

## SECTION-II

### QUESTION-7

(a)

"IQ refers to intelligence quotient, which consists of set of standardise test to check the human intelligence. IQ vary from person to person and from age factor."

#### Factors

The factors that affect IQ are both genetic and non-genetic. Genetics include inheritance from mother or father while non-genetic factors include facility, environment, availability and many more like education, nutrition, mental illness or disease.

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(b)

Data

radius of circle =  $r = 4\text{cm}$

$\pi = 3.14$

Find

Solution

$$\text{Circumference} = 2\pi r$$

$$= 2(4)(3.14)$$

$$\text{circumference of circle} = 25.22 \text{ cm}$$

$$\begin{array}{r} 13 \\ 314 \\ \hline 2522 \end{array}$$

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(c)

Mean

sum of all numbers

Total numbers

$$= \frac{20+22+21+21+23}{5}$$

$$= \frac{107}{5}$$

$$\text{Mean} = 21.4$$

$$\begin{array}{r} 20 \\ 22 \\ 21 \\ 21 \\ 23 \\ \hline 107 \end{array}$$

$$\begin{array}{r} 21.4 \\ 5 \overline{)107} \\ \underline{10} \phantom{0} \\ 7 \\ \underline{5} \phantom{0} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

## Median

20, 22, 21, 21, 23

Re-arranging

20, 21, 21, 22, 23

**Median = 21** center-most number

## Mode

20, 22, 21, 21, 23

**Mode = 21** repeating number

## Range

20, 22, 21, 21, 23

Range = highest number - lowest number

$$= 23 - 20$$

**Range = 3**



(d)

**Data:-**

$$\text{Tahir's investment} = 15,000 \times 12 \text{ months} \\ = 180,000$$

$$\text{Umar's investment} = 30,000 \times 7 \text{ months} \\ = 210,000$$

$$\text{Usman's investment} = 45,000 \times 4 \text{ months} \\ = 180,000$$

$$\text{Total profit} = 406,000$$

**Find:-**

Share of each = ?

**Solution:-**

$$\text{Total investment} = 180,000 + 210,000 + 180,000 \\ = 570,000$$

$$\text{Tahir's Share} = \frac{\text{Tahir's investment}}{\text{Total investment}} \times \text{total profit}$$

$$= \frac{180,000}{570,000} \times 406,000$$

$$= 0.315789 \times 406,000$$

**Tahir, 128,210.334 Rs**

19  
6

$$\text{Umar's share} = \frac{7}{570000} \times 406,000$$

$$= 0.368421 \times 406,000$$

0.368421  
19 76  
57  
130  
114  
180  
152  
80  
76  
46  
38  
2

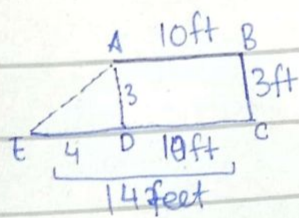
$$\text{Umar} = 149,578.926 \text{ Rs}$$

$$\text{Usman share} = \frac{6}{570000} \times 406,000$$

$$\text{Usman} = 128,210.334 \text{ Rs}$$

## QUESTION-8

(c)



According to Pythagoras theorem

$$(\text{hypotenous})^2 = (\text{base})^2 + (\text{Perpendicular})^2$$

$$(\text{hypo})^2 = (3)^2 + (4)^2$$

$$(\text{hypo})^2 = 9 + 16$$



$$(\text{hypo})^2 = 25$$

Taking square root on both sides

$$\sqrt{(\text{hypo})^2} = \sqrt{25}$$

$$\boxed{AE = \text{hypo} = 5 \text{ feet}}$$

Naseer is 5 feet away from Point A

(d)

**Data:**

Average temperature of week =  $33^\circ\text{C}$

Average temp. of 1<sup>st</sup> three days =  $30^\circ\text{C}$

Average temp of three last days =  $35^\circ\text{C}$

**Find:**

Temperature on 4<sup>th</sup> day = ?

