

Mock-7 GSA

ZAEEMA KHUSHBAKHT

Roll no # 55

Q no 3.

(a) Global warming is a wild beast and we all are poking at it with sticks, justify.

Ans) Global warming refers to the rise in the average air temperature near the surface of Earth. Warmer temperatures overtime are changing weather patterns and disrupting the usual balance of nature. This has resulted in more severe heat waves, storms, heavy downpours, increased flooding and droughts. Hence, global warming is a wild beast and we are constantly poking at it by burning fossil fuels, cutting down forests, releasing green house gases by vehicle ~~new~~^{and industrial} emissions. At present, humans are putting an estimated 9.5 billion metric tons of carbon into the atmosphere each year.

Currently, Pakistan is facing the worst smog crisis.

If global warming is not controlled, it can have the most devastating effects.

(b) What is the origin of universe, how age of universe can be calculated?

Ans) The universe began as a hot and intensely dense point known as a singularity. It violently exploded which is known as the Big Bang and from this came, matter, energy, space and time. 9.5^{billion} years later, the solar system was created. Age of universe can be calculated by looking at the oldest stars and studying globular clusters. Since all stars of the globular cluster were formed at roughly the same time, they can serve as cosmic clocks. Another way is by measuring the Hubble constant which is a measure of the current expansion rate of the universe.

Cosmologists use this measurement to extrapolate back to the big bang.

$$v = H_0 D$$

H_0 = Hubble constant D = distance.

v = recession velocity.

(c) Write a short note on semi-conductors.

Ans) Semiconductors are materials which partly conduct current. They have a conductivity between conductors, and insulators. They can be pure elements, such as silicon or germanium or compounds such as gallium arsenide or cadmium selenide.

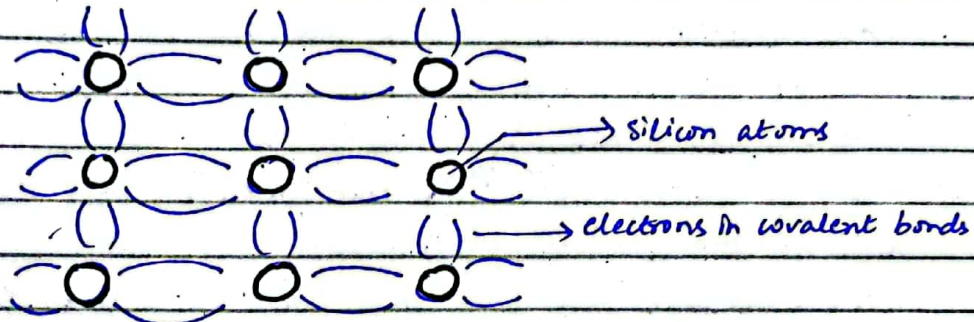


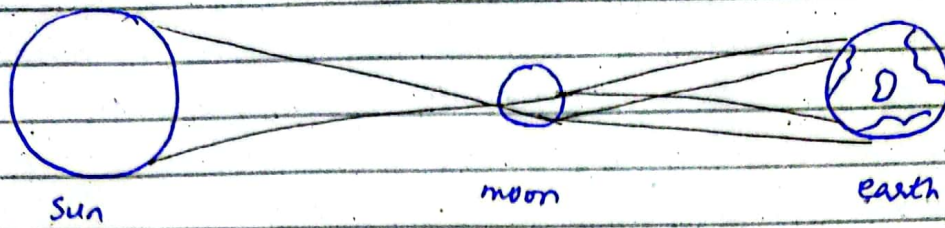
Figure: arrangement of electrons in a semiconductor material.

Each circle represents a silicon atom, and the lines between the atoms represent the shared electrons. Each of the four valence electrons in each silicon atom is shared with one neighbouring silicon atom. In this way, the atoms arrange themselves into structures called crystals.

(d) What is eclipse? Distinguish between solar and lunar eclipse.

