

GSA.

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Section-II.

Q No. 7.

a).

let number = x divided by 6 means = $\frac{x}{6}$

$$\frac{x}{6} + 50 = 60$$

$$\frac{x}{6} = 60 - 50$$

$$\frac{x}{6} = 10$$

$$x = 10 \times 6$$

$$x = 60$$

So number is 60.

b).

Find out odd

8, 16, 24, 34, 40, 48

Ans

$$8, 16, 24, \boxed{34}, 40, 48$$

$\downarrow +8 \quad \nearrow +8 \quad \downarrow +8 \quad \nearrow +8 \quad \downarrow +8 \quad \nearrow +8$
 $\downarrow +8 \quad \nearrow +8 \quad \downarrow +8 \quad \nearrow +8 \quad \downarrow +8 \quad \nearrow +8$

34 is odd in this sequence because in all others we add

8 but in 34 we have to add 10. So it is different.

C). A tower tower?

Ans

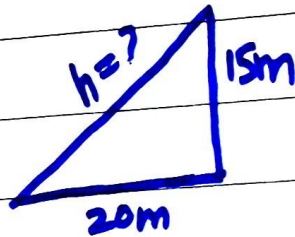
Data

$$\text{height} = 15\text{m}$$

$$\text{base} = 20\text{m}$$

arial distance = ?

Sol



So according to pythagorean theorem

$$(\text{hyp})^2 = (\text{height})^2 + (\text{base})^2$$

$$(\text{hyp})^2 = (15\text{m})^2 + (20\text{m})^2$$

$$(\text{hyp})^2 = 225\text{m}^2 + 400\text{m}^2$$

$$(\text{hyp})^2 = 625\text{m}^2$$

taking square root on both side

$$\sqrt{(\text{hyp})^2} = \sqrt{625\text{m}^2}$$

$$\text{hyp} = \sqrt{5^2 \times 5^2 \text{m}^2}$$

$$\text{hyp} = 25\text{m}$$

So arial distance is **25m**

5	625
5	125
5	25
5	5
	1
	$= 5^2 \times 5^2$

d). In a hotel
 5th date of the
 month?

Ans

Tariff for odd dates (5th, 7th) = 1000

Tariff for even dates (6th, 8th) = 2000

Total payment = 30000

Total days = ?

Sol

Average of odd and even
 dates is

$$x = \frac{2000 + 1000}{2}$$

$$x = \frac{3000}{2} = 1500$$

average tariff of two days = 1500

total payment = 30000

from average we can find
 total days as

$$\text{no of days} = \frac{30000}{1500}$$

no of days = 20 days Ans

8

a). Faisal

halls?

Other view is like isosceles triangle and its formula is

$$\text{Area} = \frac{1}{2} \times b \times h$$

b = base of isosceles triangle

h = height from apex to triangle

b). In a mixture

added?

