(1)

Q. No. 2

a) How black holes are formed? Discuss.

1) Introduction

Black holes are small particales in space. It is formed the death of starts. First black holes was discovered in 1914 but first time was seen by human in 1964. For instance, Cytripus is a black hole. Human cannot directly the black holes and they can see by microscopes.

2) What is Black hole?

A black hole is a cosmic body in the centre of almost every galaxy in the universe, including the milley way galaxy.

3) Example: Sagittarius A is a supermanive black hole that exists at the centre of the milkyway Galaxy.
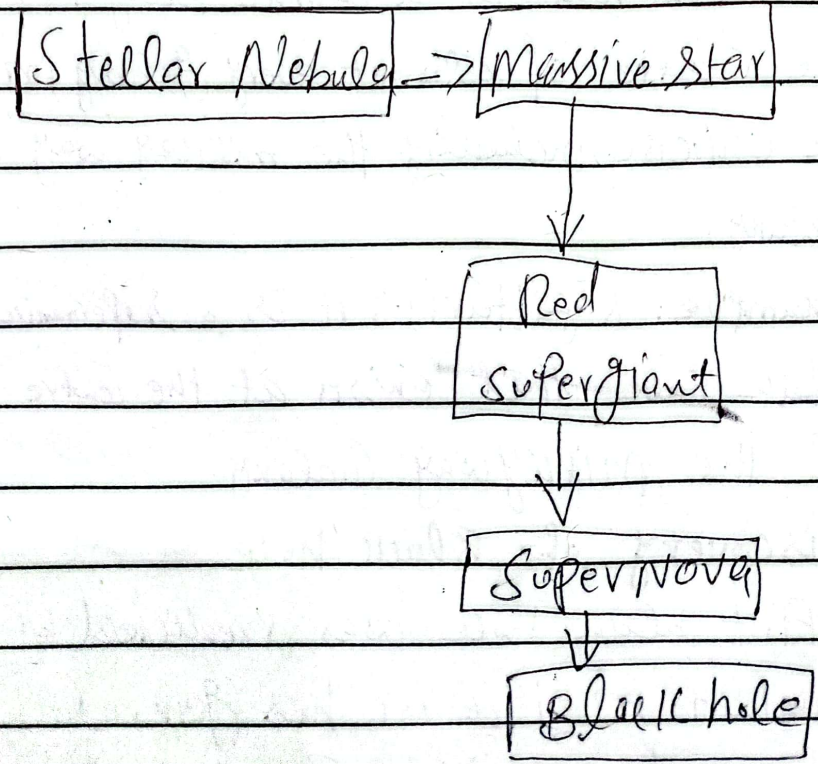
4) Discovery of Black hole

First black hole was predicted by Einshan in 1916 in his general theory of relativity. The first official

black holes was discovered in 1964.
For instance, cygnus x-1, located within
the milkey way.

5   How black Hole are formed?
A black hole is formed by the death
or explosion of extremely massive
stars with sizes of more than three
solar masses. At the end of the
massive star's life, the core of the
star becomes highly unstable and
collapse.

Diagram

```
┌──────────────┐    ┌──────────────┐
│Stellar Nebula│───>│Massive Star  │
└──────────────┘    └──────┬───────┘
                           │
                           v
                    ┌─────────────┐
                    │   Red       │
                    │ supergiant  │
                    └──────┬──────┘
                           │
                           v
                    ┌─────────────┐
                    │ Super Nova  │
                    └──────┬──────┘
                           │
                           v
                    ┌─────────────┐
                    │ Black hole  │
                    └─────────────┘
```

C. Write uses of Microwave, Radio waves and X-rays.

(i) Uses of Microwaves

a) Microwaves are used in microwave oven for cooking in kitchen.

b) Microwaves frequencies are utilized in satellite communication, wifi and cellular network.

c) Microwaves are used in various industrial process for heating.

(ii) Uses of Radio waves

a) Radio waves are used for communication such as mobile phone, Television, and Radio.

b) Radio waves are used in radar system for navigation in detecting objects.

c) It is uses for weather forcasting and air traffic control.

(iii) Uses of X-rays

a) X-rays are used in medical field for diagnosing images including detecting fractures.

b) X-rays are utilized in industrial setting for inspecting the integrity of materials such as wels in pipelines.

c) X-rays are used in airport security to scan loggage and detect and any prohibited items.

