

SECTION-I

Q. 02

(2)

STAR

a- Generally star is bigger.

b- Stars have their own light.

c- Stars are light emitters or reflectors.

d- There are billions and more no of star in the universe.

e- There is no possibility of life on star.

f- Example:
Sun, moon.

g- Stars are massive than planets.

h- They produce their own heat.

PLANET

a- Planets are smaller than stars.

b- Planets do not have their own light.

c- Planets receive their light from other stars.

d- There are only eight planets in solar systems.

e- Planets such as Earth has life, although not all are competent to life.

f- Example:
Earth, Mars.

g- Planets have less mass than stars.

h- They only reflect the heat from stars.

Date: / / 20

SUN MON TUE WED THU FRI SAT
O O O O O O O

i- They are the part
of bigger system

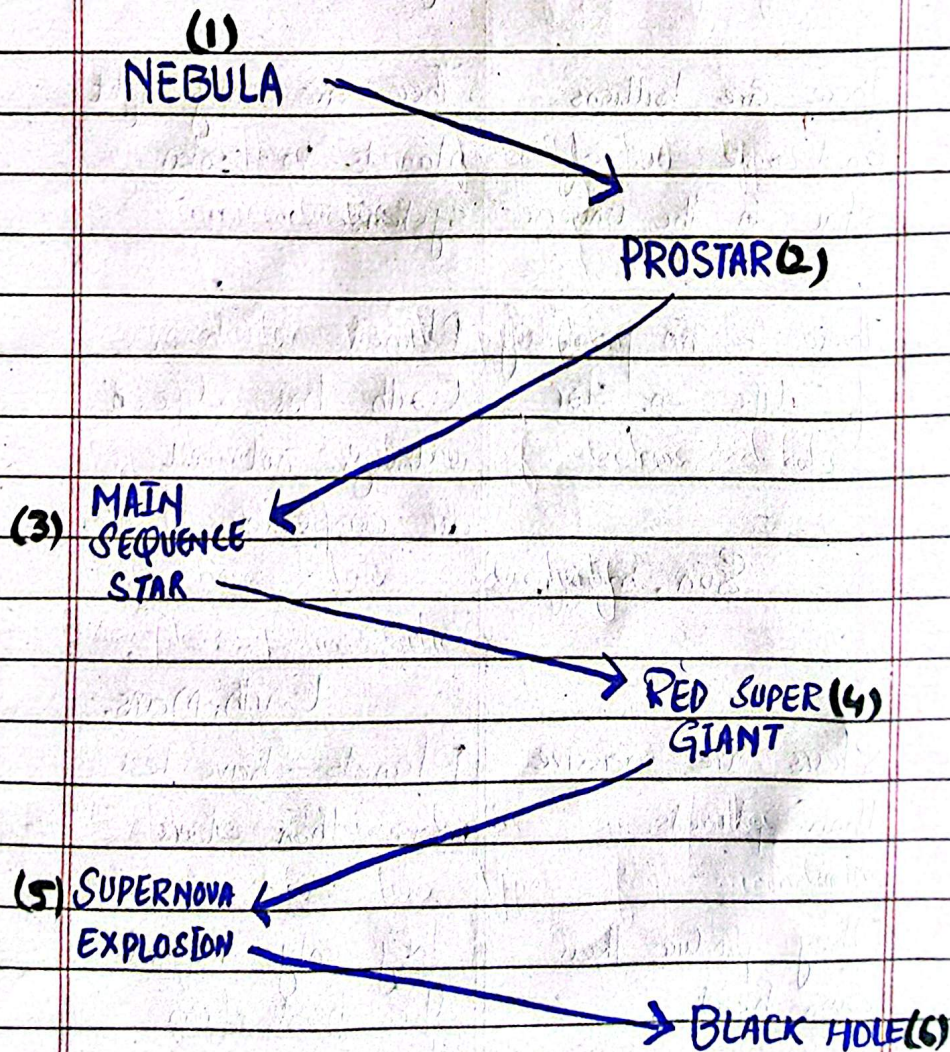
i- Planets orbit
around the star

j- Temperature on star
is extremely hot

j- They are relatively
cool

Brief Lifecycle of star From Nebula → Blackhole

Although, not all stars end as a blackholes, their lifecycle is highly dependent on their masses. Only very massive stars end up as a blackhole.



