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Mock - 3

General Science And Ability

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Section - B

Q No: 6

a) Data

Final value of machine = 8748

Rate of depreciation = 10% every year

No of year = 3

Initial price 3 years ago = ?

Solution

Let the initial price of machine be x

final price = initial price $(1+r)^n$

$$8748 = x\left(1+\frac{10}{100}\right)^3$$

$$8748 = x\left(\frac{9}{10}\right)^3 \quad \text{OR} \quad x \times \frac{9}{10} \times \frac{9}{10} \times \frac{9}{10}$$

$$8748 \times \frac{10}{9} \times \frac{10}{9} \times \frac{10}{9} = x$$

$$\frac{8748000}{729} = x \qquad \boxed{x = 12000}$$

b)

Solution

Let the daughter is x so father will be $4x$

$$4x+5 = 3(x+5)$$

$$4x+5 = 3x+15$$

$$4x-3x = 15-5$$

$\boxed{x = 10}$ year current age of daughter. father age = $4 \times 10 = 40$

further after 5 years = $5+5 = 10$

daughter's age will be $\boxed{10+10=20}$

father's age will be = $\boxed{10+40=50}$

$\frac{50}{20} = \boxed{2.5 \text{ times}}$ father would be of his daughter.

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c)

Data

Radius of football = 12m

Volume of foot ball = ?

Solution

Volume = $\frac{4}{3}\pi r^3$

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

$= \frac{4}{3} \times 3.14 \times 6 \times 6 \times 6$

$= 4 \times 3.14 \times 72 =$ **904.32 cm^3 volume of foot ball**

Working

$r = \frac{d}{2} = \frac{12}{2} = 6$

d) Data

length of side 281m

Perimeter of Pentagon = ~~No of sides x~~ ?

Solution

Perimeter of Pentagon = 5x length of side

$= 5 \times 281$

$= 1405m$.

QNO7

Ans

a) Solution

let the smallest value be x

$$\frac{x + x+1 + x+2 + x+3 + x+4 + x+5 + x+6}{7} = 20$$

$$\frac{7x + 21}{7} = 20$$

$7x + 21 = 7 \times 20$

$7x = 140 - 21$

$x = \frac{119}{7} = 17$

$x = 17$

largest value will be

$x + 6$

$17 + 6 =$ **23**

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b) The relationship of D & C is Sister and brother.

c) 7, 12, 19, 28, 39, 52
5 7 9 11 13

d) Solution.

Let the share of A, B, C, D Rs 5x, Rs 2x, Rs 4x, Rs 3x

then

$4x - 3x = 1000$

$x = 1000$

B's share = $2x$ x

$= 2 \times 1000 = 2000$

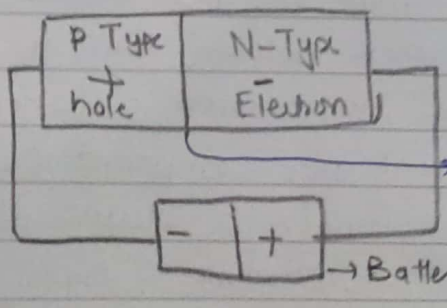
SECTION A

Q NO 5

b) **LED (Light Emitting Diode)**

~~led is~~

Nowaday led is one of most energy efficient and rapidly developing lightening technology. Bulb of LED are long long lasting, more durable, and provide better quality of light than others. It consumes at least 75% less energy.



led consists of semiconducting diode chip which form p-n junction.

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c)

CERAMICS.

Ceramic is an inorganic solid made up of clay that can be shaped and hardened by heating to high temperature. Ceramics are found all around us. It material includes things like tile, bricks plates, glass and toilets. It is categorized in 2 types crystaline and Non-crystaline.

Crystaline Ceramics: These are not amenable to a great degree of processing.

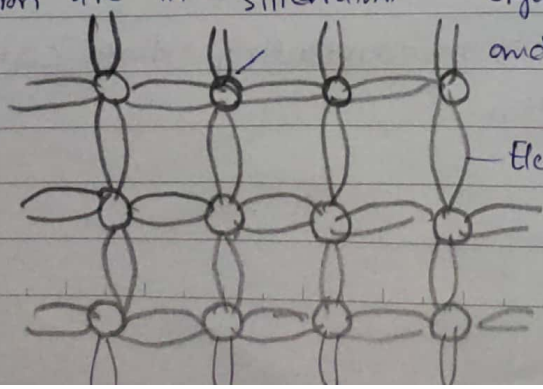
Non-crystaline ceramics. It is being glass, tend to be formed from melts.

Characteristic of Ceramics

→ These are extremly hard, showing considerable stiffness under compression and bending.
→ These are wear resistant and durable.
→ Corrosion resistent
→ do not react with most liquid, gasses, alkalis and acids.
→ These are non-magnetic but contains iron oxide (Fe_2O_3)

SEMI-CONDUCTORS

Semi-conductors are used in electronic circuits Semiconductor is the material which conducts current partially. It is somewhere between, half of conductor and half of insulator. The common semi-conductors includes chemical element and compound such as silicon, germanium, selenium, zinc selecide and lead telluride. electron are in Silicon atom organized in the layer in figure. and outermost shell is valence shel.



