

GSA mock - 2

Sec II

Q. 6

Initial population = 18,000

final population = 22500

Change in population will be:

$$22500 - 18000 = 4500$$

change of 4500 occur in a decade which is 10 years. The percentage increase of population per year will be:

$$\frac{4500}{10} \times 100\% = \frac{450}{18000} \times 100 = \frac{45000}{18000}$$

~~$y = a(1+r)^t$~~

~~$22500 = 18000(1+r)^{10}$~~

~~$5 \times \frac{45}{18000} = (1+r)^{10}$~~

~~$\frac{5 \times 45}{18000}$~~

~~$\frac{225}{18000}$~~

~~$\frac{36}{12}$~~

~~$\frac{4}{4}$~~

~~$\frac{5}{4} = (1+r)^{10}$~~

~~$1.25 = (1+r)^{10}$~~

~~$(1.25)^{1/10} = 1+r$~~

~~$r = (1.25)^{1/10} - 1$~~

~~$r =$~~

$$= \frac{45}{18}$$

$$= \frac{15}{6}$$

$$= \frac{5}{2}$$

$$= 2.5$$

$$= 2.5\%$$

b.

Units	days	machines
600	9	20
x	12	18

$$\frac{600}{x} = \frac{9}{12} \times \frac{18}{20}$$

where x is the number of units made in 12 days with 18 machines.

units is directly proportional to days while with machines is inversely proportional.

$$\frac{600}{x} = \frac{3}{4} \times \frac{9}{10}$$

$$\frac{2 \times 600 \times 4 \times 10}{3 \times 9} = x$$

$$\frac{8000}{9} = x$$

$$x \approx 889$$

889 units will be made.

$$\begin{array}{r} 888.8 \\ 9 \overline{) 8000} \\ \underline{72} \\ 80 \\ \underline{72} \\ 80 \\ \underline{72} \\ 80 \\ \underline{80} \\ 0 \end{array}$$

c.

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

$$S = \frac{d}{t}$$

for car the speed will be

$$S = \frac{450 \text{ m}}{1 \text{ min}}$$

$$S = 450 \text{ m/min}$$

for train:

$$S = \frac{69 \text{ km}}{45 \text{ min}}$$

$$S = \frac{69000 \text{ m}}{45 \text{ min}}$$

$$S = \frac{69000}{45} \text{ m/min}$$

The ratio of their speed will be:

$$= \frac{69000}{45} \div 450$$

$$= \frac{69000}{45} \times \frac{1}{450}$$

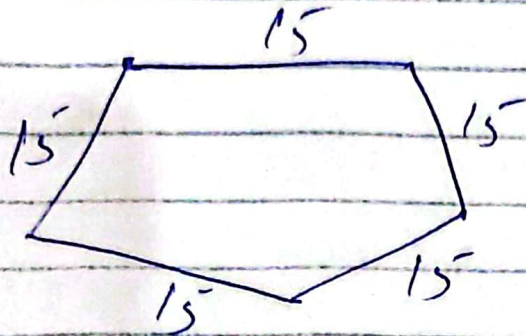
$$= \frac{6900}{45 \times 45} \quad \begin{array}{r} 92 \\ \times 15 \\ \hline 225 \\ 45 \\ \hline 675 \end{array}$$

$$= \frac{2300}{675} \quad \begin{array}{r} 27 \\ \times 27 \\ \hline 135 \\ 27 \\ \hline 675 \end{array}$$

$$= 92/27$$

d.

Pentagon has 5 sides



Perimeter is the sum of sides.

Perimeter of the given figure will be:

$$= 15 \times 5$$

$$= ~~175~~ \text{ cm}$$

$$= 75 \text{ cm}$$

Q. 7.

b.

Circumference of circle is:

$$C = 2\pi r$$

$$C = 2\pi(4)$$

$$C = 2 \times 3.14 \times 4$$

$$C = 6.28 \times 4$$

$$C = 25.12 \text{ cm}$$

C.

The given data is:

20, 22, 21, 21, 23

Arrange the data in ascending order:

20, 21, 21, 22, 23.