1- Nebula:

Gravity pulls material together to begin the star formation. It is a birthplace of star.

2- Protostar:

Gas contracted in this stage. At this stage nuclear fusion has not started yet. This stage lasts for millions of years.

3- Main Sequence Star:

This is the most stable stage in life cycle of a star. At this stage nuclear fusion started.

4- Red Super Giant:

At this stage the hydrogen fuel started to run out, and the expansion and cooling started on the star.

5- Supernova Explosion:

Iron core is no more eligible to release energy. At this stage star will explode as a supernova.

6- Black Hole:

If the remaining core is more than three times of the sun, light become ineligible to pass through.

b

SEMICONDUCTORS :

Semiconductor is a material whose ability to conduct electricity lies between a conductor and an insulator.

It is a material who conduct electricity and conduction of electricity can be controlled.

Examples:

- Silicon Semiconductors
- Germanium semiconductors

Types:

There are generally two types of semiconductors

i- Intrinsic Semiconductors

- Semiconductor in its pure form
- They have equal no. of electrons and holes
- They have low conductivity.
- Example: Pure Silicon

ii- Extrinsic Semiconductor

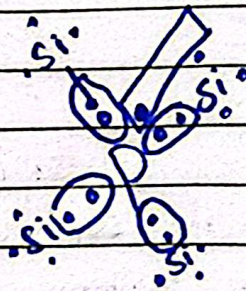
Extrinsic Semiconductors are further divided into two types of semiconductors.

→ N-Type

→ P-Type

N-Type Semiconductors

- They are doped with pentavalent element such as Phosphorus, Arsenic
- They have more electrons, and electrons are major carrier of charge in them.

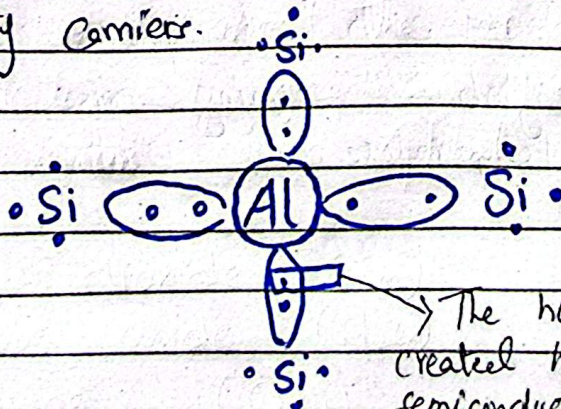


The free electrons of phosphorus are responsible for conduction of electricity in n-type semiconductors.

P-Type Semiconductors

They are doped with trivalent elements (B, Al)

They have more holes, and holes are majority carriers.



The hole or partially created hole in p-type semiconductor is responsible for electricity flow.

Two modern time applications of semiconductors.

- 1- They are used in x-rays and ECG.
- 2- They made up the electronic processors of smartphones and electronic devices.

C GLOBAL WARMING:

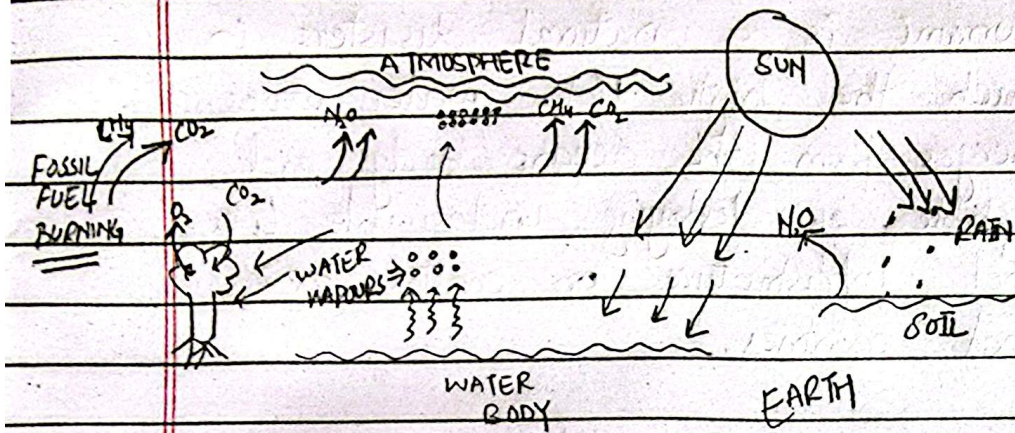
The increase in average temperature of earth's atmosphere due to excessive trapping of greenhouse gases is called global warming.

