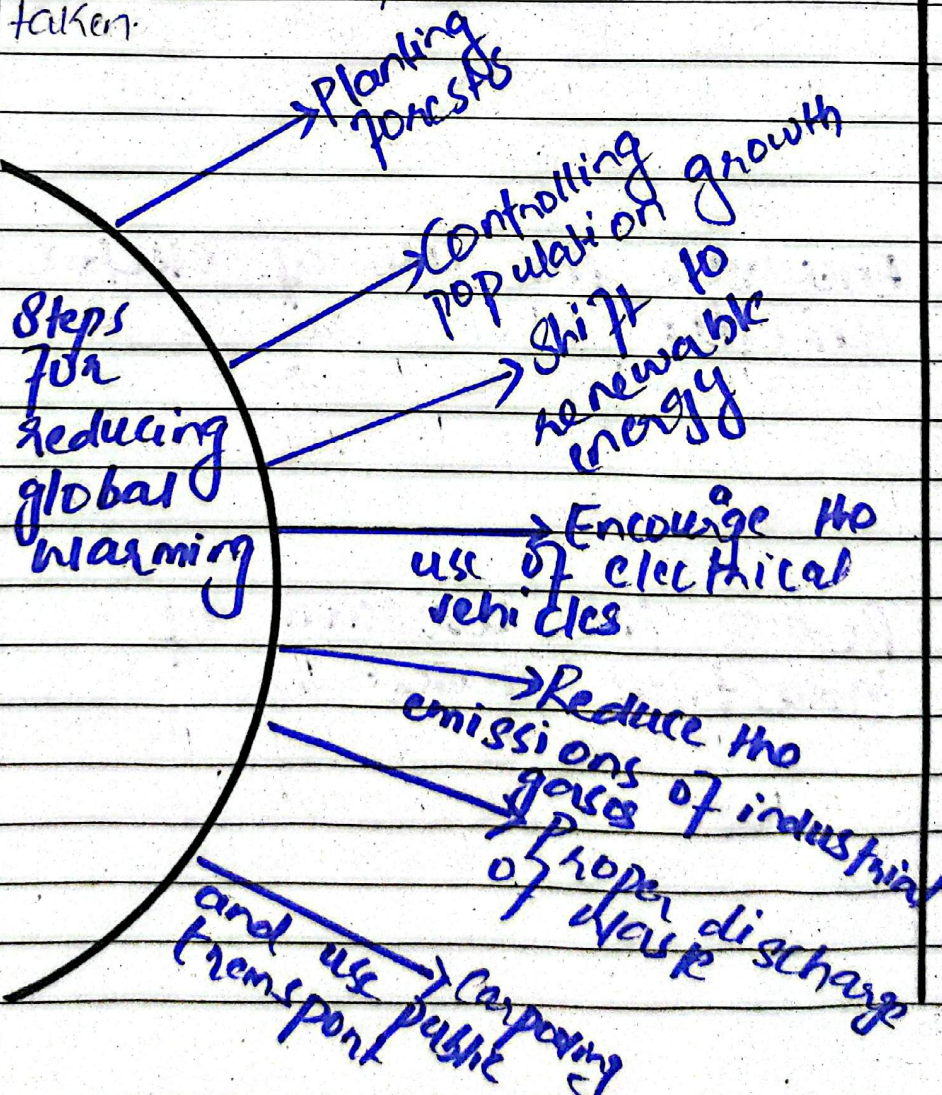


SECTION-A

QUESTION NO # 03

PART-A

Global warming is the rise in temperature of Earth due to surge in concentration of green house gases in the atmosphere. There is need to take steps to reverse global warming. Following are some steps that can be taken.



(1) **Planting forests:** Forest absorb Carbon dioxide and also produce cooling effect. This would reduce heating of atmosphere.

(2) **Controlling population growth:** World population is increasing at alarming rate. More will be the population, more will be the emission of greenhouse gases and hotter will be environment.

(3) **Shift to renewable energy:** There is need to shift to renewable energy from fossil fuels that is a major source of greenhouse gases.

