

Q (b)

Ans

OPTICAL FIBER:

Optical fibers are thinly designed filaments which are used to conduct signals from one region to another region or from one place to another.

Actually, a signal to be transmitted is converted to light waves and then is communicated through these fibers. Such light waves, through reflection phenomenon travel through these fibers.

WORKING OF OPTICAL FIBRE.

Optical fibers are mainly used to transmit internet signals from one region to another.

Basically, internet signals are first converted to light form, which then travel through these fibres.

Usually, internet signals are carried

interconnectedly through these processes.

(C)

Ans Overview: Microorganisms are the largest decomposers on earth, which facilitates the decomposition process of living organisms. Therefore, microorganisms can be used to accelerate the process of decomposition of living organisms, when they are dead.

Some important products and compounds can be synthesized industrially in a very efficient way, and in a speedy manner.

So, to obtain desired fuel product microorganisms can be used in various processes to meet the current fuel shortage.

(i) Production of ethanol in industry:
Industrially, ethanol can

be prepared with the help of microorganism i.e. bacteria, yeast.

Large agricultural residue can be decomposed in industry by the yeast, yeast, a bacteria, decompose living dead matter to simpler substance, and ethanol can be obtained along with other substance.

Ethanol is then can be used as energy product on a large scale to meet the fuel demand.

(b) Decomposition of dead organic matter:

Dead organic matter, of dead plants and animals can be decomposed in an industry to produce methane and ethane gas. This gas then used by households as a fuel to meet the demand fuel shortage.

For example: biogas production, which is prepared by the waste of animals.

(1) Treatment of biodegradable domestic waste:

Domestic waste such as biodegradable substances can be treated industrially to produce fuel compounds. Rather than disposing domestic waste unwisely.

Actually, bacteria decompose the organic matter and produce useful compound from it. These compounds, which are organic in nature can be used as fuel.



Q(d)

Ans Food additives:

Food additives are those substance which are added to the food in order to supplement its taste, calories and colour.

It actually make food more palatable, easy to digest and alter its colour significantly.

Food processing

units, industrially, used it for to enhance food quality. Food additives have following effects:

(i) Alter the taste:

These food additives when added to the food make it delicious and palatable.

Some food naturally exist in unpleasant state. When added additives alter its taste.

(ii) Alter the colour:

Food additives alter the colour of food. Which make food more attractive to customer. For example, Different coloured cakes are prepared in bakeries.

(iii) Easier to digest:

Food additives make food easy to digest and palatable. It basically alter the undigestible nature of food to more digest-

ble form.

Food Preservatives:

Food preservatives, prepare food to be safe from the effects of surrounding forces which include, bacteria, temperature, moist and air. These preservatives when added to the food, increased the quality and efficiency of food and preserve it from external forces. External factors which deteriorate the food product are following.

(i) Bacteria:

Bacteria can act on some food so quickly. To preserve such food, food preservative materials are used against these agents. For example, adding salt to some food make the environment saline, in which bacteria cannot grow and expand its colony.

iii) Temperature:

Some food preservatives are added to the food stuffs to avoid natural temperature changes and their net effect is a wide range of temperatures.

iii) Moisture:

Some food preservatives are added to control moisture levels to prevent food. These preservatives are added to enhance the stability of food to be stored safely at long range of temperatures.



Q No 4

(a) Solar system:

Solar system is a system designed to store sunlight energy and convert it.

into electrical energy.

Parts: Solar system consist of sheets; made up of Aluminium and silicon diode, conducting wires, inverter, and storage batteries.

solar sheets are made up of diodes which are used to capture photon of light and as a result, electrons gain energy.

This electrical energy, which is in the form of direct current, is carried to inverter.

Inverter, after processing shift this energy to batteries for storage and future use.

Way of working:

Its working starts when electron gain energy and excite from its position.

This electron becomes free and are attracted by the positive terminal of the system.

This current of electron passes through inverter convert it from DC form to AC form. and then used by AC based appliances, or is stored in DC form in storage batteries.

Green energy:

Solar system works in the domain of renewable energy. Basically, it is a green energy and depend on the energy coming from sun, which is sustainable source of energy.