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b) What is octet rule? Explain it in example of table salt incotent of bonding?

1) What is octet rule?

The octet rule is a principle in chemistry which states that atoms tend to gain, lose or share electron in order to achieve a stable configuration of eight valence electrons resembling the electron configuration of noble gases.

2) Example of table salt in context of bonding

(i) What is table salt?

Table Salt is also known as sodium Chloride ($NaCl$).

(ii) **Formation of Nacl**

Sodium Na is a group1 metal with on valence electron and cl is a group 17 nonmetal with seven valence electrons.

In the formation of table salt sodium wants to lose its one valence electron to complete stable configuration like (Na : 2, 8) and chlorine wants to gain one electron to complet its valence shell achieving a stable electron.

achiverg eletron

$Na+$ $Cl-$

lose eletron
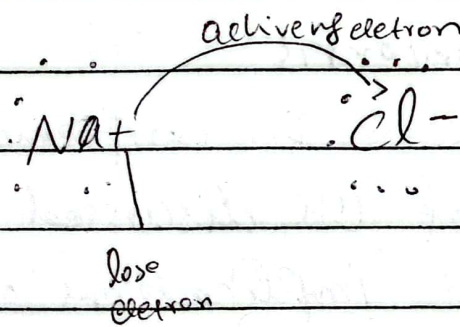
Sodium transfors Its valence eletron to chlorine formoing Na+ and cl- ions. The sodium atom becomes a positively charged ion (Na+) because its lose electron and Cl- negatively charged because it gained electron.

d)   **Answer**

1) Introduction

Th UIC hosted a conference for increasing threat of AI in 2023. However, it hosted conference for good governence and saftey of AI. This conference was discussed about Ethical Concerns, security Risics, and regulatroy framework of AI.

2   what ~~are~~ were the main Points of Agenda about the AI?

(i)   Ethical Concerns

In conference, the government of UIC discussed about the ethical implications of AI development, including issues related to bias, fairness, accountability and transparency in AI system.

(vi) Security Risic

The government of the UIC addressed the Potential security threats and the risic associated

with the malicious use of AI such as cyber leveraging AI technique, autonomous weapons system and the other risk.

(iii) **Regulatory Frameworks.**

Participatn discussed the need for international cooperation and regulatory frameworks to manage the development and deployment of AI technologies. It was included data privacy, and intellectual property rights.

(iv) **Impact on employment and society**

Another key topic was discussed in the conference which was about Socioeconomic impact of AI, including Job effects, income inequality and societal cohesion.

(v) **Research and development**

The conference focused on fostering Collaboration in AI research and development, promoting interdisciplinary approaches, and investing in AI safety research.

3 Conclusion

The UK's Conference about AI threat could be helpful for the member countries. Because, AI threats are increasing in the world besides positive impact. Therefore, members Countries can opportunities for implementing

<——————>

Q.No.3

a) **Answer**

1) Introduction

Cop-28 was held in UAE in last december of 2023. In this conference, UAE and members countries allocated loss and damages funds for developing countries to deal global warming, including Pakistan. The loss and damages funds's concept was brought in Cop-2027 but not implemented.

2) What is loss and loss and damages funds?

loss and damages means the

in the content of CoPs that those loss which are occured due to global warming especialy in developing countries. For example, damage and less due to floods, drought and tsunami.

3. Coparison of CoP-28 and CoP-27 in term of loss and damge funds for developing nations.

a) CoP-27

It was held in egypt in 2022. Its objeetive to increase financial support to help developing nations.

In this conference, developed nations pledged to provide $100bn per year for developing nations.

The request of damages countries such as Pakistan, was included to provide loss and damages funds.

Besides, Green climate funds and other multilateral funds for developing nation

b) CoP-28

It was hosted by UAE in

—/—/—23

2023.

The main objective of this conference was adopted loss and damages funds for developing nations which was discussed in COP-27.

At the end of this conference, $700 bn weve collected to the member countries.

4 Conclusion

The Global warming is increasing day by day due to the emissions of developing and developed nations. COP are conducted every year. In 2023, members countries pledged for loss and damages funds for helping the developing nations. Therefore, developed should be participated for countring climate change problems.