(4) **Encourage the use of electric vehicles:** Electric vehicles is an alternative to transport based on fossil fuels. Its use should be encouraged.

(5) **Reduce the emission of industrial gases:** There is need to either purify the industrial effluent gases or bring charges to industrial.

process that release lesser amount of greenhouse gases

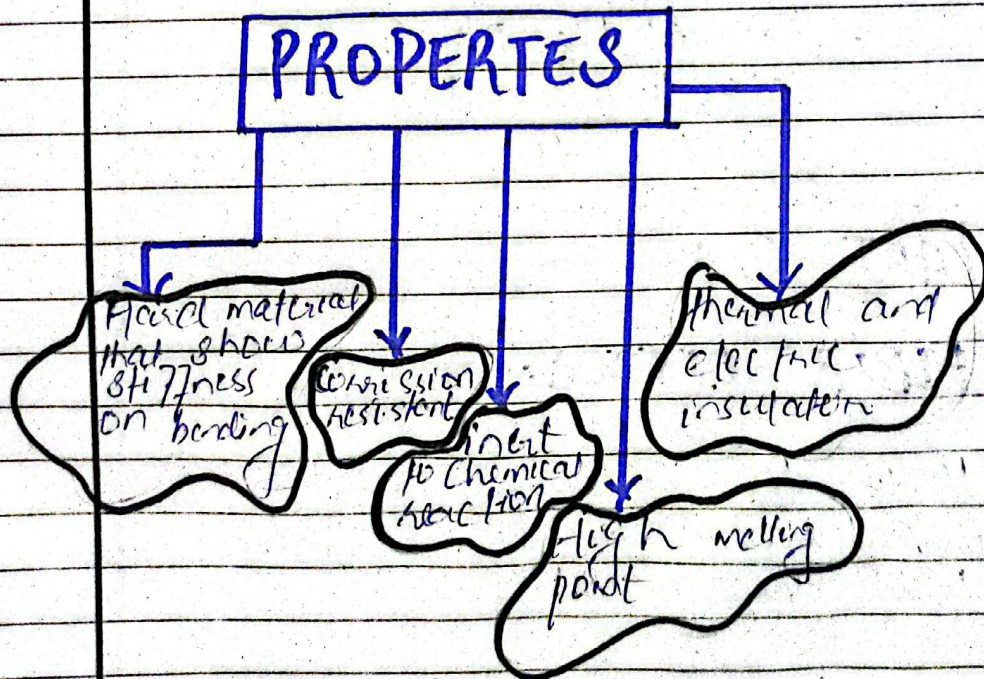
(6) Proper discharge of waste:

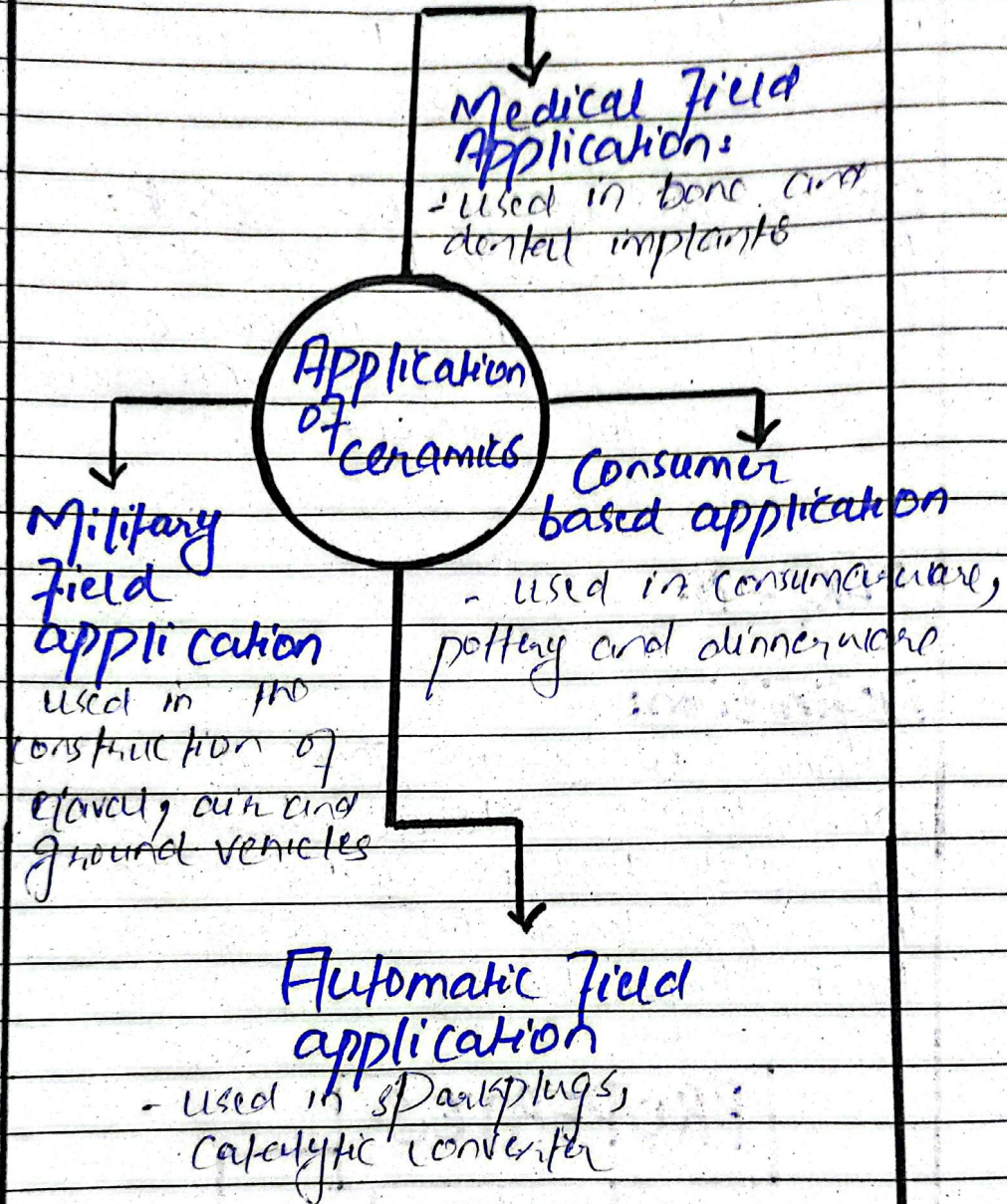
All kind of waste should be treated and disposed in a way that it does not release harmful gases in the atmosphere.

PART-B:

Definition:

Ceramic is an inorganic and non-metallic material made up of clay that is shaped and then hardened by heating at high temperature.





PART C :

(1) FIBER OPTICS:

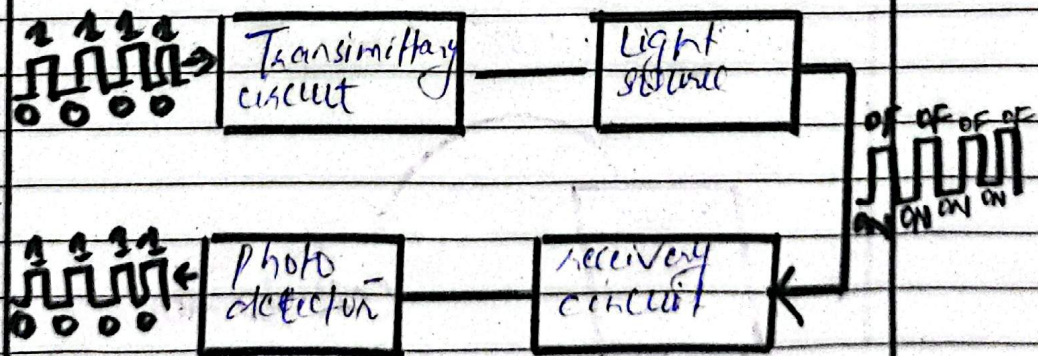
It is the science of sending information in the form of light through glass.

(2) WORKING OF OPTIC FIBERS.

It works on the principle of total internal reflection that reflects back if it hit the surface at an angle less than 42° .

It consist of transmittary circuit, light source, receiver circuit and photo detection.