Total mixture = 60 litre

ratio of milk = 2

ratio of water = 1

total = 2 + 1 = 3

So

$$\text{Milk} = \frac{2}{3} \times \frac{60}{1} = 40 \text{ litre}$$

$$\text{Water} = \frac{1}{3} \times \frac{60}{1} = 20 \text{ litre}$$

The new ratio is

$= 1 : 2$
 the quantity of water to
 be added $= 20 + x$

So

$$\frac{\text{Quantity of milk}}{\text{Quantity of water}} = \frac{1}{2}$$

$$\frac{40}{20 + x} = \frac{1}{2}$$

$$2(40) = 1(20 + x)$$

$$80 = 20 + x$$

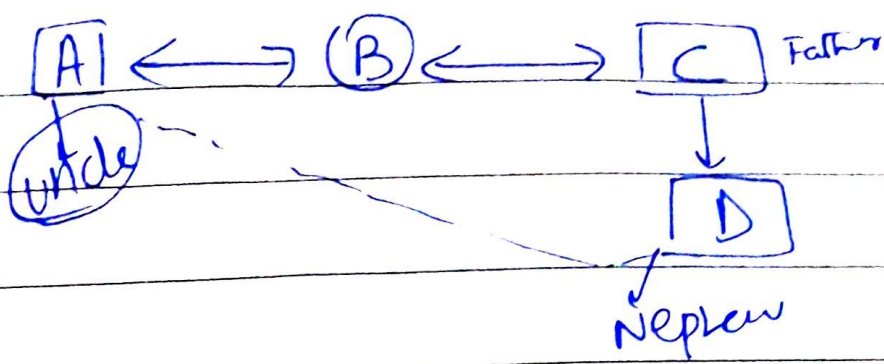
$$80 - 20 = x$$

$$60 = x$$

hence $x = 60$ litre

Its new quantity for 1:2

(C) If A
 make member?



A is Uncle of D (nephew)

d). In a certain code ROAR

is written as URDU How

then URDU will be --- ?

R → U

O → R

A → D

R → U

U → X

R → U

D → G

U → X

In same code URDU will be written XUGX.

Rough

A	B	C	D	E
F	G	H	I	J
K	L	M	N	O
P	Q	R	S	T
U	V	W	X	Y
Z				

① 2 step

② 2 step

③ 2 step

④ 2 step

Section I.

Q No-4

a). What are main causes of floods? How floods of 2022 were different from super flood of 2010? Explain role of NDMA in this regard?

Ans

Flood is defined as the process where water flowing through confined streams or other body overflows submerge to areas not usually affected by normal water flow.

Causes of floods.

The major causes of floods are Meteorological causes.

Floods arises due to intense rainfall, cyclones, somehow due to storms and tidal surges.

Hydrological causes.

Due to global warming temperature of earth increases

According to NASA "latest average anomaly in 2024 is risen from 1.4°C — 2.5° ". Rise in temperature cause ice and snow to melt that causes floods.

Anthropogenic Causes

Floods caused due to human activities i.e deforestation, Urbanization, Greenhouse gases, global warming are major reasons of climate change which results in floods.

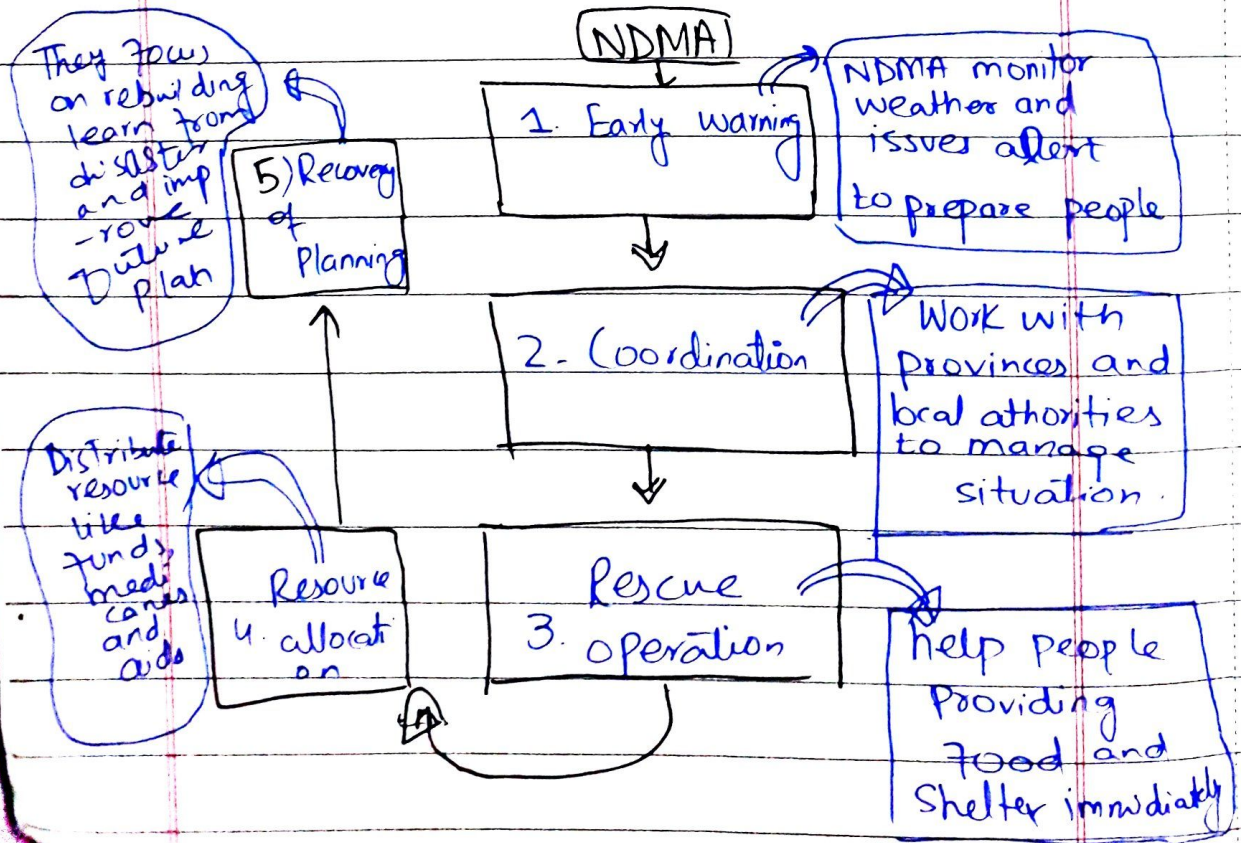
- Flood of 2022 is different from super-flood of 2010.