Solar energy does not produce undesired pollutants to the surrounding instantly as produced by the non-renewable energy sources.

Shortcomings:

- Lead-storage prod batteries are used which when wasted, produce obnoxious effects in the environment
- Solar sheets, composed of Aluminium

and Silicon metal, when decomposed produce ecological and environmental hazards.

~~—————~~

(b)

(b)ms

Pituitary gland.

Pituitary gland is an important gland in human body located in the brain.

It is of grey colour about the size of pea and is responsible for various important secretions in the body. It is an endocrine gland, which pour its hormone/secretion directly to the blood.

Importance of Pituitary gland:

It is very important gland which, stimulate other hormones in the body. It consist of following three two lobes.

(1)

Anterior

(ii) posterior gland.

(i) Anterior gland produce
six kinds of hormones, which are
as follows:

(i) Growth hormone.

(ii) Adrenocorticotropic hormone.

(iii) Leutinizing hormone.

(iv) Follicle stimulating hormone.

While posterior
lobe produce following two hormone.

(i) ~~par~~ Melanin.

(ii) Oxytocin.

Master gland:

It is called
master gland in human body.
Because, it secretes hormones, which
in turn, secretes other hormone in human
body.

Feed back Mechanism:

It detects
its secretion through feedback
mechanism.

X ————— X

Qids

Ans.

Cope 29, commitment:

Cop is a platform, internationally recognized by all member countries of UNO. Basically, it was formed in 2015, under Paris agreement.

The purpose of this platform is to limit the global warming which happens all over the world due to climate changes.

Global warming and COP29.

Global warming is a gradual increase in earth's temperature above normal level, due to rapid industrialization and use of fossil fuels as a primary source of energy all over the world.

This extensive fossil fuel consumption produce enormous gases, which then increase the

earth temperature.

Under COP29, it was once again agreed to limit the ongoing global rise in temperature to 1.5°C, which has happened after industrial revolution. It is agreed in COP29 to limit this increase to 1.5°C.

consequences of global warming

If the temperature goes unchecked of the earth, it will result in serious consequences for the earth climate. Therefore, COP 29 has made this commitment to limit further rise in temperature of the earth to limit its destruction, which include, hurricanes, weather changes, floods, habitats destruction and many more.



SECTION (B)

Q6

(b) Let the age of daughter is $= n$.
Father's age $= 4n$.
After five years, father's age $= 3n$.
Then, after five years $= 2n$.

~~Let the age of daughter is~~
5.

~~After 5 years, father's age will~~
be =

proof:

Let the age of daughter
is 10.

So that, father's age will be: $4 \times 10 = 40$.

After 5 years: father's age will be
45 years and daughter will
be 15.

So father's age $= 3n = 3 \times 15 = 45$.

Now,

Then after 5 year father's age will be 50 and daughter's 20.

So the ratio of father age to daughter will be $= \frac{5}{2} \pi$. Ans.

\times ————— \times

Ques

Ans

Volume of football:
Solution:

volume of football is $= \frac{4}{3} \pi r^3$ — (1)

Now,

Diameter $= 2r$. $\therefore r = \text{radius}$.

So

$$r = \frac{D}{2} = \frac{12}{2} = 6.$$

putting the value of r in (1).

$$V = \frac{4}{3} \pi (6)^3.$$

where, $\pi = 3.14$.

$$V = \frac{4}{3} \times 3.14 \times 6^3.$$

So

$$V = \frac{4}{3} \times 3.14 \times 216.$$

$$V = 1.33 \times 678.24.$$

$$V = 904 \text{ cm}^3.$$

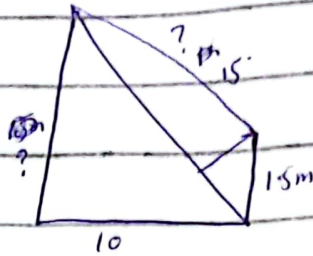
So the volume of football is
 904 cm^3 .

x ————— x

(d)

Q8

(a)



Solution.

(Q7)

Ans

(b)

Solution.

C is A's cousin.

D is also A's cousin but not the brother of C.

So the relationship between D and C is that they both are cousins - proved.