Information is converted into light from electrical form with the help of light source. Transmittary circuit sends information. Receiver circuit receives it and converts it into electrical information with the help of photo detector.

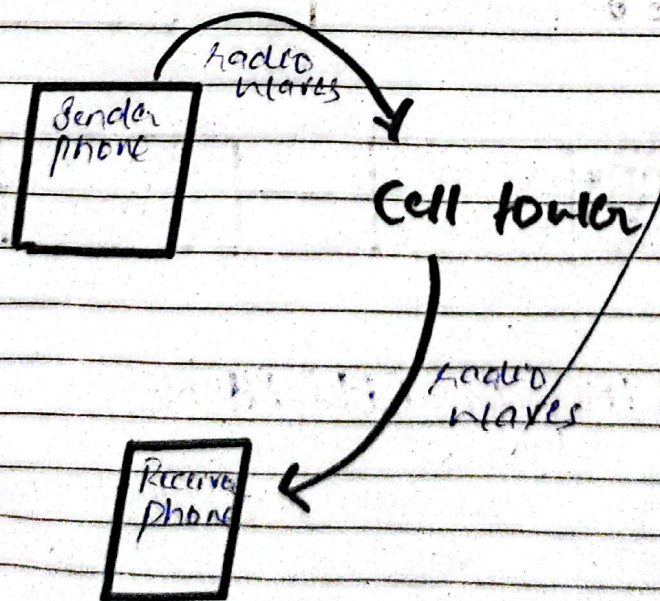


(3) WORKING OF CELL PHONE

Cellphone is the device that is used to call or send information.

over radio waves if user is in coverage area. It works in following steps

- (a) When someone calls or sends information, it is converted into radio wave through transmitter in the phone.
- (b) Antenna in the phone makes connection with cell tower and sends radio waves.
- (c) Cell tower is managed by cellular network that sends data to its intended location.
- (d) It sends radio waves to receiver device that is received by antenna in receiver phone and then transmitter converts the radio waves into useful information.



PART D:

(1) FOOD ADDITIVES:

These are products that are added in food to give desirable characteristics to food. They do not have any nutritional value.

EXAMPLE: Food colours, food scents, Corn flour to thicken the soups.

(2) FOOD PRESERVATIVES:

These are added in food to stop the activity of microorganisms or kill them completely to increase the life of food.

EXAMPLES: The surface of cheese is coated with sodium benzoate to stop the growth of moulds, foods are coated with sugar and salt to preserve them.

(3) FOOD ADULTERATION:

It is the process of intentionally

debasing the quality of food either by admixture, removing precious component of food or substituting cheap component of food in place of expensive one

EXAMPLES:

- Adding water in milk
- Adding sugar solution in honey
- Adding papaya seeds in black pepper

(4) FOOD CONTAMINATION

Food contamination means the presence of impurity in food that has deleterious effect on human health

