

# Part-II

## SECTION-I

Q4  
(a)

### Fibre Optics :

Fibre Optics is a wire used to transmit in long distance without loss of data.

Fibre optics provides fastest speed than any other cable. Fibre optics is widely used cable.

### How it works?

Fibre optic is made of tough material to protect it from outside. In inner side it has a mirror from which data ~~sto~~ transfer. In this mirror data is transmit in the form of light. That light keep reflected with the side of mirrors and eventually reach to its destination without any loss of data.

### Advantages of Fibre optic communication over traditional copper wire communication

There are multiple advantages of fibre optic communication over traditional copper wire. Some

of them are given below:

=> Fibre optical cable does not loss data, but in copper wire most of the data got loss.

=> Fibre optical wire has less distortion where copper wire has more distortion during calls.

## Fibre Optics Enable High-Speed Data Transmission

Fibre optics enable high speed data transmission because:

In traditional wires such as copper wire data is flow in a wire in sequence or steady way which slow the speed but in fibre optics data is transmitted in a form of light which reflected with there surrounding mirrors ~~in~~ at a specific angle and by continuously refraction data is transmitted in high speed by in the form of light. So, fibre optics enable high speed data transmission than anyother cable.

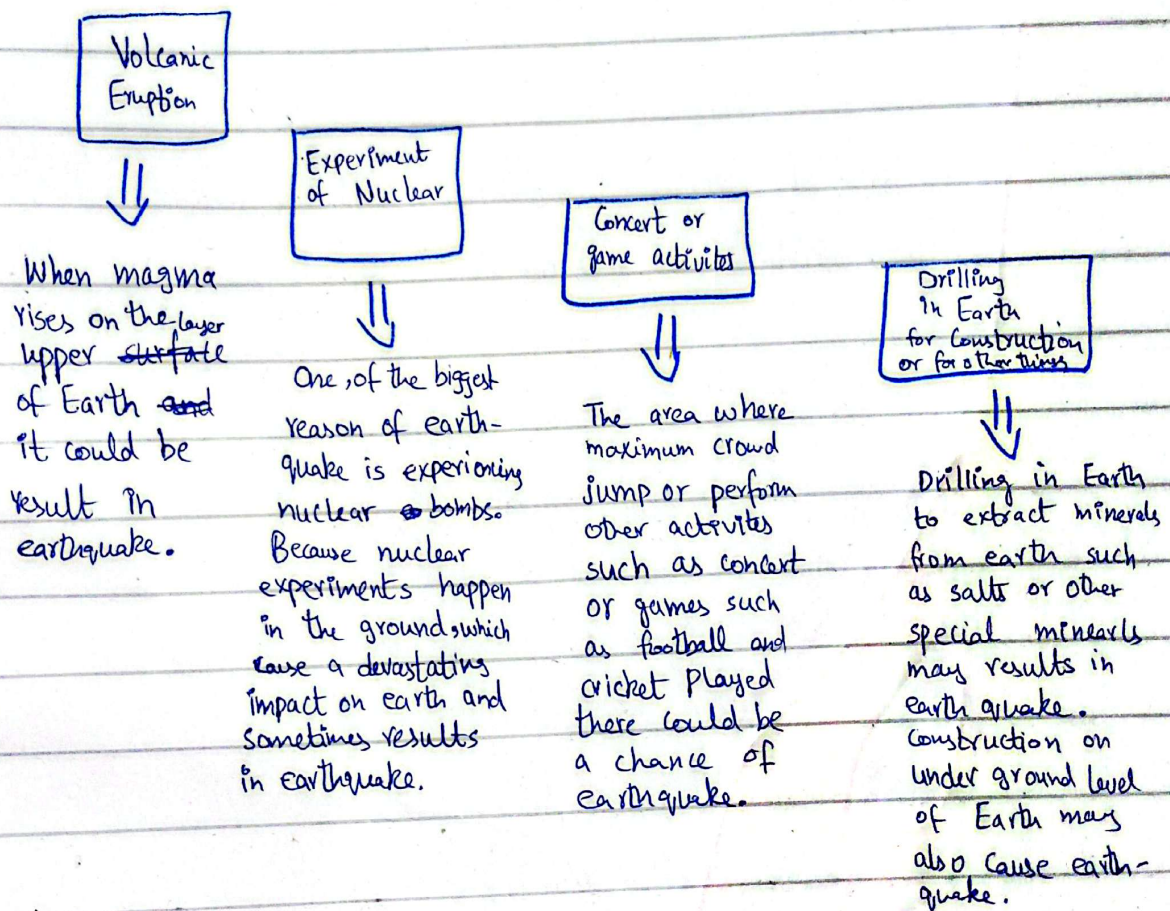
(b)  
Earthquake:

