PART - II

SECTION - I

ANSWER QUESTION No: 2

Q.No: 2(a)

Volcano erupted in Iceland:

On 18th December, 2023 volcano was erupted in iceland. The government of iceland issued a warning to their citizens for their protection and their safe departure. This volcano was erupted after a series of volcano small earthquakes.
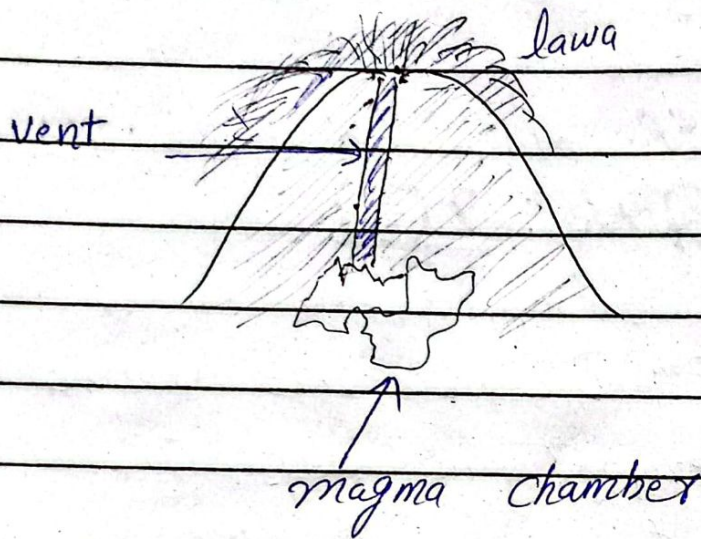
What is volcano:

Volcano is an opening vent on the surface of the earth through which a fluid comes on the surface of earth.

Volcano helps in the form of crust surface and evolve the crust features.

How Volcanoes are erupted?
Volcanic eruption takes place when magma inside the earth finds weak crust, then it tries to comes out of earth. When a series of earth-quakes occurs, so different types of crust crack occurs in the surface of earth, which provides a way for magma to come out of of the surface.

Types of volcanic eruption.

i) Violent volcanic eruption: This eruption occurs when different types of gases build up under the crust. A huge volume of gases build up which tries to explode the surface. This is called violent volanic eruption.

ii) Silent volcanic eruption:

In this type of eruption, gases do not build up under the surface, magma is in liquid form so it trie to comes out of surface where it finds cracks.

In this volcanic eruption takes places in the world. It also poses several threats if it occurs in a populous place.

Answer Question No: 2(d)

Optical fiber project ~~in~~ under CPEC.

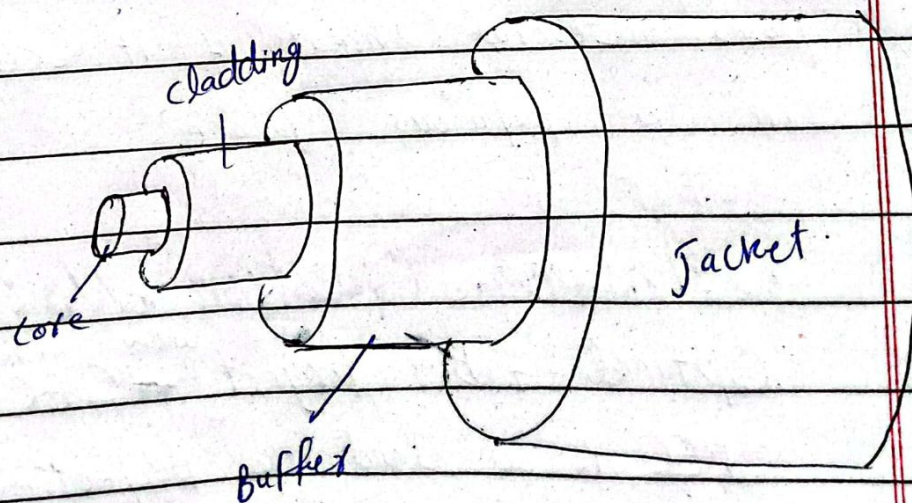CPEC is a landmark project of BRI. It is a source big foreign

source of foreign direct investment in Pakistan. 820 km of optical fiber is laid down between Khunjerab Pass and city of Rawalpindi under CPEC. This will help to make communication fast and secure.