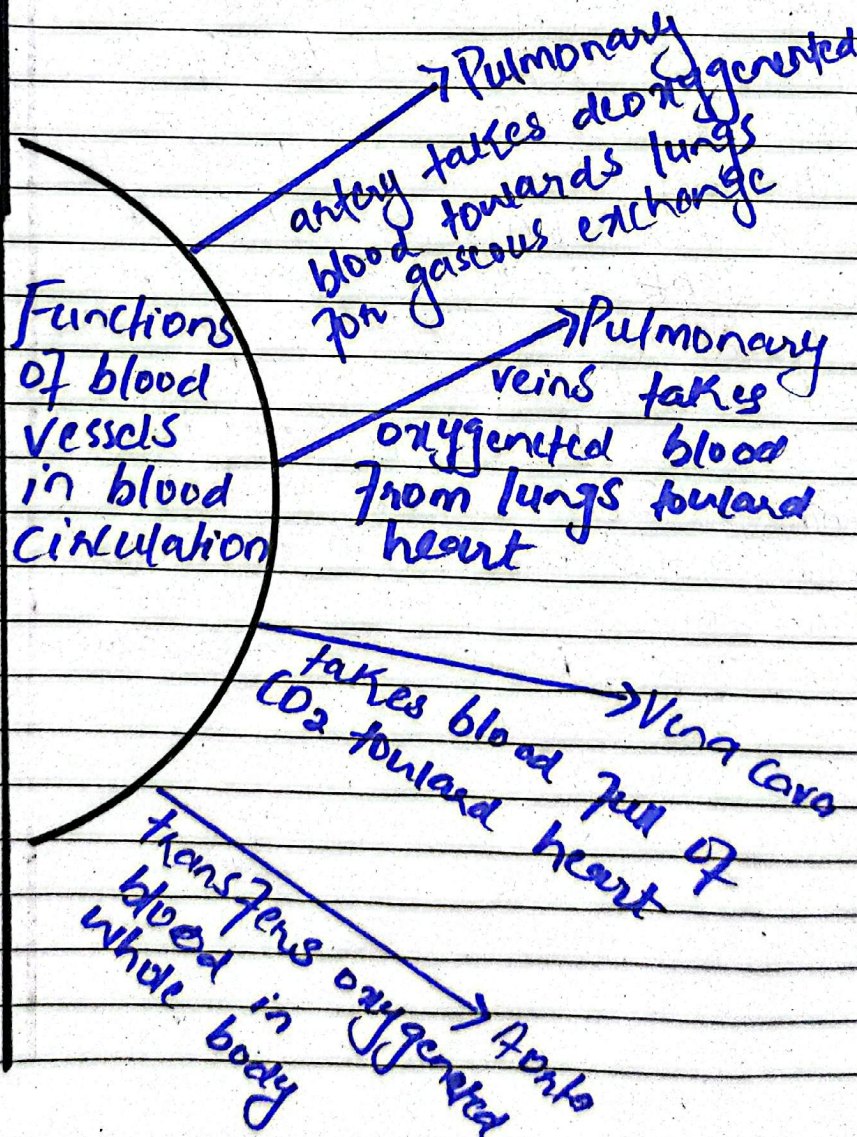
EXAMPLES:

- Presence of pesticides residue in food
- Presence of dirt and filth in food.

QUESTION NO # 04

PART A

Heart and blood vessels play huge in circulation of blood in the body. Heart is the pumping organ in the body and blood vessels are the media of transfer of blood toward heart or away from heart.