Earthquake is a movement of 12 tectonic plates. Earthquake could be caused by naturally and by human activities. It could be result in biggest destruction.

## Causes of Earthquake:

There are multiple

causes of earthquake such as:



## Effects of Earthquake:

Earthquake cause

devastating impact such as:

### Coastal Area



If earth quake happens in oceans  
it adversely effects the coastal area

### Magma/Lava



Earthquake may also cause magma  
or lava to start releasing.

### Mountains



Earthquake may also ~~cause~~ results  
into birth of new mountains.

### Devastating Impacts on Industries or Homes



Earth quake destroy the buildings or homes  
of people.

### Economic Impact



Earthquake may results in loss  
of economy of a country.

### Death of innocents



Earthquake may results in a death  
of innocent people or animals.

**Sesimic Waves:** ~~They~~ There are different types of sesimic waves which can be measured by sesimographic scale or richter scale.

**Reduce the Impacts of Earthquakes:**

Earthquakes impacts can be reduced by ~~building~~ earth-quake resistant buildings and by preparedness measures.

**Earthquake Resistant Buildings:** Earthquake resistant buildings can be built to protect building from destruction. It can be protect by building home or markets on a jumping pad or by using a huge ball in mid of building and tie it ~~is~~ with its surroundings so that ball starts moving and stops building to feel pressure ~~4~~ of earthquake. In China/Japan and other countries these techniques are used to protect buildings.

**Preparedness measures:** Preparedness measures means to be prepare individuals about earthquake by teaching them first aid used or other measures.

(c)

## Balanced Diet :

Balanced diet is essential for maintaining good health. Without balanced diet human body will not be able to perform various essential function. Children require balanced diet to grow and develop. ~~an~~ Adults required balanced diet to maintain their body functions.

## Importance of macronutrients and micronutrients :

Both macronutrients and micronutrients plays a crucial role in balanced diet.

### Macronutrients :

Macronutrients are nutrients which are required in more quantity as compared to the micronutrient.

Macronutrients plays a vital role in bones, teeth and other functions. Some of these are Calcium and iron.

### Micronutrients :

Micronutrients are nutrients which are required in less quantity as compared to the macronutrient.

Micronutrients include sodium and potassium.

They help in balancing PH levels and blood pressure in human body.

## Balanced diet helps in preventing chronic diseases :

Balance diet helps in maintaining body health. When body is healthy, its immune system also works efficiently. Which helps body to fight with any diseases whether it is infections, viruses and chronic diseases. So, balanced diet makes immune system healthy, which helps preventing chronic diseases.

(d)

## Water Pollution :

Water Pollution is a result of <sup>release</sup> toxic chemical, sewages and wastes ~~releasing~~ direct in water bodies.

### Sources of Water Pollution :

Chemicals such as pesticides and fertilizers used in agriculture results in water pollution



Industries release toxic chemicals direct in water bodies results in water pollution.



Lack of proper sewage system ~~the~~ causes a water pollution.



Due to toxic chemicals in atmosphere when mix up with rain water, result as a ~~the~~ acidic rain.

## Effects of Water Pollution:

Water pollution causes a devastating effects on its surroundings and living things.

