingly.

Thus, it can be concluded that the human brain works like a CPU ^{works} in computer.

C

Balanced Diet

A balanced diet is something which includes all the necessary ingredients which are essential for human body to function properly.

The list includes proteins, fiber, vitamins, minerals, glucose, etc.

The same can be achieved through a proper diet and including fruits, wheat, meat, milk and other ~~pro~~ elements. There are a few minerals, fibers, which are available in human body. The same accounts for 11 out of 20 amino acids. While the other 9 are not present in the body and need to be taken on regularly.

Deficiency in a balanced diet cause many diseases in body. For instance:

Deficiency of Vitamin A: will cause night blindness and other eye issues.

Deficiency of Vitamin B: Vitamin B has 9 different sub vitamins which cause different diseases in body. Such as anemia, etc

Deficiency of Vitamin C: It leads to ~~for~~ scurvy, and other bone related issues.

Thus, having a balanced diet is very important for human body to function properly.

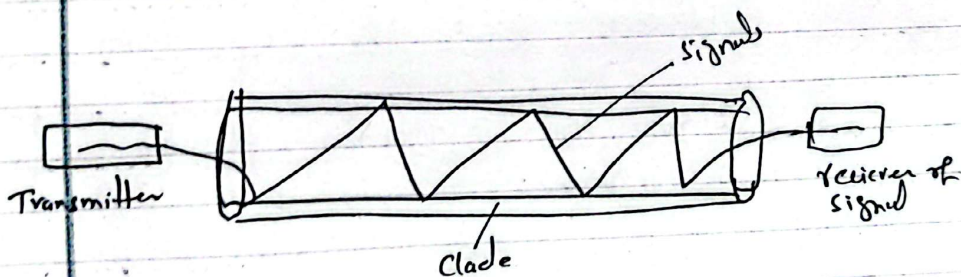
D

Optical fiber

Optical fiber is used to transfer signal just like copper and other wires.

Working of optical fibers

In optical fiber signals transfer through a glass as thin as human hair. The working for transfer of signal happens through Total Reflection.



Here in optical fiber no signal loss happens as signals when hit boundaries of walls, due to a critical angle that reflect completely without losing any information attached with the signals. So, no information get lost.

Q.No. 3
a. Why?
b. What?
c. State so
d. What is p

Q.No. 4

- Write a note
- Describe role
- Discuss differ
- Define the term

Q.No. 5

- Climate finance is
- Differentiate between
- It is said that we have
- the issues of water sea

Q.No. 6

- A boat having a length of 3,
- man gets on it. The mass of
- ball is? $g = 7$

GPS: Global Positioning System.

GPS: a global Positioning system is an invention where it works to provide exact location of anything.

It receive signals from satellite, transfer the information to receiver/transmitter.

It works best under 10 meter.

Every GPS satellite has its own radio, clock and computer. In GPS radio waves are used.

Question # 3

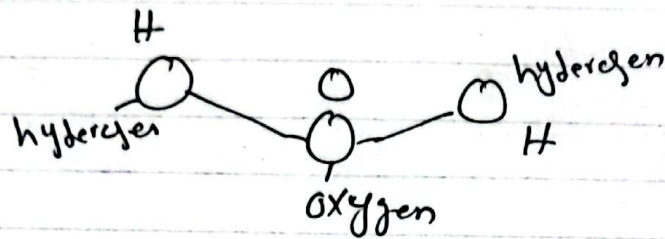
Why Atoms form Chemical Bonds

Atoms form chemical bonds in order to get its valence shell complete. The outer most shell of atom is called valence shell. This valence shell has 2 or 8 electrons in its outer shell. Atoms form chemical bonds to complete valence shell and become noble gas. As noble gases have their outer most (valence) shell full.

Covalent Bond In a water molecule

There are two types of chemical bonds: Covalent and Ionic bonds. In covalent bond bond is formed by

sharing electron of two atoms. In a water molecule the bond is covalent. Here two atoms of hydrogen forms bond with one atom of oxygen. The bond formed is covalent as electrons are shared in it.



H_2O = 2 Water molecules.

B

Dopping

Dopping is a process in which an impure atom is added to excite the outermost shell / or an atom to make ~~the~~ electricity flow in it.

Here when an impure atom is added it excites electrons. When an atom electron leaves its shell due to excitement caused by an impure atom. It creates a hole through which electricity passes.

An impure atom which is added is called dopant.

Ceramics

It is an inorganic, non-metallic compound. made up of clay. It is non-insulator and non-conductor of electricity. It has high melting point.

Types of Ceramics

There are different types of ceramics such as China ceramics, which is used to make china crockery.

Another one is Stoneware: which is made up of high temperature, after hardened the clay on higher temperature it is used to make things.

- Porcelaine is an another type which is a pure white clay.

- Earthenware: a more texture and traditional crockery is made up of earthenware.

- Glass ceramic: Transparent like glass mixed with ceramic quality.

Thus there are multiple types of ceramics based on its properties.

C

Global warming

Global warming is a phenomenon denoted to higher temperature on earth. There are multiple merits and demerits of global warming. which are as below.

Merits of global warming:

- Due to global warming new natural resources get discovered by melting of glaciers.
- Another merit is increasing agricultural time period cycles. eg in many areas of Pakistan wheat crop is planted twice. As due to warm temperature, crops get ready earlier.
- New industries get launched due to global warming as with environment changes gets demands change.

Demerits of global warming:

There are multiple demerits of global warming. such as:

- Increased health issues, such as respiratory issues, BP issues, dehydration, heat issues.
- Skin issues, and many more.

It damages skin and increases chances of skin cancer due to ~~an~~ excess ultra violet rays of sun.

- It can cause water scarcity due to extended droughts, ~~rather~~
- lead to natural disasters such as melting of glaciers lead to more water flow and can cause floods.
- Damages economies. eg ~~A~~ New York Times published in its November 2021 that by 2050 world economy will loose \$23 trillion due to climate change.

Thus, there ~~are~~ are multiple merits as well as demerits of global warming, based on its effects.

D

Polio

Polio is a disease of children which cause ~~the~~ physical disability in kids. The same has no cure once occurred. However, there is a Polio vaccine which is used to safeguard ~~it~~ ~~from~~ childrens from Polio virus. ~~A~~ Polio is a virus based disease. And occurs in children.

Challenges in Eradication of Polio in Pakistan:

There are multiple challenges which hinder ~~ed~~ eradication of polio in Pakistan.

- Perception of People: People have negative perception towards polio vaccines and do not want to get their children vaccinated.
- Unislamic perceptions attached: People due to misinterpretation of Islam considers it to be unislamic and went preponderate to weakened their children.
- No proper records of children left leave many children un-vaccinated.
- Killing of Polio workers is an another challenge as security of polio workers is at stake due to violent reactions of people.
- There are many areas which are not covered under due to remote areas.
- There is a lack of capacity of institutions in governance as well as health system which hinders polio eradication.

Thus it can be said that Polio is a disease which hampers whole life of children. However, there are multiple challenges in the form of misconception, negativity of vaccines, poor health system and governance issues lead to limit eradication of Polio in Pakistan.