What is optical fiber:

Optical fiber is a medium which is used to transmit data in the form of light signals through glass strands. Optical fiber offers many benefits over othe types of communicat media, It consist of core, cladding, buffer and jacket.
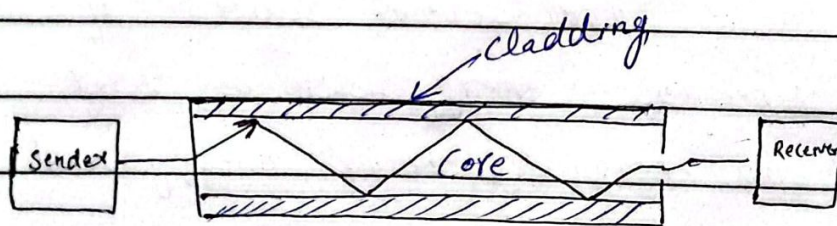
cladding

core

buffer

Jacket

How Optical fiber works:

Optical fiber works on the basis of internal reflection inside the glass tubes of core. Data at source is converted into light signal before it transmitted over Optical fiber. Data is transmitted in the form of light signals in the optical signals. light reflect inside the glass tube and transmitted in a very high speed. At the receiver, light signals are again converted into binary form which is understable by the computer.

Inter working of optical fiber.

In this way optical fiber works and transmit data. It is also considered as a most reliable,

secure and fast media for data transmission

ANSWER QUESTION No:2(c)

Renewable Energy:

Renewable energy is a type of energy which does not exploit the environment. Renewable energy sources do not ends. It is achieved from natural sources. It is cheap and environment friendly. Not The world is going to shift from non-renewable to renewable energy sources. There are several sources of renewable energy such as solar, wind energy, geothermal energy and many others.
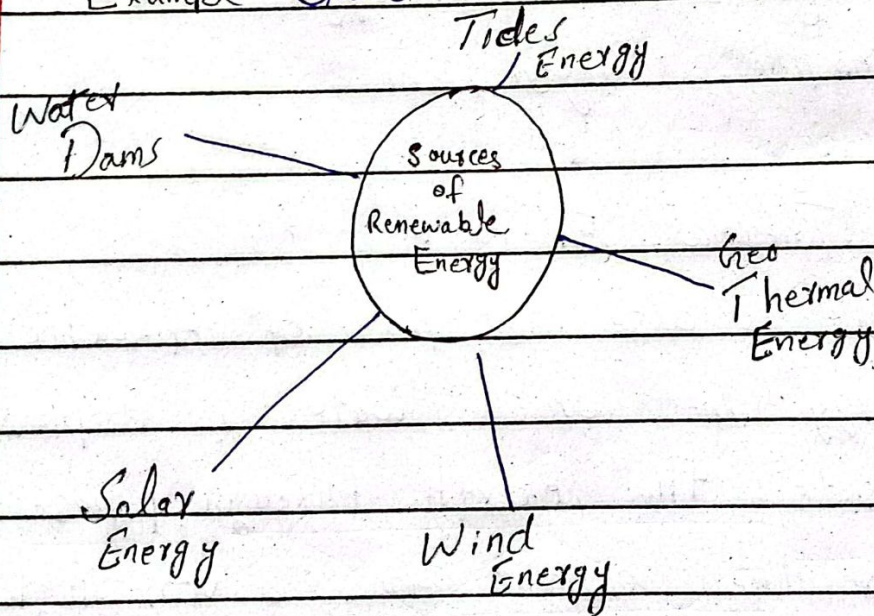
Sources of Renewable energy.

Following are the most important sources of renewable energy which ar as follows.

i) Sol
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ii)

i) **Solar Energy:**

Solar energy is a most widely used of renewable energy. Sun is a big source of renewable energy. Very little amount of solar heat is used as a renewable source of energy. Solar panels which are made of photovoltaic cells are used to acquire energy from the Sun.