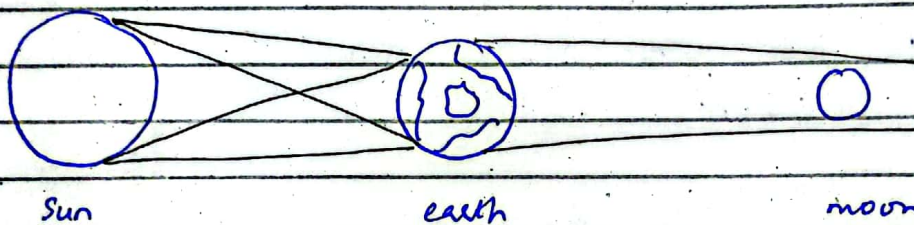
Ans) An eclipse is an astronomical event in which one astronomical object is temporarily obscured either by passing into the shadow of another body or having another body pass between it and the viewer. An eclipse occurs during a syzygy.

Figure: Solar eclipse



Solar eclipse happens when the moon passes between the sun and earth, casting a shadow on earth that either fully or partially blocks sun's light in some areas. Solar eclipse occurs only during new moon.

Figure: Lunar eclipse



Lunar eclipse happens when the moon moves into the Earth's shadow and this casts a shadow over the moon. It occurs every six months, only during the full moon phase.

Q no. 4

(a) Pesticides

Pesticides are chemical compounds that are used to kill pests including insects, rodents or unwanted plants (weeds). Pesticides enter the living cells and interfere with normal metabolism, thereby, killing the living things. They can be divided into organic and inorganic pesticides.

(b) Herbicides

Herbicides are primarily used to control the growth of unwanted plants or vegetation such as weeds. They are used in farming to maximize crop productivity.

(c) Ceramics

Ceramics are inorganic non-metallic solids made up of clay. Ceramic materials are brittle, hard, durable and corrosion-resistant.

(d) Insecticides

Insecticides are chemical compounds used to control insects by killing them or preventing their growth.

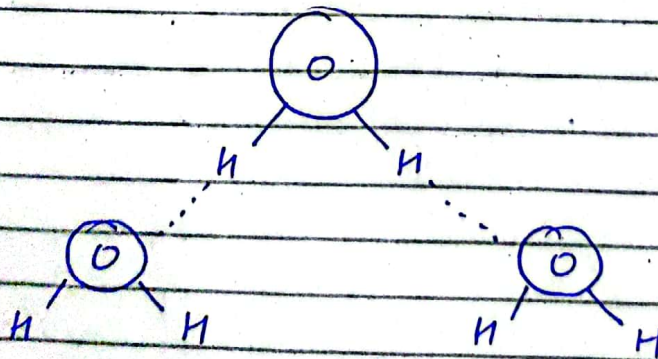
(e) Greenhouse effect

Gases in the atmosphere, specifically greenhouse gases such as carbon dioxide trap heat from the sun.

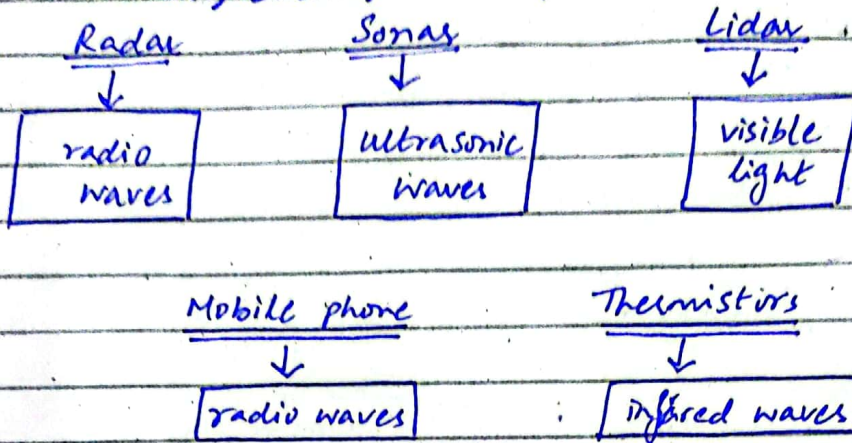
This results in the warming of air temperature near the surface of the earth. This is known as the greenhouse effect.