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b) Describes input and output devices of compute.

1) Introductry Remarks

Inputs and Outputs

are essential components of computer for communication. Input devices such as key board and mouses are used by users Physically. on the other hands, output devices such as monitor and Printer are used as software and give the response of input command.

2 Explanation of Input and output devices of Computer

a) Input devices

(i) keyboard: It is used for entering text and command into the computer.

(ii) mouse: Allows user to navigate graphical user interface, select items and intereet with software.

(iii) Scanner: Converts Physical documents or image into digital format.

(iv) joysticks: Input devices primarily used for gaming, providing control over on screen charaitor object.

(v) microphone: captures video input Commenly used for video conferencing.

(vi) TouchPad: Commenly Found on

laptop.

b) output devices,

(i) Monitor: presents visual output to users displaying text, images.

(ii) printer: produces hard copy of digital documents.

(iii) speaker: Output audio signals allowing users to hear sound physically.

(iv) HeadPhones: provide audio output directly to the users offering privacy of users.

(v) projector:- Display visual output on a larger screen.

3 Concluding Remarks

These input device used for printing vector graphics or larger faclines between users and computers enabling users to input data and command to receive feedback on computer system.

$\longleftarrow$-------------->

d) Answer

13

d)   Answer

1) Defination of water pollution

Water pollution is a pollution which is damaged the quality of water. For instance, Contaminated hazards and Chemical such as Sox and Nox enter into water and destroy the water quality.

PH of water

According to WHO, 6.5 to 8 PH is best for drincing water.

b) Causes of water pollution

(i) Industrial waste
                    Industries discharge various Chemicales, heuy metals and toxin into waters through effluent pipe. These pollutants are mercury, lead and arsemic.

(ii) Agricultural runoff
                    Pesticides, herbicides, and fertilizers used in agriculture and enters in water body through rain and irrigation. These Chemical

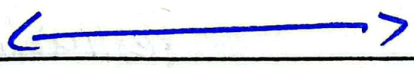Cause eutrophecation.

(iii) Sewage and wastewater

Improperly treated Sewage and wastewater from households industries and sewage treatment Contain Pathorgens and other Contaiminats.

(iv) Plastic Pollution

Plastic Pollution including single use plastics and microplastics have become pervasive Pollutents into water bodies.

(V) Natural Causes:- Certain natural events such as volcanic eruption algal blooms and erosion can also Contribute to water Pollution. While these events are not typically human-induced they can release Pollutents or disrupt ecosystem.

<———————>

C)   Answer

1) Introduction

The eye is a complex

organ responsible for vision, with various parts working together seamlessly. The cornea is main part of eye, whereby light in enter into eye and lens emit the light through pupil.

2) Functions of Cornea, pupil, convex lens and retina.

i) Cornea

The cornea is the transparent outer covering of the eye. It helps to focus light entering the eye onto the retina.

(ii) Pupil

The pupil is the dark circular opening in the center of the iris. It regulates the amount of light entering the eye by adjusting its size.

(iii) Convex lens

The lens is a transparent flexible structure located behind the iris and pupil. It refracts light

rays to fows them onto the retina.

iv) Retina:

It converts light into neutral signals and sends them to the brain via optic nerve.