GREENHOUSE EFFECT:

The trapping of gases to keep the earth warm from sun is called greenhouse effect.

⇒ The excessive trapping of greenhouse gases resulted cause excessive heat temperature in earth atmosphere, hence cause global warming — rise of average temperature of earth.

Mechanism of Greenhouse Effect



- The sunlight vaporizes the water of oceans, thus these water vapors create a jam on upper atmosphere and block further penetration or escape of gases away. Hence, causes increase in temperature.
- Other process such as raining causes Nitrogen drawn from the soil, this water accumulated with oceans and seas thus increases concentration of N_2O in the atmosphere to trap heat.
- As a result the earth's temperature remains under control under night when sun ~~was~~ is absent. The increase in concentration of greenhouse gases and water vapors causes Global Warming.

Three Major Greenhouse Gases

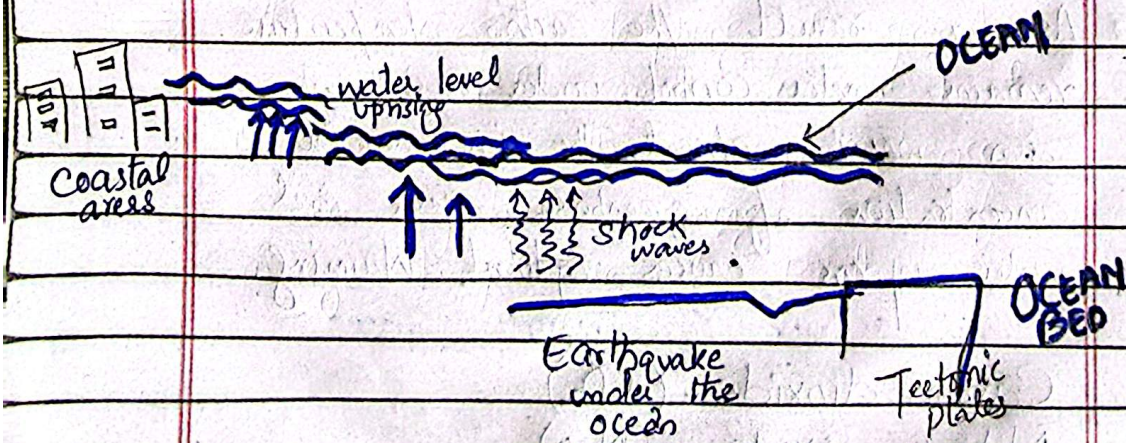
- Carbon dioxide (CO_2)
- Nitrous oxide (N_2O)
- Methane (CH_4)

Tsunami

Tsunami is a natural disasters in which the high tide water waves emerges from the oceans body and Capable of destroying undesirable lives and infrastructure on coastal areas and countries.

Natural phenomenon which can trigger Tsunamis

- i- Earthquake
- ii- Volcanic eruption
- iii- Volcanic eruption on sea bed
- iv- High speed winds
- v- Tornadoes in oceans
- vi- Excessive rainfall in oceans and seas



Potential Impact of Coastal Areas

- 1- Human life loss
- 2- Loss of infrastructure
- 3- Almost 10pc of world population in
- 4- Coastal according to UN. Tsunami is an
existential threat to them.
- 5- Heavy loss of economy
- 6- All ports are at coast, hence economic
disasters.
- 7- Very dangerous to marine life as well.
- 8- Disastrous impact on coastal areas in terms
of deaths.
- 9- Unemployment due to destruction of work
places.
- 10- Loss of road infrastructure
- 11- Depletion of plantation at coastal
areas
- 12- Depletion of resource at coastal areas