The mean will be:

$$\begin{aligned} &= \frac{20+21+21+22+23}{5} \\ &= \frac{107}{5} \\ &\approx 21.4 \end{aligned}$$

The median is the middle most term. The median of given data is:

21

Mode is the most frequently occurred term. The mode of the given data is:

21

The range of a data is the difference between the highest and lowest value. The range of the data will be:

$$\begin{aligned} &23 - 20 \\ &= 3 \end{aligned}$$

d.

$$\begin{aligned}
 \text{Tahir} & : \text{Umar} : \text{Usman} \\
 15000 & : 30,000 : 45000 \\
 15000 \times 12 & : 30,000 \times 7 : 45000 \times 4 \\
 1 \times 12 & : 2 \times 7 : 3 \times 4 \\
 12 & : 14 : 12 \\
 6 & : 7 : 6
 \end{aligned}$$

The sum of ratio
 $= 6 + 7 + 6 = 19$

Total Profit = Rs 406,000/-

Tahir's share

$$= \frac{6}{19} \times 406,000$$

$$= 6 \times 21368$$

$$= 128208$$

Rs 128208/-

Usman's share

$$= \text{Rs } 128208/-$$

Umar's share

$$= 406000$$

$$- 128208$$

$$- 128208$$

$$= 406000$$

$$- 256416$$

$$\begin{array}{r}
 19 \\
 \underline{3} \\
 57
 \end{array}$$

$$\therefore 19 \times 20$$

$$= 380$$

$$5 \times 19 = 95$$

$$406 - 380$$

$$26$$

$$19 \times 5$$

$$\frac{6 \times 95}{114}$$

$$2 \times 1368$$

$$\begin{array}{r}
 19 \quad 406000 \\
 \underline{38} \\
 26
 \end{array}$$

$$719$$

$$\times 8$$

$$\underline{152}$$

$$\begin{array}{r}
 19 \quad 406000 \\
 \underline{38} \\
 26
 \end{array}$$

$$26$$

$$19$$

$$\underline{70}$$

$$57$$

$$\underline{130}$$

$$114$$

$$100$$

= 149584

Rs 149584/-

Q.

I. Q

I. Q is the measure of intelligence of a person. It refers to cognitive powers of a person.

Factors affecting I. Q

- i - short-term memory
- ii - memorizing power
- iii - Problem solving skill
- iv - Pressure and stress handling

Sec - I

Q. No. 5

Q. Artificial Intelligence :

Artificial intelligence (AI) is the use of technology to generate codes, compile images and video and create many other new contents.

AI works on the free online data and its training. As the

free online data is limited.
AI can't create something new. AI analyze any kind of data available on internet which may be correct or wrong. AI generated contents lack authenticity.

AI can't outsmart humans due to its limited data, lack of innovation and lack of authenticity.

b. Benefits of balance diet

A balance diet means taking suitable amount of fruit, vegetable, meats and cereals in order to fulfill the body's demand.

A balance diet has the following benefits:

- i - No need of medicines
- ii - Physical fitness is maintained
- iii - Safeguard from diseases
- iv - Healthy life
- v - Reduces the risk of Hypertension, blood pressure and cholesterol.