Example: Quaid-e-Azam Solar Park

Water Dams — Sources of Renewable Energy — Tides Energy, Geo Thermal Energy, Solar Energy, Wind Energy

ii) **Wind Energy:**

It is a renewable energy. In which poles are placed on a mountain area or on a coastal area where wind helps to run

turbines which produce energy. In this way environment friend energy is required. Example: Sachal wind form

ii) Water Dams

Water also possess energy in the of Potential energy. When water is dropped from a height, then it moves with a lot of energy which helps to run turbines without fuel. This is the most widely used of renewable energy.

Example: Mangla Dam

iv) Geo Thermal Energy:

This is also a form of renewable energy in which water is dropped inside the earth through pipes. As the earth has a very high temprature inside in it. This heat helps the water to heat it up. In this way, steam is used to run a turbine.

Example: This is used in European countries

v) Tides Energy:

Tides also possess energy.
Tides are used to run turbine.
Tides are also a big source
of renewable energy. This method
is applied in those areas which
are closer to the oceans.

So, renewable energy offers
many benefits because these sources
provide cheap, affordable and environment
friendly energy.

QUESTION NO: 2(b)

Big Bang:
Big Bang is a theory which helps
us to explain the orgin of the
universe. According to this theory,
the entire universe was inside
a bubble which sudently exploded
and then the the universe

originated. And still the universe is expanding.

How the age of universe is determined?

There are several methods which help to explain the age of universe.

i) Blue Shift, Red Shift :

It is observed that those stars who exhibit blue light, they are closer to collapse and those stars who exhibits red light they have more life.

ii) Dense and light objects.

It is observed in the universe that those objects who are dense they have strong gravitation field so they are also closer to their death. Those objects of universe which are light they have more light life.

Microwave Background Radiation:

It is also observed that those objects which exhibits more microwave radiation they have more light life then those objects which exhibits less radiations.

These methods of are used to determine the age of universe. The research is still going on. Hubble telescope is a big equipment which helps the astronmers to observe the other events of universe more closely.

ANSWER QUESTION No:3

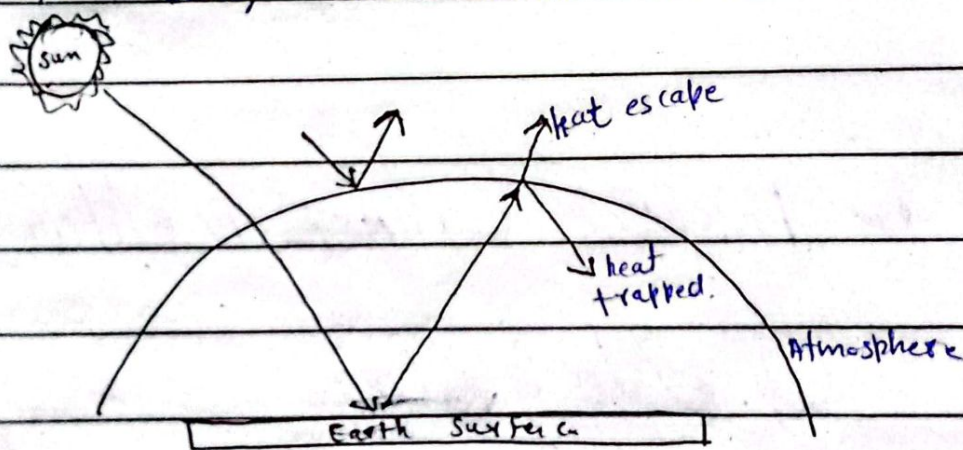## Q. No: 3(a)

2023 as the hottest year:
According to the Asian Development Bank, 2023 was the hottest year recorded in the human

history, 4 july was recorded as the hottest day. July was the hottest month which was recorded in the human history.

What is global warming:

Global warming is a phenomena in which heat which is trapped in the atmosphere of earth is not allowed to escape out of earth in a very high amount. Water vapour, CO_2 methane, and other particles help to keep the earth hot.