(b) Explain the bonding in water molecule.

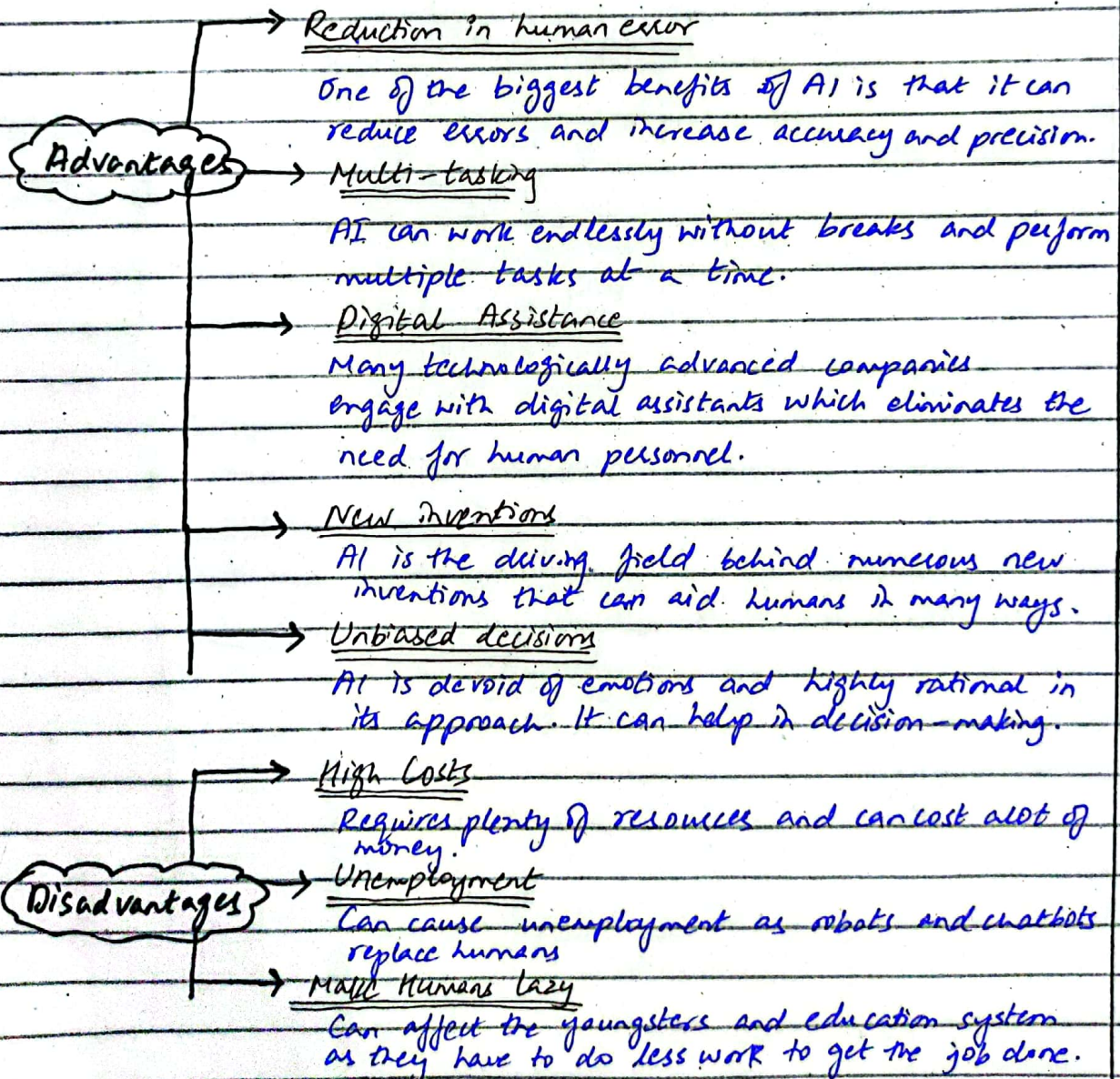
A water molecule consists of hydrogen bonds. A water molecule molecule consists of two hydrogen atoms bonded to an oxygen atom. These are strong polar bonds between water molecules which creates water cohesion. The difference in charge between the positively charged hydrogen atoms and the negatively charged oxygen atom keeps them in strong hydrogen bonds due to electrostatic forces of attraction.