In the shell electrons are forming bonds with neighbour atom. Semi conductor have four electron in their valence shell. These type of semiconductors are made out of such crystals usually silicon crystals. ~~Silicon~~ silicon crystal can transform into one of two distinct types of conductors. N-type and P-type semiconductors

1) N-type Semiconductors: created when the dopent is an element that has 5 electrons in its valence shell. Phosphorus is commonly used for this ~~purpose~~ purpose.

2) P-type Semiconductors: Created when the dopent (such boron) has 3 electrons in its valence shell. P-type semiconductors, hole are continously moving around the crystals as electron tries to fill them up.

4) NOTE ON POLIO

The word poliomyletis derives from Greek word related to inflamation (itis) of the gray (polios) matter of the spinal cord (myelos). It is infectious viral disease that some times results in paralysis. This infection mostly affect the children and young adults. and is caused by 3 given viruses.

Type 1 → Brunhilde
Type 2 → Langsing
Type 3 → leon.

~~Fo~~ Since 1988, cases of polio has been decreased by 80% till 2015. in last 5 year various countries got ~~free~~ free from polio except Pakistan and Afghanistan. It is diagnosed by isolating the virus from an infected person using throat cultures stool samples, fluid samples of brain and spinal cord. ~~If treatment is d~~

There is no cure for polio, no drug or medicine can halt the poliovirus destruction in the body.

but few se several medical treatments can reduce the severity of the disease - Mild cases of polio do not require specific treatment. Some time physical therapy is used to prevent the disease.

4) USES OF ELECTROMAGNETIC RADIATIONS

Electromagnetic radiations are used in everyday life.

1) To heat the food micro waves are used to in microwave oven.
2) Radar waves are used to guide the plan
3) Infra-red waves are used in heater to provide heat
4) Ultra violet waves are used to in Hubble space telescope to view the distant object.
5) X-rays are used to identify the problem in bones of human body.

QNO 4:

Ans(c) Common causes of Water Pollution

There are various causes of water pollution. such as.

1) Industrial wast water and domestic waste water. these depletes the oxygen from water as its decomposes and suffocate aquatic life.
2) Domestic sewage. It contain facen of cow and other domestic animal. It spreads infectious diseases through contaminated drinking water supplies which leads to water borne disease like diarrheg.
3) Waste from agricultural lands and urban areas. It over stimulates growth of algae which decompose and deplete the oxygen.

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4) Industry and mining silts: It persists in fresh water environment for long periods. It accumulates in the tissues of fish and shellfish.

5) Fragmentation of rivers by dams: It changes in oxygen level and decomposition rate of organic matter in the water.

b) METHODS OF SOLID WASTE MANAGEMENT

Reduce
↳ Reuse
↳ Recycle
↳ Recovery
↳ Land fill.

Disposal of solid waste can be done through above methods

1) Reduce: It is most favoured option and it is also known as prevention option. It means reducing the waste at source. It can be done through reducing packaging of any product, redesigning products and reducing toxicity.

2) Reuse We can manage the waste and save the environment by reusing strategy such as reusing the shopping bags, disposable bottle bottle to store cool water. Old clothes to be used make cushions in textile industry.

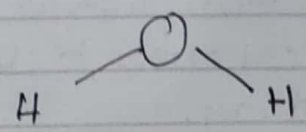
3) Recycle It is a series activity that includes collecting used reused, or unused material and through sorting and processing the recyclable materials products into raw material. It also includes composity of food scraps, yard trimmings and other organic material to form compost.

Recovery Recovery of energy from the waste is the conversion of non-recyclable waste material into useable heat, electricity or fuel through a variety of process including combustion, gasification, pyrolization, anaerobic digestion and landfil gas recovery.

Landfill. It is a least favored option. It is carefully designed structure built into or on top of ground. in which trash is separated from area around it. It contain garbage, and serve to prevent contamination b/w the waste and the surrounding environment specially ground water.

d) Covalent Bond in Water Molecule And Its Structure

Covalent bond in water A water molecule consists of two hydrogen and one oxygen atom. the three atoms makes and angle H – O – H. angle between these atomis approximately 104.5 degrees. the center of each hydrogen atom is approximately 0.0957 nm from the center of the oxygen atom



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9) Goals Of COP26. COP27 of 2021 and 2020

COP26

Performance of COP21 ~~was~~ needed was evaluated to anylze carbon emitters of the world.
In COP21, target were decided by the countries and multinational companies.

COP27 The main goal of COP27 was to reduce the world temperature by 1.5°C, and the carbon cut targets of 2030 must be met till 2050.