**Solution**

$$\begin{aligned} \text{Sum of avg. temp. of week} &= 33 \times 7 \\ &= 231^\circ\text{C} \end{aligned}$$

$$\begin{array}{r} 33 \\ \times 7 \\ \hline 231 \end{array}$$

$$\begin{aligned} \text{Sum of avg. temp. of 3 days} &= 30 \times 3 \\ &= 90^\circ\text{C} \end{aligned}$$

$$\begin{array}{r} 30 \\ \times 3 \\ \hline 90 \end{array}$$

$$\begin{aligned} \text{Sum of avg. temp. of last 3 days} &= 35 \times 3 \\ &= 105^\circ\text{C} \end{aligned}$$

$$\begin{array}{r} 35 \\ \times 3 \\ \hline 105 \end{array}$$

Temp. on 4<sup>th</sup> day =  $231 - 195$   
=  $\boxed{36^\circ\text{C}}$  Ans

$$\begin{array}{r} 231 \\ -195 \\ \hline 36 \end{array}$$

(b)

$1, 2, 6, 21, \underline{\hspace{2cm}}$

$$(1 \times 1) + 1 = 2$$

$$(2 \times 2) + 2 = 6$$

$$(6 \times 3) + 3 = 21$$

$$(21 \times 4) + 4 \Rightarrow 84 + 4$$

$\boxed{88}$  Ans

$$\begin{array}{r} 1 \times 2 = 2 \\ 2 \times 2 = 6 \\ 6 \times 2 \end{array}$$

$$\frac{21 \times 4}{4} = 84$$

$$\begin{array}{l} (1 \times 1) + 1 = 2 \\ (2 \times 2) + 2 = 6 \\ (6 \times 3) + 3 = 21 \end{array}$$

$$21 \times 4$$

$$\begin{array}{r} 21 \times 4 \\ \hline 84 \end{array}$$

(a)

<sup>A</sup><sup>Q</sup><sup>N</sup><sup>S</sup><sup>G</sup><sup>D</sup><sup>Q</sup>  
BROTHER  
QDGSNQA

<sup>R</sup><sup>H</sup><sup>R</sup><sup>S</sup><sup>P</sup><sup>Q</sup>  
SISTER →  $\boxed{\text{QDSRHR}}$



# SECTION-I

## QUESTION-2

(a)

Global warming is a global threat as the temperature of earth is increasing day by day, which is not a good sign. Following are the measures that should be taken to counter it in COP-29 occurred in Baku, Azerbaijan:

1. Promotion of Renewable energy sources.
2. Promotion of Afforestation
3. Limit the combustion of fossil fuel.
4. Promotion of Reforestation
5. Public Awareness about global warming
6. All countries should be motivated to actively participated in attaining sustainable development Goals (SDG)
7. Strict rules are now required for environmental degradation.
8. Making and implementing new policies



If these measures are taken and enforced properly, the effect of global warming could be mitigate.

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(b)

### Arteries:-

Arteries are a type of blood vessels. It carry oxygenated blood except pulmonary arteries. It carry blood from heart towards the whole body.

### Veins:

Veins are also a type of blood vessels. It carries deoxygenated blood except pulmonary vein. It carries the deoxygenated blood from the body towards the heart.

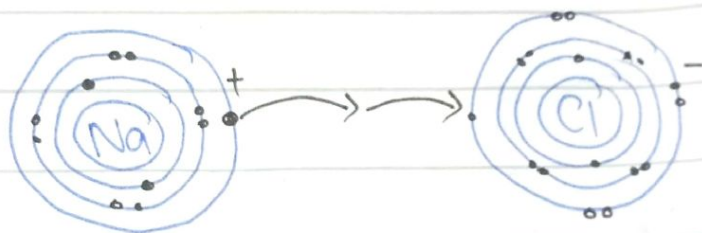
### Capillaries:

Capillaries carry both oxygenated and de-oxygenated blood. It function is blood transfusion and transfer of nutrients.

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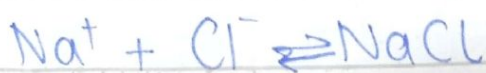
(c)

Atoms form bond to attain stability. An atom attains stability when the electrons in its outermost shell has two or eight electrons also known as octet rule. When the atoms achieve or fall in the criteria of octet rule, it is considered stable. For example, Na (sodium) has 1 electron in its valence shell where Chlorine (Cl) has 7 electrons in its valence shell. To achieve stability Na donate its electron and by this procedure both get eight electrons in its valence shell, by making ionic bond with each other.



Na = 11

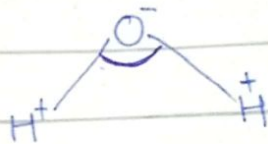
Cl = 17





## Structure of water

Formula of water is  $H_2O$ . It is formed by bond between one oxygen atom and two hydrogen atom. Oxygen form angular structure with hydrogen



(d)

## Conductors:-

Conductors are those material from which electricity can be passed. For example Aluminium

## Semi conductors:-

Semi-conductors are in between conductors and insulators. For example Silicon

## Metals:-

Metals are those materials

that are lustrous, malleable and have conductivity. For example Gold

### Plastics:-

Plastics are polymers that can be moulded into any shape. For example Polythelene

### Ceramics:-

Ceramics are inorganic, non-metallic and non-conductile. For example Glass, Tile.