## Impact of water pollution:

Water pollution causes adversely impact on human health and environment.

### Human Health:

<sup>Polluted</sup> Water is unhealthy water which may contain toxic substances such as lead and copper which may lead to the cancer.



Polluted water may also result in nausea, migraine and some serious issues such as damage to the brain system.



Polluted water may effect adversely on the lungs of human beings and leads to the respiratory problems.

## Environment :

The toxic water cannot be used for agriculture purpose because it cannot ~~and~~ damage the crops but can also make the soil unfertile.



It can result in death of marine system because fishes or other animals depends on water for their oxygen but when there is other toxic compounds that results in the death of water animals.



It also causes a negative impacts on ~~en~~ other animals. Infact it causes a negative impacts on overall environment.

Q (3)  
(c)

## Remote Sensing:

Remote Sensing is a system

which is designed by using satellites on GEO orbit to gather information about earth and observe its different location. It is remote, means it ~~ca~~ sends information from satellites to antennas on earth without direct contact with earth surface means physical.

How it is used in Earth observations?

It is used in earth observation to detect earth motion and any disaster situations. It can detect earth situation without direct touching it. It take pictures of earth from different views and send them ~~ent~~ to antennas on earth for observations. Then scientist used these pictures to collect information about earth.

Types of Remote Sensing:

There are different types of remote sensing such as satellite imaging and aerial photography.

In satellite imaging, it takes images of earth and in aerial photograph it take pictures from different views.

Remote sensing can be used to monitor environment changes and natural

disasters. It detects any different movement of earth and send signals to antenna to prevent or resist damages.

(b)

Galaxy:

Galaxy is made of billion of stars ~~and~~ and some planets. Galaxies are formed when there is black hole in between them and multiple planets and stars revolving around ~~them~~ it. In universe there are multiple ~~galaxy~~ galaxies.

How Galaxies are classified?

Galaxies are classified on the basis of their structures. Such as spiral (if it has hands on its outer sides or wings), elliptical and irregular.

Milky Way Galaxy:

Milky way galaxy is our galaxy in which different planets such as earth, Venus and Mars are revolving around the sun.

Structure of Milky Way:

Milkyway has a spiral structure ~~as 2 wings~~ means egg shape and it also has 2 wings on its outside.

## Composition of the Milky Way:

Milky way is composed of different stars, planets revolving around the black hole.

## Galaxies form and revolve over time:

Galaxies form when different dust particles, gases combine with each other and then become in nebula ~~after~~ before that it results into galaxies. Galaxies revolve over time because galaxies are continuously in motion. For instance Feb, 2024 two galaxies merged together and form a galaxy which is called star galaxy. These galaxies merged together because they are continuously evolving and moving.

(d)  $\Rightarrow$  Because blue/black marker is not available currently

## Functions of Human Brain:

Human brain performs vital and crucial role in human body. It perform various function such as thinking, decision making, memory storing and much more. It also sends messages

to the various body parts to ensure their efficient functions. Like, it controls oxygen supply by performing oxygenated and deoxygenated function between lungs and heart. That's how it <sup>also</sup> handles other functions of body.

Brain functions can be affected by various factors:

Some of the factors by which brain function can be affected are given below:

Sleep:

Sleep plays a crucial role in human body. When a person is sleeping brain is releasing harmful toxic substances or cells outside from the skin of the human. and sleep is also required to bring relax to the body parts. But if person did not sleep well it might led to the slow processing of brain.

Nutrition:

Human body requires proper nutrients to perform various function, that's how brain also requires ~~re~~ nutrients to perform function.

Stress:

Stress cause adversely impact on brain and brain starts feeling anxious and may causes the slow processing of brain.

## (a) Big Bang Theory:

Big Bang theory explain that sudden explosion makes the universe. Whole universe is the result of sudden explosion. It also explain that universe is still expanding on daily basis multiple galaxies or stars are formed in the universe.

### Dark Matter and Dark Energy:

Dark Matter and dark energy is also called black hole, which is not possible to see, but scientist can feel it when different stars or planets are revolving around it. It also makes some new stars or planets.