(c) What types of waves are used in RADAR, SONAR, LIDAR, Mobile phone and Thermistors?



(d) Advantages and disadvantages of AI?



- No Ethics
Ethics and morality cannot be incorporated into AI.
- Lack of Creativity
AI cannot think outside the box.

Qno. 7 (a) Total seats = 400
 seats occupied = 325.
 $\frac{325}{400} \times 100 = 81.25\%$

(b) 30 person use 40 kg sugar in 10 days
 80 person use 320 kg in ?

person	sugar	days
30 ↑	40 ↑	10 ↓
80 ↑	320 ↓	x ↓

$$\frac{x}{10} = \frac{40}{320} \times \frac{30}{80}$$

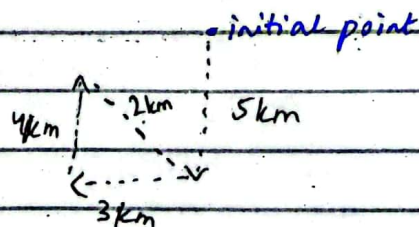
$$\frac{30}{80} = \frac{40}{320} \times \frac{x}{10}$$

$$\frac{x}{10} = \frac{1200}{25600}$$

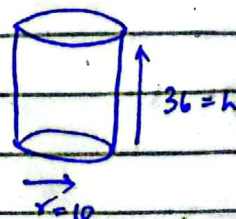
$$x = 30 \text{ days}$$

$$x = 2 \text{ days.}$$

(c) The cow is 5km from the initial point



(d) $V = \pi r^2 h$
 $= \pi \times (10)^2 \times 36$
 $= 3600\pi$



Q no. 8

(a) BROTHER
R D G S N R A

SISTER
R D S R H R

BROTHER
R D G S N R A

(b) Probability of drawing (i) 8 = $\frac{1}{12}$

(ii) an even number = $\frac{6}{12}$

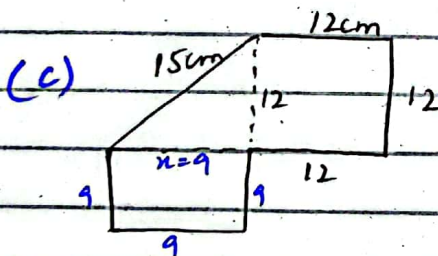
= $\frac{1}{2}$

(iii) a perfect square = $\frac{3}{12}$

= $\frac{1}{4}$

(iv) a negative no = 0

(v) a no less than 13 = $\frac{12}{12} = 1$



$$12^2 + x^2 = 15^2$$

$$144 + x^2 = 225$$

$$x^2 = 81$$

$$x = 9$$

$$\text{Area} = (9 \times 9) + (12 \times 12)$$

$$= 81 + 144$$

$$= 225$$

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

$$= \frac{1}{2} \times 9 \times 12$$

$$= 54$$

Area

$$225 + 54 = 279 \text{ cm}^2$$

Perimeter

$$(12 \times 9) + (9 \times 9) + 15$$

$$= 78 \text{ cm}$$