Major Hurdles in developing countries to tackle the impacts of global warming:

Lack of Finance : The first hurdle,

developing countries are facing is unavailability of finance to compete with climate change and global warming.

ii) **Phasing out of carbon.**

Another important hurdle is that the developing countries are making progress. It is committed by many developed countries to reduce dependence on fossil fuels and increase reliance on renewable energy. But some developing countries are not fully committed to reduce dependence on fossil fuels.

iii) **Population explosion in developing countries**

It is observed that developing countries are more populous than developed world. So demand for goods also increases in these countries. More people produce more gases such as CO_2, CH_4 and

many others which are the causes
of global warming.

iv) Deforestation:

    eAnother important cause of global
warming is the deforestation. Poor
people of developing countries use
wood as a fuel which led to
deforestation. This lead to increase
in global warming

    These are the main hurdles which
prevent developing countries to fight
with global warming.

eAnswer Question No:3(b)

Balance diet:
    Balance diet is a diet which
include all the important component
which are important for the normal
growth of body. Balance diet
helps the human body to
grow and function properly.

Important Component of Balance Diet:

Following are the most important component of Balance diet.

i) Carbohydrates

Carbohydrates are the main sources of energy which helps to provide energy to the body. Eggs, wheat, bread, milk, dates are the source of carbohydrates.

ii) Proteins:

Proteins are another component source of Balance Diet. Protein helps the body to grow. It is used for the growth of muscles. Eggs and diary products are the source of proteins.

iii) Lipids:

Lipids are also an important source component of Balance Diet. Lipids are also important element of a cell.

iv) Vitamins.

Vitamins are an important element of Balance Diet. Vitamins do not provide energy but it helps to regulate other important chemical reactions inside the human body. Vitamin A, D, E, K, B, C are types of it.

v) • Minerals:

• Minerals are also necessary for body. Minerals such as phosphorous, potassium, iron, and many other are required for the proper functioning of body.

vi) Cholestrol :

Chd Cholesterol is also required for human body. Cell which is a basic unit of life. cholesterol is required for cell life. So cholesterol also provides energy to human body. Good and Bad cholesterol are two types of cholesterol. Liver is

also produces cholesterol.

vi) Water :

Ø Human body consists of 70% of water. So water is very important for food observation. Water is very important for other human body functions also.

So, all humans must ensure that they are taking a Balance Diet. In this way a person can live a healthy life.

Answer Question No: 3(1)

RAM :

RAM is the most important component of computer. Computer cannot work without RAM.

RoM :

ROM is also another

important component. RoM is difficult to modify. There are several types of RoM such as PRoM, EPROM and many others.

RAM	ROM
i) RAM stands for Random eAccess Memory	RoM stands for Read only Memory.
ii) It is easy to modify the content of RAM.	It is very difficult to modify the content of RoM.
iii) RAM requires electricity to hold its content.	ROM does not require electricity to hold its content.
iv) RAM is closer to CPU.	RoM is not closer to CPU.
v) RAM is faster	ROM is slower than

than RoM	RAM
R1 vi) RAM is expensive than RoM	RoM is cheaper than RAM.

These1 are the basic difference between RAM and RoM. Both are necessary for the proper functioning of a computer system.

Answer Question No:3(c)

• Machine Learning is the subset of Artificial intelligence.
• Machine learning means that to develop intelligent machines which are autonomous. They can work themselves. They do not require human intervention for proper working. Machine Learning helps human a lot of benefits. Research is

to perform their daily life tasks easily and swiftly.

How eAI has revolutionize the world.

eAI has come into existence in the mid of 20th century. eAI has revolutionize the world. AI is being used in every field of life.

Examples:

Use of AI in agriculture is a big example. eAI machines helps human to not only conserve their natural resource but also help them to increase the crops productivity. Driverless tractor, drip irrigation and many other technologies has revolutionized the agriculture field.

Similarly use of AI in medical field has also revolutionize the medical field. eNow AI

machines are being used to perform not only administrative tasks but also used it to perform complex operation, diagnose disease and in the other research works. So AI has also revolutionize the medical field.

Benefits of AI.

i) Reduce the cost of employees

ii) Increase the productivity of work.

iii) Can perform complex and multiple tasks in miliseconds. and at the same time.

iv) It is also being used in research to explore the other world.

No doubt, the use of AI has revolutionize the 21st century. AI is being extensively used in the whole world. So it offers a lot of benefits. Research is

is still being conducted on AI
and its machines

$$\longleftrightarrow$$

SECTION - II

Answer Question No: 8

Q.No: 8(a)

Let n is the first number
so the next two odd numbers
are $n+2$, $n+4$

Sum of three consecutive number
is:

$$n + (n+2) + (n+4) = 273$$
$$3n + 6 = 273$$
$$3n = 273 - 6$$
$$3n = 267$$
$$n = 89$$

First odd number is 89.