Aspects	2010 floods	2022 floods
Geographically	① It concentrated along Indus river affecting KPK, Punjab and Sindh	① It's widespread with severe impact across Balochistan, Sindh, and other regions
Causes	② Due to monsoon rains	② due to monsoon rains, glaciers melt

		Somehow by climate change.
Intensity	③ Intense but shorter period	③ Intense & longer period lasting several weeks
People affected	④ Approximately 20 million people	④ Approximately 33 million people
Economic Impact	⑤ This affect only agricultural and infrastructure damage	⑤ More extensive economic loss including infrastructure housing.

Role of NDMA

NDMA stands for national disasters



b). Differentiate b/w star and planet. How a star becomes a black hole?

Ans

Star	Planets
1. Composition	
① Stars are composed of ^{dro} hydrogen and helium mainly exist in plasma state.	① Planets are made up of various elements including metal, rocks, gas and ice.
2. Energy	
② Star produces their own energy by nuclear fusion.	② Planets do not produce energy through nuclear fusion.
3. Size	
③ They are big in size	③ They are small in size
4. Shape	
④ They are dot shaped	④ They are sphere shaped
5. Number	
① There is only one star in solar system	① There are 8 planets in our solar system

6. Twinkle.

⑥ Stars twinkle in the sky

⑥ Planets do not twinkle

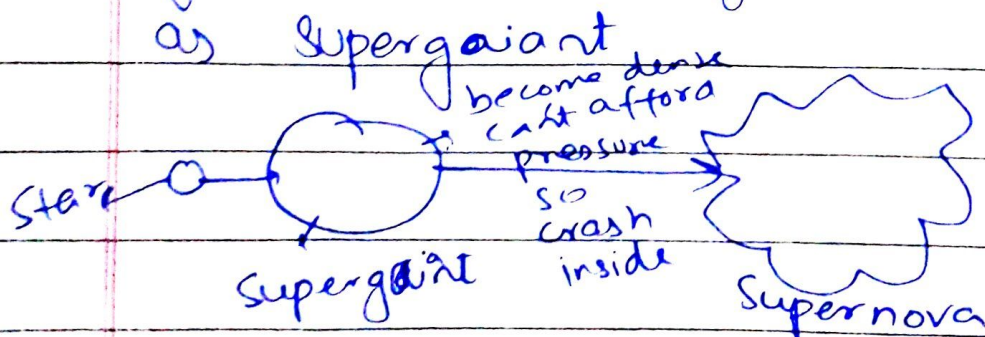
7. Orbits.

⑦ Stars remain fixed in space making stellar structures and galaxies.

⑦ Planets orbit stars due to gravitational attraction

How a stars becomes a black hole.

