

P PART - II

SECTION - I

Answer Question No: 5

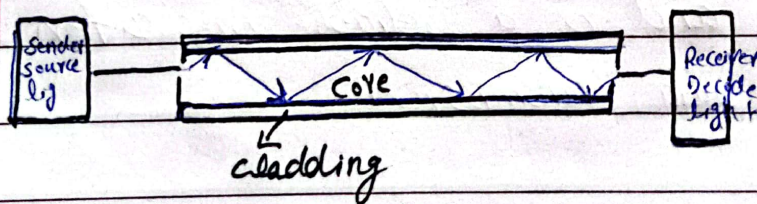
Q. No: 5 (c)

What is an Optical Fiber?

Optical Fiber is a medium in which information is transmitted in the form light through tiny glass pulses. Fiber optic is most widely used medium to transmit data in a very fast speed.

How does an Optical Fiber work?

Optical fiber uses light to transmit data. The data is transmitted by a sender in the form of light.



Light passes through the core of

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of fiber optic which is covered by a cladding.

Cladding is a plastic sheet.

Cladding is further covered by a buffer and buffer is covered

by a jacket. Light is transmitted as a result of internal reflection

inside the core. Light is received

by the receiver device which is

decode and data is converted to

its original form.

Advantages of Optical Fiber Optic.

- i) It transmits data at a very high speed.
- ii) It ensures the secure data transmission.
- iii) It protects data from external interference.
- iv) It is most widely used and is a reliable media for data transmission.

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Q. No: 5 (b)

What is AI?

AI stands for Artificial intelligence. AI is a technology which is used to equip machines with intelligence. AI machines works autonomously. AI machines has revolutionize the world. AI has made the human life faster and easier.

How AI has revolutionized the world:

AI came into existence in the mid of 20th century. AI is most widely being used in every field of life.

Especially, after the 2005, AI technology has totally transformed the human life.

The use of AI in medical field has revolutionized the medical field. For example, a

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Stethoscope is invented in Brit. UK, which can diagnose the heart disease within a second, similarly it is also being used to perform many administrative not only in medical field but also in other fields as well. The use of AI in agriculture, science, research has tremendous ~~to~~ ~~inter~~ revolutionize the human field.

The benefits of AI

- i) AI machines are capable to perform complex and multiple task at the same time.
- ii) AI is being used to enhance the crop productivity in agriculture field.
- iii) Generative AI algorithms can help both teachers and students to enhance their knowledge and skills.
- iv) AI is also being used to explore the universe further.

In short, AI inventions has revolutionize the human life in 21st century.

Q. No : 5 (c)

Computer is an electronic machine which consist of different components. RAM and ROM are the two most important component of a computer system.

Difference between RAM and ROM

RAM	ROM
i) RAM stands for Random Access Memory	ROM stands for Read only Memory.
ii) RAM requires electricity to save data	ROM do ^{es} not require electricity to hold its content.
iii) RAM is a volatile memory	ROM is a non-volatile memory.
iv) Data can easily be removed from RAM	It is difficult to remove the content of ROM.

v) RAM is a fast memory

ROM is a slow access memory.

Define USB :

Define USB stands for Universal Serial Bus. It is a storage device which can store data permanently. It is a portable storage device. It is mostly widely used by the computer users.

USB allows users to carry data with them everywhere. It is fast storage device than CD and magnetic tape.

Define Nibble :

Nibble is a storage unit. Four bits are equal to one nibble. It is used to represent the storage capacity of a device.

Q.No: 5(d)

Satellite :

Satellite is a body in space which revolves around a planet in a solar system.

There are several types of artificial satellites which are revolving around our Earth planet.

Critical speed of satellite :

Critical speed of satellite means a speed which is necessary to a satellite to escape from the gravitational force of earth.

It is more than 11.2 km/s .

Rockets are used for this purpose, which allows a satellite to escape from the gravitation force of earth.

Difference between Geo-Stationary and Polar Satellites.

Geo-Stationary Satellite

i) Geo-stationary satellite is a satellite which is synchronous to the speed of earth.

These satellites are high earth orbit satellites which are ^{above} at the altitude of 37,500 km.