Q No. 2

C.
Atoms form chemical bonds to stable themselves according to octet and duplet rule.

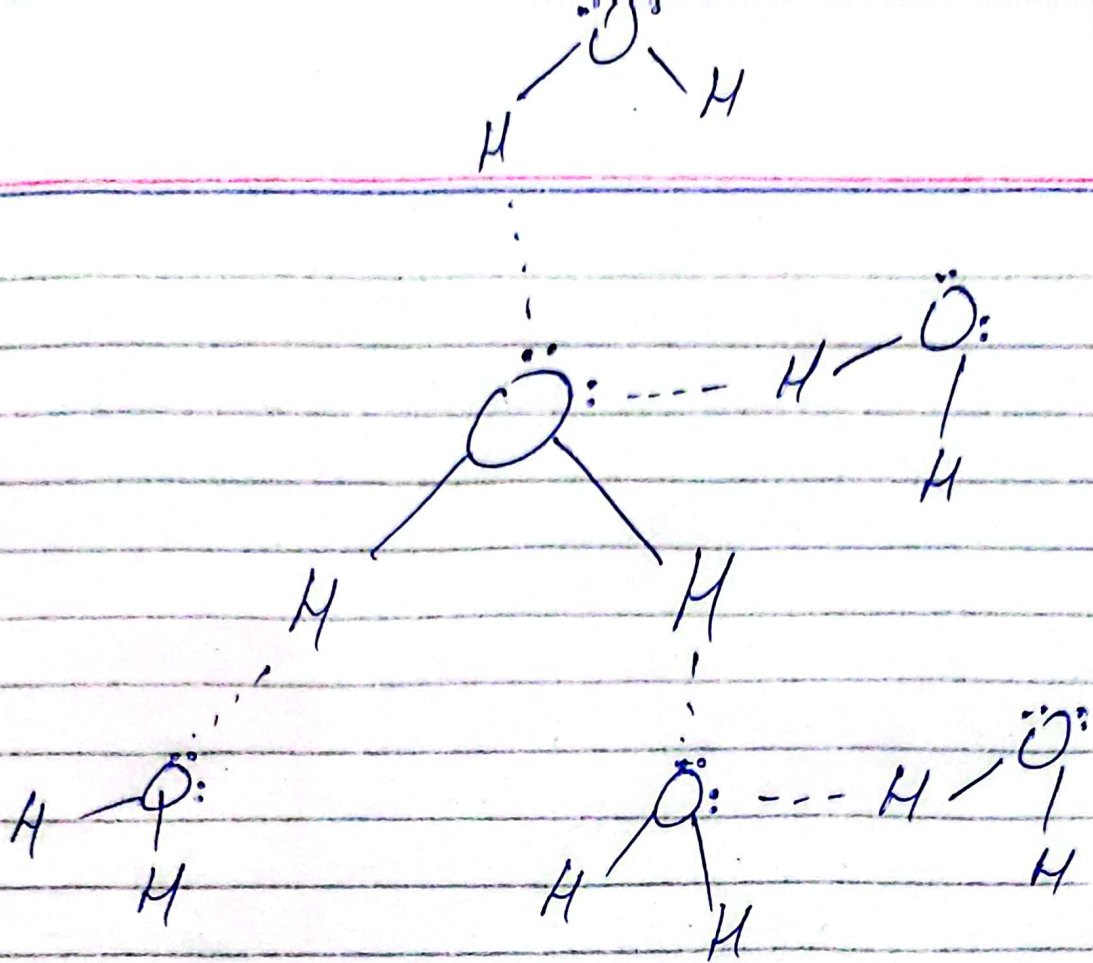
An atom can have either 8 ~~at~~ electrons in its valence shell according to octet rule or 2 electrons in its valence shell according to duplet rule.

Example
Chlorine has 7 ~~bond~~ electrons in its valence shell, so it takes 1 electron from any other element, say sodium, to obey the octet rule.

Structure of water

Q. Co

Water is made up of 2 Hydrogen atoms and 1 Oxygen atom. Each water atom has 2 ~~coor~~ covalent bonds - one bond with each H-atom.



The two un bonded pairs on oxygen atom makes hydrogen bonding with the adjacent hydrogen of adjacent water atom.

d.

Conductors:

Conductors are the elements or materials that can conduct electricity and heat.

Example
Iron

Semi conductors

Semi conductors are the material that can conduct heat and electricity under specific condition. It becomes a conductor upon mixture with some some impurities.

Example :

Silicon.

Metals :

Metals are the elements having free electrons that makes them good conductor of electricity.

For example :

Gold.

Plastics

Plastics are non-biodegradable materials that are long chains of carbon polymers. They have high plasticity and ductility.

Example

PVC plastic.

b.

Arteries, veins and capillaries are all blood vessels.

Function of arteries:
moving blood towards the heart

Function of veins:
moving blood away from heart

Function of capillaries:
Arteries and veins are further divided into smaller blood vessels called capillaries. Capillaries move blood and maintain blood flow in all the organs of a body.

a.

The following measures should be taken in COP-29 to

Counter global warming:

i - Restriction on excessive emission of green house gases

ii - Transition to renewable energy sources

iii - Promote green energy such as nuclear energy.

iv - Ban on usege of ozone
depleting substances

v - Promote afforestation and
reduce deforestation