3   Draw Diagram

Cornea   Lens   Retina

                                 optic nerve

Pupil

Iris
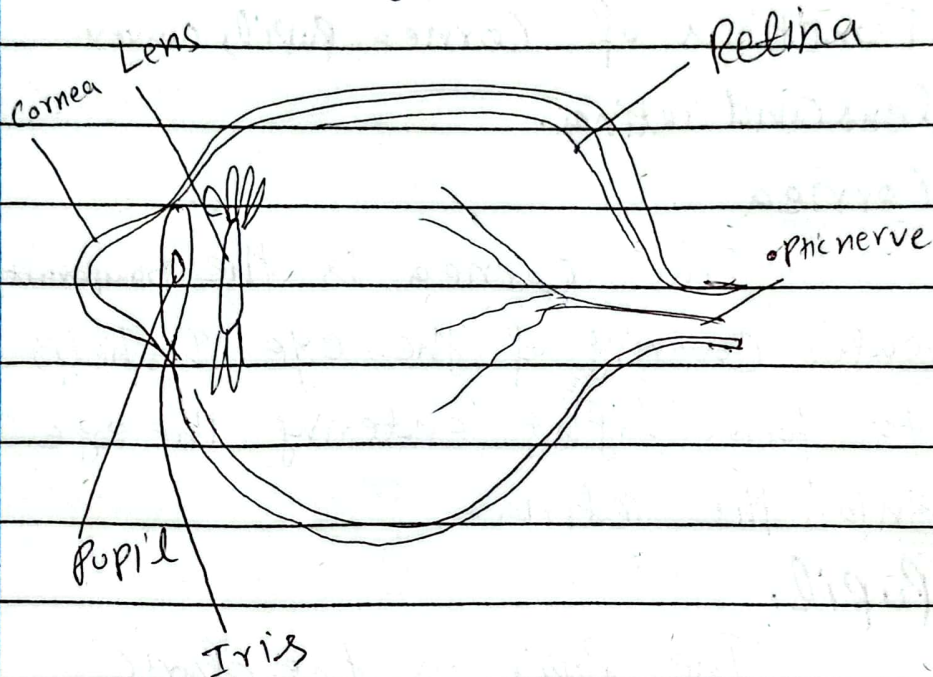
4) Conclusion

These Parts of eye are more important for human eye. If these Parts are damage, eysight are loss and human cannot sea. Therefore various diseeses can be occured

‹_____›

Section II
Q.No.7

a) Find the missing terms

i) 11, 13, 17 — 23

Solution:-

11 + 2 = 13

13 + 2 + 2 = 17 , 17 + 2 = 19

17 + 2 + 2 + 2 = 23

23 + 2 + 2 + 2 = 29

So missing number is 19 and 29

11, 13, 17, 19, 23, 29

a) Find the missing number

i) 11, 13, 17 — 23

Solution:-

11 + 2 = 13

13 + 4 = 17

17 + 2 = 19 → missing number

19 + 4 = 23

So, 11, 13, 17, 19, 23

<———————>
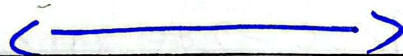
(ii) 10, 28, 91, 370 ——

Solution:

10 = 1+9 = 10

20 × 2 + 8 = 28

28 × 3 = 84 + 7 = 91

91 × 4 = 364 + 6 = 370

370 × 5 + 5 = 1855 → missing

So, 10, 28, 91, 370, 1855
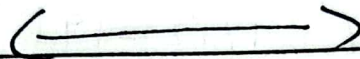
b) Answer

Given Data

Cloth bought 35 Shirts

Price = RS 280

Sell = RS 308

Find = Percentge of Profit

Formula ∵ % Percentage

$$= \frac{Sell - Cost}{Cost} \times 100$$

Solution:-

Put value in formula

$$\frac{280 \times 35 - 280}{280} \times 100$$

% Percent = $\frac{9800 - 280}{280} \times 100$

____/____/__ క్రా

$$\frac{95 \cancel{28}^{34}}{\cancel{280}} = 34$$

Profit Y $= 34 \times 100 = 3400$ Rs

Answer = 3400 Rs

$\longleftrightarrow$

d) **Given Data:**

Height of 30 boys = 150 cm

Total height = 150(30) = 4500 cm

Correct Sum = 4500 - incorrect sum + correct sum

Solution:-

Correct Sum = 4500 - 135 + 165

$= 4350$

Correct mean = Correct sum/30

Correct mean = 4530/30 = 151 cm

Correct mean = 151 cm

$\longleftrightarrow$
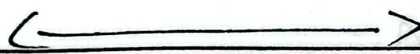
Given Data:-

Age = 10 years

Chronological age = 12 years

Find IQ = ?

Solution:-

∴ IQ = Mental age / Chronological age × 100

Put the value

$$IQ = \frac{12}{10} \times 100 = 120$$

IQ = 120 Intelligent

Answer Quotient

$\longleftarrow\longrightarrow$

Q.NO.6

Answer

Given data:

40 liter of milk

25% of water

10 letter water is more added

Find % = ?

Solution:-

40 liters = 30 liters milk and 10 liter water

10 water is added = 30 + 20 = 50

Final Percentage $= 20 \times \frac{\overset{2}{100}}{\underset{50}{50}} = 40\%$ water

Percentage of milk + final milk mixture

40 + 20 = 60%