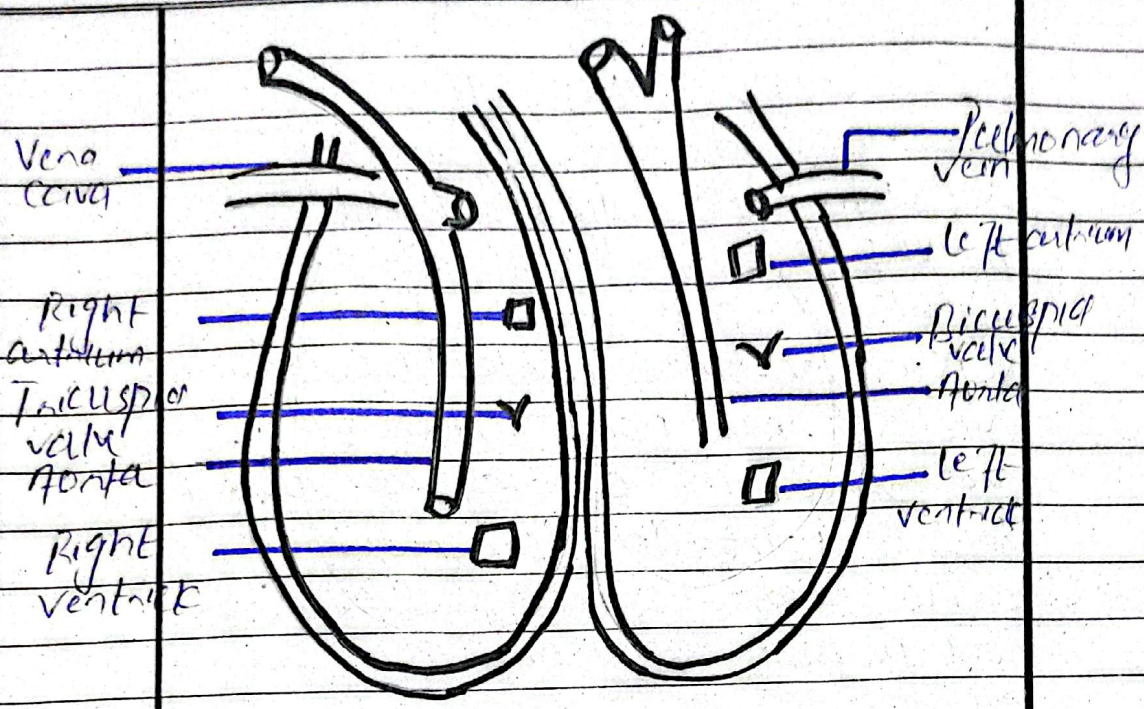


FUNCTION OF HEART:

Heart is the pumping organ in the human body that pumps around 2000 gallon of blood daily.

Deoxygenated blood from whole blood is collected in superior and inferior vena cava that takes blood to heart. It goes to right atrium from vena cava. From there, it is passed to tricuspid valve and then to right ventricle. Pulmonary artery takes blood from right ventricle and takes it to lungs for gaseous exchange. Pulmonary vein takes oxygenated blood from lungs and pass it to left atrium. From left atrium, it is passed to bicuspid valve to then to left ventricle. It is passed to aorta from left ventricle that distribute it in the body. Heart is covered by 3 layers. These are peri-cardium, myo-cardium and endo-cardium.

Date:



HUMAN HEART

PART B

Cyclone is violently rotating column of air around low pressure due pressure difference and rotation of Earth.

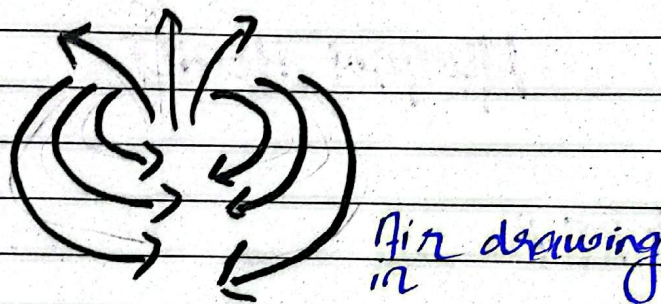
HOW CYCLONE FORMS:

Cyclone forms due to 2 process.

(a) CREATION OF PRESSURE DIFFERENCE

Sun heats the ocean and it results in evaporation of water.

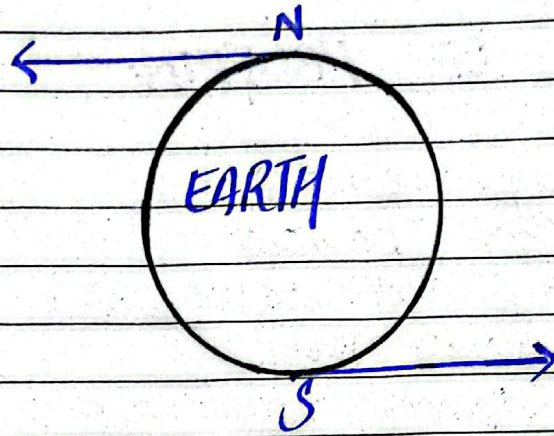
Water vapour rises up in the atmosphere. At some point in atmosphere, it experiences low pressure that results in the condensation of water and removes heat of vaporization. This creates low pressure. Air at that point rises up and surrounding air flows toward that point. This continues in a way that surrounding flows to low pressure zone and then rises up.



(b) CORIOLIS EFFECT

Earth rotates in anticlockwise direction. Due to Earth's rotation an object or air is moved toward in Northern Hemisphere and toward left in Southern Hemisphere. Because of this effect, air is moved toward right in Northern Hemisphere and toward left in Southern Hemisphere. This results in creation

Of violently rotating column of air that is called cyclone



PART C:

(a) FUNCTION OF CARBOHYDRATES:

- (i) Instant source of energy for brain
- (ii) Rich in fiber so prevent constipation
- (iii) Important source of connective tissue formation
- (iv) It can be stored in the body to use later on.