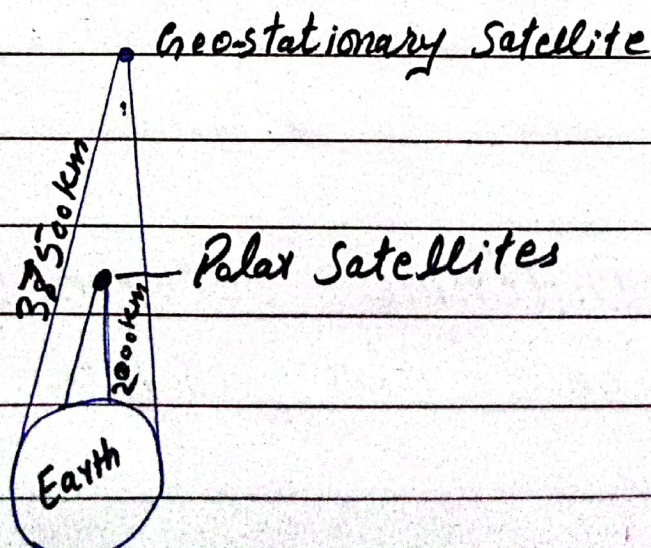
These satellite seems to be stationary because they are align ^{with} the earth orbit.

Polar Satellites

Polar satellites are those satellite which moves from polar to polar.

These satellites are medium earth orbit and are at the altitude of 2000 km.

These satellites cover the earth area within 12 hours.



ANSWER QUESTION No: 2

Q. No: 2(c) Balance Diet:

Balance diet is a diet which includes all nutrient which are necessary for the growth of body. Balance diet is very important to spend a healthy life.

There are different components which should be available in the food.

Components of Balance Diet:

Following components must be included in a diet.

Carbohydrates:

Carbohydrates are chief source of energy. These consist of carbon, hydrogen and oxygen. Different types of carbohydrates such as monosaccharides, oligosaccharides etc.

Milk, dates, eggs are the primary source of carbohydrates.

Protein :

Protein are necessary for the normal growth of the tissues and muscles of human body.

These can be achieved from eggs, pulses and dairy products.

Lipids : Lipids are also very important for the normal functioning of human body which can be achieved from fish.

Vitamins : Vitamins do not provide energy but they help to regulate other chemical reactions and process within human body, Vitamin A, D, E, K are fat soluble and Vitamin B, C are water soluble.

Water : Our body consist of 70% of water. So water is very important part of Balance Diet.

Minerals : Minerals are also very important component of balance diet.

Iron is a very important mineral.

Thus, all these components must be present in a diet. Then ~~we~~ a diet can be called a balance diet.

Q. No: 2 (b)

What is Solid Waste Management?

Solid waste management is a technique which is used in waste collecting, storing, managing and then its proper disposal in a landfill.

Solid waste management is a scientific technique. This technique is first used by European Union. Solid waste management is widely used in developed country. But its situation in Pakistan is dismal. Waste is collected in a few sites of major cities.

Major Activities of Solid Waste Management.

- i) Waste generation
- ii) Waste is sorted, ^{and} stored.

- iii) Waste is collected
- iv) Waste is transported to a landfill site
- v) Waste is dumped in landfill and energy is produced.

Different methods of Solid Waste Management :

Different methods are used for different type of solid waste.

- i) Municipal solid waste : In this method, solid waste of home is placed.
- ii) Construction Landfill : In this type of method, waste related to construction of factories, homes is placed.
- iii) Industrial landfill : In this method, industrial residues is placed.
- iv) Hazardous Landfill : In this method those waste is placed which is hazardous such as nuclear waste, petroleum waste products etc.

A. Q. No: 2 (d)
CPEC :

CPEC stands for
China - Pakistan Economic Corridor.

It is a landmark project of
BRI. Different types of
projects have been completed
under this landmark project.

These projects include: energy
projects, transport projects,
Industrial projects such as Special
Economic Zones and many others.

Renewable energy projects:

Different types of renewable
projects have been initiated
under CPEC. The following
three renewable projects are
most important.

Solar Project:

Quaz-e-Azam Solar Park,
is a landmark project.

Its capacity of power generation
is 50MW. This projects will
help Pakistan to move towards

non-renewable energy source

Hydro power project.

A Hydro Power Project is constructed in Azad Kashmir. This is a ~~non~~ renewable energy projects.

This will help Pakistan to meet its energy needs.

Wind Farms in Pakistan:

A few wind farms have also ~~const~~ established in Balochistan under the CPEC. These wind farms are capable to produce energy of 50MW. One wind farm is also established in Sarchal

Benefits of renewable energy resources to Pakistan.

Pakistan dependence on oil will be reduced which will lead to reduce in import bill and this will help to improve Pakistan economy and foreign policy challenges.