### Key-Evidence of Big Bang Theory:

There are multiple key-evidence of big bang theory. Some of them are given below,

#### Cosmic :

Cosmic also explains that universe is formed before sudden explosion.

#### Background Radiation:

Radiation coming toward galaxy also gives the evidence

of big bang and evolution and expansion of universe.

## Section-II

Q7

(b)

Missing terms of the ~~below~~ questions are given below

i 53, 53, 40, 40, 27, 27, 14, 14, 1, 1

The missing term is 14, 14, 1, 1, because when there is 53 they repeated it again and second time they minus/subtracted 13 from it and result is 40 then they apply same rule on 40. and So, according to that if 13 remove/subtracted from 27 result will be 14, 14 and then subtracted 13 from 14, 1.

ii 14, ~~28~~, 20, 40, 32, 64, <sup>24</sup>~~26~~, <sup>48</sup>~~52~~, <sup>40</sup>~~44~~, <sup>80</sup>~~88~~

The 14 is the first term which they multiply by 2 and write its value 28 then they subtracted 8 from 28 and write next value 20 and then they multiply 20 with 2 and result is 40 and again they do same method with 40 and result is 32 and 64, so if we minus 8

from 32 it results 24 and 24 multiply by 2  
it results 48 and minus 48 with 8 results  
40 and  $40 \times 2 = 80$ .

iii

V V, ~~U~~ U, W, V, X, W, Y, X, Z, Y

First V goes one step back on U

U goes 2 step front on W

W goes one step back on V

V goes 2 front step on X

X goes one step back on W

So, according to this question

W goes 2 front step on Y

Y goes 1 step back on X

X goes 2 step forward on Z

Z goes one step backward on Y

IV. B, F, R, B,

So, according to this B goes  
4 step forward toward F and F  
goes 12 step toward R

which means  $B = 4$

$$F = 4 \times 3 = 12$$

So if it is that so

$$R = 12 \times 3 = 36$$

So, it is B

and  $B = 36 \times 3$

$$B = 108$$

So, it will be gone so long so we only mention B value.

iii 8, 6, 9, 23, 87

~~Solution is~~ Question is not clear.

(c)

If 20% of  $a = b$

then  $b\%$  of 20 is the same as?

If  $a$  is 20% which is 20% of its 100% is equal to  $b$

So the 20% of  $b$  is not to be equal to the 20% of  $a$  because

$$\text{if } a20\% = b$$

that means

$$a > b$$

(d)

let suppose the age of children was:  $x$

10 years ago

~~3x~~  $3x$  is the age of his father at that time

let suppose  $x = 10$

at that time children age might be of 10 years than father age is

$$3 \times 10 = 30 \text{ at that time}$$

and after 10 years

father age is twice of his son

so  $x$  is equal to the son age

and after 10 years

$$x + 10 (\text{years}) = 2x (\text{his father age twice})$$

$$10 + 10 = 2x$$

$$20 = 2x$$

$$20 = 40$$

So, now father age is 40 which is twice of son age which is 20.

Q5)  
a)

Prime numbers are numbers which are not divisible on any other numbers

like  $P_2 \{ 2, 3, 5, 7, 11, 23, 31, \dots, 87, 89, 97 \}$

So the number = 187, which is the sum of three consecutive prime number so that three prime numbers are

$$97 + 83 + 7 = 187$$

So, these numbers are prime numbers

(d)

Salaman purchased every 20 dozen of eggs at the rate of Rs, 375 per dozen

which means every egg price is = 31 + some points Value

and he sell every egg in 33 price.

which means he sell ~~20~~<sup>1</sup> dozen

eggs in = 396 rupess

~~So the 20 dozen he sell in~~

$$\text{so the } \frac{\text{bused}}{\text{sold}} \text{ eggs} \times 100 = \frac{396}{375} \times 100$$

$$= \frac{375}{396} = 0.94\% \text{ profit}$$