Second odd number = $n+2$

$= 89+2$

$= 91$

Third odd number = $89+4$

$= 93$

$89, 91, 93$ are three consecutive odd numbers.

Q.No : 8(a)

Let Sara's age $= x$.

Age of Sara's mother $= 6x$

~~Age of Brother~~

Age of Sara's brother $= 2x$

In three years time, there ages will be

$(x+3) + (6x+3) + (2x+3) = 72$

$9x + 9 = 72$

$9x = 72 - 9$

$9x = 63$

$x = 63$ $9x = 63$

$$x = 7$$

• Age of Sara = 7 years old.

• Age of Sara's Brother = $2x$

$$= 2(7)$$
$$= 14 \text{ years.}$$

• Age of Sara's Mother = $6x$

$$= 6(7)$$
$$= 42 \text{ years}$$

So Sara is 7 years old, her brother is 14 years old and her mother is 42 years old.

Answer Question No : 8(b)
8(b)

1) 4, 16, 36, 64, <u>100</u>, 144

• As the series shows the square of even numbers.

$2^2, 4^2, 6^2, 8^2,$ _____ so

the next will be 10^2.

ii) 30, 29, 27, 24, 20, 15

As the sequence shows that one digit is missing and the now the series

$30-1 \neq 29$

$29-2 = 27$

$27-3 = 24$

$24-4 = 20$

$20-5 = 15$

iii) 1, 7, 15, 25, **37**, 51

The sequence of this series is

$1+6 = 7$

$7+8 = 15$

$15+10 = 25$

$25+12 = 37$

$37+14 = 51$

iv) 0, 2, 6, 12, 20, 30, **42**

The sequence of this series is

$0+0 = 0$

$0+2 = 2$

$2+4 = 6$

$6+6 = 12$

$12+8 = 20$

$20+10 = 30$

$30+12 = 42$

iv) 48 , 24, 72, 35, 108 , **52**
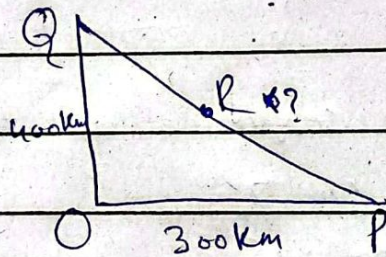
The sequence of this series is

$48 \div 2 = 24 - 0 = 24$

$72 \div 2 = 36 - 1 = 35$

$108 \div 2 = 54 - 2 = 52$

ANSWER Question No : 7
Q. No : 7(a)

According to the given statement,

① Distance between O and P = 300km

Distance between O and Q = 400km

If ② Distance betwee Q and P = x

So distance between Q and R is = $\dfrac{x}{2}$

So according to formula.

$$QR^2 = OQ^2 + OP^2$$

$$x^2 = 400^2 + 300^2$$

$$\sqrt{x^2} = \sqrt{400^2 + 300^2}$$
$$x = \sqrt{160000 + 90000}$$
$$x = \sqrt{250000}$$
$$x = 500$$

The distance between Q and R = $\frac{500}{2}$
$$= 250 \, km$$

250km is the distance between Q and R.

A.Q.No : 7(d)

Average age of three boys = 15 years
$$\frac{a+b+c}{3} = 15$$

$$a+b+c = 15 \times 3$$
$$a+b+c = 45$$

The ratio of their ages
$$3 : 5 : 7.$$

So
$$3a + 5b + 7c = 45$$

So the age of A = $\frac{45}{3}$
$$= 15 \, years.$$

So the age of B = $\frac{45}{5}$
$$= 9 \, years.$$

Age of c = 45

=

Sum of ratio = 15

Age of a = $\frac{3}{15} \times \overset{3}{45}$

= 9 years.

Age of b = $\frac{5}{15} \times \overset{3}{45}$

= 15 years

Age of C = $\frac{7}{15} \times \overset{3}{45}$

= 21 years.

So the age of youngest is
9 years old.