Pakistan is a 5th most vulnerable country to climate change. This ^{will} help Pakistan to lead the world towards renewable energy source

Q. No : 2 (a)

COP28 :

COP stands for Conference of Parties. It is a convention which is held under the UNFCCC. It is a climate change conference which is held in Dubai, UAE in Nov-Dec 2023. COP28 conference sign a landmark agreement in which all countries are ready to establish a Loss and Damage Fund for climate vulnerable countries.

COP28 and Pakistan:

Pakistan also attended this conference in Dubai, UAE.

Pakistan urges the world to move towards the renewable energy source. Pakistan is the five most vulnerable country to the effects of climate change. The Flood of 2022 and intense rainfall in 2023

are the effects of climate change. Pakistan is a country which contributes less than 1 percent in climate change but it is the 5th most vulnerable country. So the establishment of Loss and Damage Fund is a big step for developing countries to meet this challenge.

Financial issues of developing countries and climate change.

Developing countries contribute very little amount in climate change but they are paying very much due to climate change. Due to floods of 2022, Pakistan bore a loss of more than \$30 billion.

In COP28, all countries agreed to establish loss and damage fund but they are also facing other challenges which are related to finance.

For example, the conditions on the money of fund, payment method, which institution will distribute this money. And ~~etc~~ how

~~energy source~~ each country would contribute to this fund.

SECTION - II

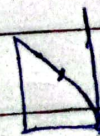
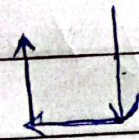
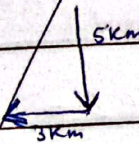
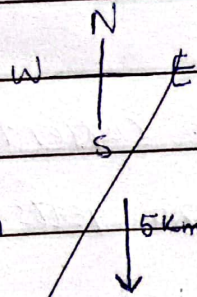
ANSWER QUESTION No: ~~8~~ 6

Q.No: ~~8~~ (a)

A cow travels South 5km
Then west 3km

Then 4km North

Finally travel 2km south-east



Q. No: 6 (a)

$$\text{Five years ago son's age} = x - 5$$

$$\text{Five years ago father's age} = 3x$$

$$\text{Current age of son} = 30$$

$$\begin{aligned} \text{Five year age son's age} &= 30 - 5 \\ &= 25 \text{ years} \end{aligned}$$

$$\begin{aligned} \text{Five year age father's age} &= 3x \\ &= 3(25) \\ &= 75 \text{ years} \end{aligned}$$

$$\begin{aligned} \text{Current father age} &= 75 + 5 \\ &= 80 \text{ years} \end{aligned}$$

So current age of father is

80 years.

Q. No 6 (b)

$$\text{values} = 10, 30, y, 50$$

$$\text{Mean} = 50$$

$$\text{value of } y = ?$$

$$\text{Mean} = \frac{\text{Sum of All values}}{\text{No of values}}$$

$$50 = \frac{10 + 30 + y + 50}{4}$$

$$50 \times 4 = 90 + y$$

$$200 = 90 + y$$

$$200 - 90 = y$$

$$\boxed{y = 110}$$

So, the value of y is 110

Q. No 6 (c)

i) ~~2, 6~~, 18, 54, 162

The pattern

$$2 \times 3 = 6$$

$$6 \times 3 = 18$$

$$18 \times 3 = 54 \quad \text{So,}$$

$$54 \times 3 = 162$$

ii) 3125, 256, 16, 4, 1

$$2^0 = 1$$

$$2^2 = 4$$

~~$$2^4 = 16$$~~

$$4^2 = 16$$

$$16^2 = 256$$

Answer Question No: 8

Q.No: 8(b)

Total slices = 8

Slices that contain raisin = 3

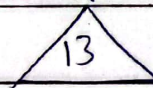
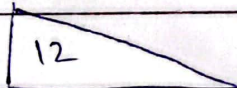
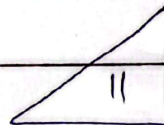
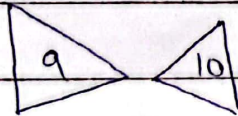
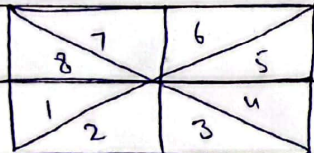
Probability that Sharra will pick

a slice with raisin = $\frac{3}{8}$

$$= 0.375$$

Q.No: 8(c)

No of triangle = 14



Q.No: 8(d)

Factors which can affect IQ

The following factors which can affect IQ

i) Genes/ Genetic Information:

A person that inherits its values and information biologically from its parents can affect IQ.

ii) Gender:

It is also observed that gender also affects IQ. It is observed that girls are capable in memorization and boys are good in mathematics.

iii) Health.

Health also affect IQ level. A person who is ill cannot perform well.