Stars more than six times as massive as our sun called massive stars - Hydrogen is core of massive stars after only 50-100 million years no hydrogen left. At this time core collapses and star becomes 100 times greater than original size known as supergiant



At the time Supernova Light of star become much more than all other stars of galaxy. Great shell of gases fly only tiny core of stars remain that contain only neutrons known as neutron star. It is extremely dense. Some time Supernova explosion massive stars become black hole. Thus black hole is the last stage of life cycle of massive stars.

(C)

Why do atom forms bond?
Explain structure of water.

Ans.

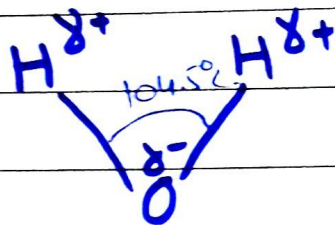
Atom forms chemical bond for attaining two or eight electrons in its outermost shells attaining the stability just like noble gases. They form bond by different way

- By gaining electrons

- by losing electrons
- by sharing electrons

Structure of water.

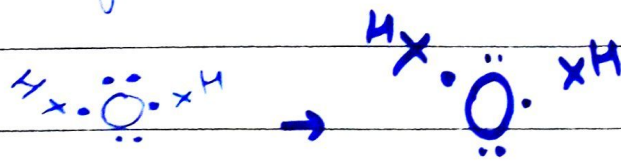
The structure of water is \checkmark shaped.



• They form polar bond b/w partially positive charge hydrogen and partial negative charge oxygen atom.

• Its angle 104.5°

• Its bonding is $O = 1s^2 2s^2 2p^4$



Its single covalent bond \checkmark

d).

1 Conductors.

Conductors are the material having free electron through

which current flow easily.
For example.

- Copper used in electrical wiring
- Aluminium used in electrical transmission

2. Semiconductors

Semiconductors are the materials that have electrical conductivity between conductors and insulators.

Their conductivity can be changed by adding impurities or by temperature.

- Silicon used in solar cells and computer chips
- Germanium used in transistors and diodes.

3. Metals

- These are solid at room temperature except mercury which is liquid at room temperature.
- They have high electrical conductivity and are malleable.

ductile.

For example transition metals
such as

- Gold used in jewelry
- Iron (Fe) used in constructions and machinery.

4. Plastics.

• These are synthetic materials made from polymers

• They are moldable and attain various shapes.

• They are poor conductors of heat and electricity.

• For example

Polyethylene used in plastic bags, bottles and containers.

PVC (Polyvinyl chloride) used in pipes, cable insulation and flooring.

5. Ceramics.

These are inorganic non metallic solids made of clay that have been shaped and then hardened at high temperature.

For example bricks, plates and glasses.

They are insulators of electricity.

Q5. ^(a) What is radioactivity?

Differentiate b/w natural and artificial radioactivity.

Ans.

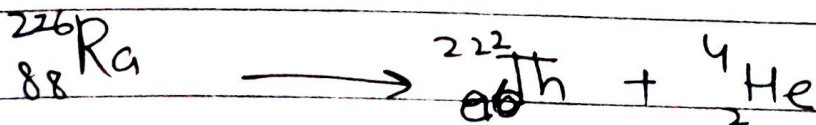
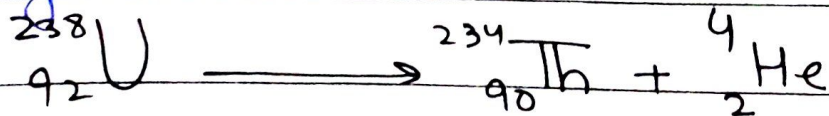
Radioactivity.

The phenomenon in which the nucleus of the atom of an element undergoes spontaneous and uncontrollable disintegration and emits α , β or gamma rays.

Natural radioactivity.

Natural radioactivity refers to the spontaneous emission of radiation from naturally occurring radioactive materials.