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## QUESTION-4

(a)

Renewable energy is a dire need for a country like Pakistan who is in a constant state of energy deficit. The list of available sources of renewable energy in



Pakistan is given below:-

1. Solar energy
2. Wind energy
3. Hydro-power energy
4. Nuclear energy

Here are some of the policy options that should be adopted to utilize these sources to overcome the present energy crisis

1. Government should provide subsidies and encourage the installation of solar plate by reducing rates
2. Government should allocate an annual budget from GDP for building of Dams in order to promote hydro-power projects
3. Government should make policies in order to co-operate with other

countries to enhance the role of nuclear energy. France is making 70% of its electricity from nuclear energy.

4. Government should install solar modules on national level. As according to UN, if Pakistan use its 0.071% area for solar energy it can make sufficient energy to meet its requirements.

(b)

The structure of Sun is divided into three zones:-

- i) The Core
- ii) The Radiative Zone
- iii) The Convective Zone

Core:-

Core is the inner most part of Sun. It is the place where fusion



reaction takes place. These making and breaking of atoms release a large amount of energy in the form of heat and light. Energy from the core then enters into the radiative zone.

### Radiative zone:-

From the core, heat energy in the form of radiations moves into the radiative zone and scattered in all direction. Radiative zone is even hotter than the core

### Convective zone:-

Convective zone is the outermost part of the Sun. As we move upward, the temperature increase and hence the convective zone is hottest among all the layers of the Sun.

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(C)

Ceramic material is inorganic and non-metallic in nature. They are also non-conductile, i.e. poor conductors of electricity.

Is it possible that ceramics can be recycled?

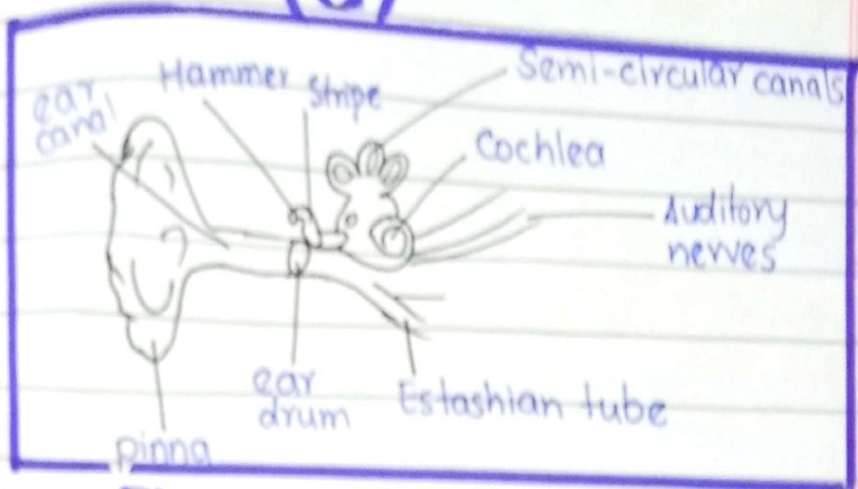
Ceramics can be recycled as it is crushed into small pieces and can be used in the construction of roads. But due to its high melting point, it is sometimes very difficult to recycle the ceramics.

Ceramics like glass and tiles can be crushed in various landfills, to fill space. Ceramics made of clay are also easy to recycle.

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(d)



**Figure:-** Structure of human Ear

Human ear consist of three parts:-

- i) Outer Ear
- ii) Middle Ear
- iii) Inner Ear

### Outer Ear:-

In the outer most part of ear, there lies pinna. Sounds that are from the source, enter into ear canal also known as auditory canal.

### Middle Ear:-

In the inner ear, there lies ear drums. Sounds after striking

with eardrum convert into waves causing vibration in eardrum. The bones of ear Malleus, Incus and stapes also lies here. Eustachian tube originate from here which help in maintenance of internal and external pressure of the ear.

### Inner ear:-

Cochlea lies in the inner ear which help in hearing. Waves from eardrum are transferred towards cochlea where these waves tranform into electrical signal and are directed towards brain through auditory nerves. Semi-circular fluid is also present here which help in maintaining balance of the body.

**The End**