Q NO .03

(2)

SECTION - II

Q - 07

(a)

Sol Total no. of people survey done = 100
 No. of people watch cricket = 65
 No. of people watch hockey = 40
~~neither~~ No. of people watch neither = 20

Cricket + Hockey - Both = At least one

$$65 + 40 - \text{Both} = 80$$

$$105 - \text{Both} = 80$$

$$105 - 80 = \text{Both}$$

$$\boxed{\text{Both} = 25}$$

Result = 25 people watch both Cricket and Hockey

CGIVEN DATA

Speed of Train A = 60 km/hr

Speed of Train B = 40 km/hr

Their relative speed would be = $60 + 40 = 100 \text{ km/hr}$

Distance between cities = 400 km

Sol Time = $\frac{\text{Distance}}{\text{Relative Speed}}$

$$\frac{400}{100} = 4 \text{ hours}$$

∴ The starting time was 8:00 AM

$$8:00 \text{ AM} + 4 \text{ hours} = 12:00 \text{ noon}$$

Result: The two trains will meet at 12:00 PM at noon.

Sol
 Let father age present age is "x"
 Let Son's present age is "y"

$$\text{So, } x + y = 75 \text{ years} \rightarrow (1)$$

$\Rightarrow$ Ten years ago father age is four times the son's age so, equation become

$$x - 10 = 4(y - 10)$$

To Find

Current age of father and the son

Sol

$$x - 10 = 4(y - 10)$$

$$x - 10 = 4y - 40$$

$$x = 4y - 40 + 10$$

$$x = 4y - 30 \rightarrow (2)$$

Putting the value of x from equation (2) to (1)

$$(1) \Rightarrow 4y - 30 + y = 75$$

$$4y + y = 75 + 30$$

$$4y + y = 105$$

$$5y = 105$$

$$y = \frac{105}{5}$$

$$\boxed{y = 21} \text{ Son's present age}$$

Now for father's present age

$$75 \text{ years} - 21 \text{ years} = \boxed{54 \text{ years}}$$

Result = Son's present age is 21 yrs and father's present age is 54 years old.

Q NO. 08

2

If 'ROAD' coded as "UQDG"
then 'LAKE' coded as 'OCNH'

Explanation:

As ROAD coded as UQDG

R → U In alphabets it is 3 step forward

O → Q It is 2 step forward movement

A → D It is 3 step forward movement

D → G It is 3 step forward movement

So,

LAKE coded as OCNH

L → O In alphabetic series it is 3 step forward

A → C It is 2 step forward movement

K → N It is 3 step forward movement

E → H It is 3 step forward movement

b

→ The woman is a ^{wife} ~~man~~ of man's nephew.

~~The woman is daughter of man's~~

~~son.~~

Woman is man's nephew's wife.

i- 4, 12, 6, 18, 9, 27, 13.5

The missing number in this series is 13.5.

Explanation

This is a multiplication and division series, the first entry is 4 and second is 12 which results in $4 \times 3 = 12$, then 12 divided by 2 results in 6 and so on. The alternatives multiplication by 3 and then division by 2 of next value make the series.

ii- 1, 2, 6, 24, 120, 720

The missing number in this series is 720 which is attained by multiplying 120 by 6 because from 1st entry to last every next entry is multiplied by one higher like

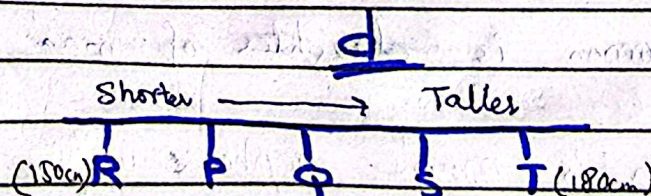
~~1 × 2 = 2~~

$$2 \times 3 = 6$$

$$6 \times 4 = 24$$

$$24 \times 5 = 120$$

$$120 \times 6 = 720$$



- Q is the 3rd tallest friend among them
- Range = highest - lowest = 180cm - 150cm

$$R = 30\text{cm}$$