(b) FUNCTIONS OF FATS:

- (i) Brown fat regulate body temperature

- (ii) Some vitamins are fat soluble
- (iii) Insulate nerves of brain

(c) FUNCTION OF PROTEIN:

- (i) Source of formation of enzymes and hormones
- (ii) Hair, nails and feathers are formed due to protein
- (iii) Replaces damaged tissues and creates new one-

(d) FUNCTION OF CALCIUM:

- (i) Important constituent in bone formation
- (ii) Calcium is required for teeth formation

(e) FUNCTION OF IRON:

- (i) Iron is used in the formation of haemoglobin
- (ii) Required for strong bones

PART D :

Remote sensing can be employed for environmental purposes in following ways-

- It can be used to measure the area that is deforested
- It can be used for carbon management
- It can be used to check the glacial melting
- It can be employed to the species migration patterns
- It can be also used to check the forest under fire and to make possible arrangement for saving the forest

SECTION B

QUESTION NO # 07:

PART A:

Let the first number is x
and second number is y

40% of x is equal to $\frac{2}{3}$
of another number.

$$\frac{40}{100} \times x = \frac{2}{3}y$$

$$\frac{x}{y} = \frac{2}{3} \times \frac{5}{4}$$

$$\frac{x}{y} = \frac{5}{3}$$

The ratio between two number
is $\frac{5}{3}$

PART C

Age of man is x

Age of son is y

$$x - y = 24 \text{ --- (i) (Man is 24 years older than son)}$$

Double of age of man after 2 years

$$x + 2 = 2y \text{ --- (ii)}$$

Taking i)

$$x = 24 + y \text{ --- (iii)}$$

$$24 + y + 2 = 2y$$

$$24 + 2 = 2y - y$$

$$26 = y$$

Putting $y = 26$ in (iii)

$$x = 24 + 26$$

$$x = 50$$

Age of son is 26 and age of father is 50 years

PART D:

Rashid takes 6 hours to type 32 pages

$$\text{Page typed in 1 hour} = \frac{32}{6} \times 16$$

$$= \frac{16}{3} \text{ pages}$$

Kamron takes 5 hours to type 40 pages

$$\text{Pages typed in 1 hour} = \frac{40}{5} \times 8$$

$$= 8 \text{ pages}$$

Together they can type page in 1 hour

$$= \frac{16}{3} + 8$$

$$= \frac{16 + 24}{3}$$

$$= \frac{40}{3} \text{ pages}$$

time to type 110 pages

$$= \frac{3}{40} \times 110 \Rightarrow \frac{33}{4}$$

$$= 8:25 \text{ hours}$$

Together they take around 0.75 hours to type 110 pages

$$S = \frac{8}{5} \text{ km}$$

$$\frac{\text{length}}{\text{breadth}} = \frac{3}{2}$$

Total ratio is 5

$$\begin{aligned} \text{length} &= \frac{3}{5} \times \frac{8}{5} \\ &= \frac{24}{25} \text{ km} \end{aligned}$$

$$\begin{aligned} \text{Breadth} &= \frac{2}{5} \times \frac{8}{5} \\ &= \frac{16}{25} \text{ km} \end{aligned}$$

$$\text{Area} = \text{length} \times \text{breadth}$$

$$= \frac{24}{25} \times \frac{16}{25}$$

$$= \frac{384}{625} \text{ km}^2$$

$$= \frac{384}{625} \times 1000 \text{ m}^2$$

$$= \frac{384000}{625} \text{ m}^2$$

PART C:

Let unit digit is a and
digit at tenth place is b

According to given condition

$$a - b = 2$$

$$a = 2 + b$$

According to second condition

$$ab \times (a + b) = 144$$

$$(2 + b)b \times (2 + b + b) = 144$$

$$(2b + b^2)(2 + 2b) = 144$$

$$4b^2 + 2b^2 + 2b + 2b^3 = 144$$

$$2b^3 + 4b^2 + 2b = 144$$

$$b^3 + 2b^2 + 2b = 144$$

P