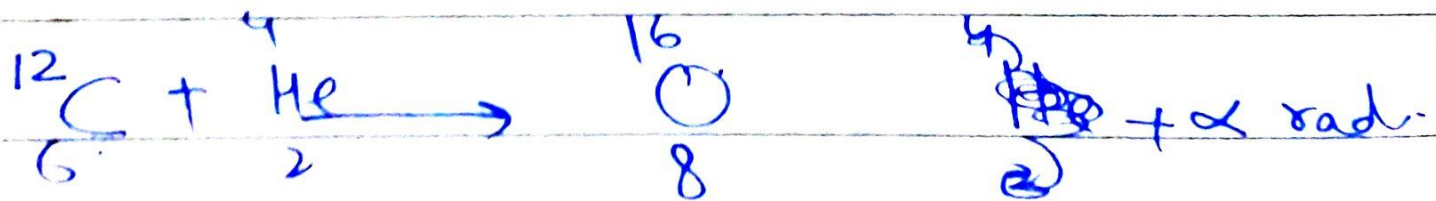
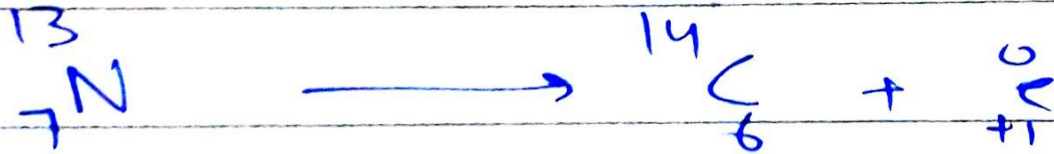
e.g.



Artificial radioactivity.

It is the process in which a stable nucleus is changed into an unstable nucleus by bombarding it with appropriate atomic projects like α , neutrons, protons.

For example.



POLIO.

Q What is polio.

Polio is an diseases caused by virus that mainly affects nerves in spinal cord or brain. In its most severe form polio can lead to a person being unable to move certain limbs called paralysis.

Symptoms

① It damages nervous system and cause total paralysis in matter of hours.

Initial symptoms, fever, nausea, headache, fatigue, vomiting stiffness in neck and pain in the limbs.

Polio mainly affect children under 5 years of age.

Causes

Polio is caused by virus called poliovirus. It infects your throat and intestine causing flu like symptoms. It is then spread to your brain & spine causing paralysis.

How does polio spread.

- ① Not washing hand after going to bathroom or changing diapers
- ② Drinking contaminated water or getting it in your mouth
- ③ Swimming in contaminated water
- ④ Touching " surface
- ⑤ Being in close contact with

Someone with polio.

Prevention

The best way to prevent polio is vaccinated. It usually done in childhood. If you did not get vaccinated as child than contact help provider.

Vaccines

Two types of vaccine

IPV (Inactivated " ") (Injected)

OPV (Oral polio vaccine)

Children take IPV vaccine

- ① First 2 months old.
- ② 2nd 4th month
- ③ third 6 - 18 months old
- ④ 4th 4 - 6 years old.

Adult

- ① 2 dose one to two month apart
- ② 3rd dose 6 - 12 month.

(C)

Solid waste Management System.

refers to systematic manage-
ment of generation, collection,
transfer, treatment, recycling,
recovering and disposal of
solid wastes.

- ① Waste generation.
- ② Waste handling, and sorting,
storage and processing at source.
- ③ Collection $\begin{matrix} \nearrow \text{Primary} \\ \searrow \text{Secondary} \end{matrix}$
- ④ Transfer & transport
- ⑤ Disposal [Landfill] $\begin{matrix} \text{Treatment of} \\ \text{disposal} \end{matrix}$

Key Issues in solid waste management in Pakistan.

According to environment protection and climate change department Govt of Punjab

"Solid waste generation in Pakistan ranges 0.283 to 0.612g/capita/day. Waste generation is 2.4% per year.

Key issues are

Day: _____

- ① There is no proper waste collection system
- ② Waste is dumped on streets
- ③ Different types of wastes are not collected separately
- ④ no controlled sanitary landfill sites.
- ⑤ People are not aware of relationship b/w ways of disposing waste & resulting Environmental & health problems.