

# Ammar Yasir - OB S4

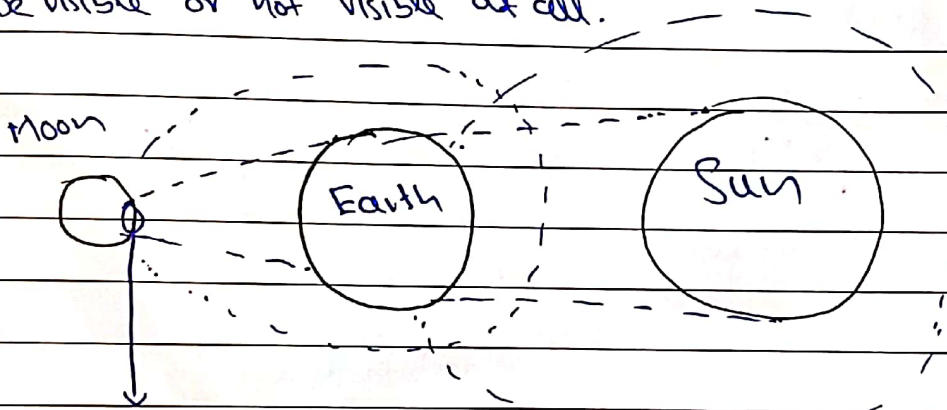
## General Knowledge Mock - 5

Date: 29<sup>th</sup> Oct '24

### Section - I

Q3-

- a) Lunar eclipse is a state when ~~moon~~<sup>earth</sup> comes in between the ~~earth~~<sup>moon</sup> and the sun. It usually occurs every 21 days because its movement around the earth is slightly tilted as shown in the diagram below. The shadow of the earth casted on the moon is the eclipse. From normal sight, the moon will partially be visible or not visible at all.



this region  
appears darker



it could be  
different depending  
on the distance of  
moon from earth  
or distance of earth  
from sun

the rotation of earth around  
the sun is tilted from the rotation  
of moon on earth

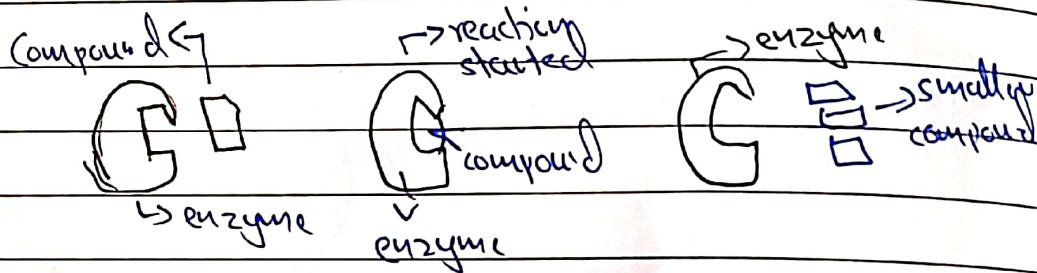
→ the greater the distance  
of moon from earth, the  
more visible it will be and  
vice versa.

→ the greater the distance of  
Sun from earth, the moon will  
be more visible and vice versa.

## b) Functions of enzymes

Enzymes are catalysts used for different purposes. The first function of enzyme is breaking down of organic compounds into smaller molecules.

According to key and lock hypothesis, it locks into organic compound like a key and convert it into smaller molecules as shown in the figure below.



It is essential in human digestion in which enzymes in saliva, stomach and small intestine breaks down large food molecules into smaller molecules, to be absorbed by alveoli of small intestine. For example, Protein is broken down into amino acids by enzyme pepsin.

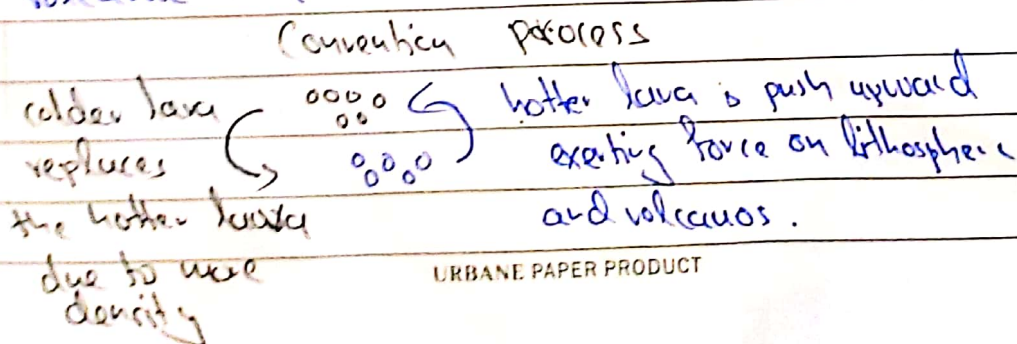
It is also used in detergents to remove powerful stains by the same process as explained above. thereby, helping in cleaning the clothes. Furthermore, enzymes are used to speed up the chemical reaction process. therefore, ensuring time efficiency in the process of chemical production.

c) EMR

Electromagnetic Radiation is the composition of electric and magnetic waves that radiates at the speed of light. It usually is emitted from the sun but its application is present in different technologies. For example, you can change a TV channel with the help of remote due to the emission of electromagnetic radiation. It is

It is composed of 7 spectrums of light: Green, Yellow, Orange, Red, Violet, etc. It includes differentials due to its wave length ranging from short to long wavelengths such as radio waves, microwaves, infrared, Ultraviolet, gamma and X rays.

d) Earthquake is the process of seismic activity in which the lithosphere of the earth shakes as a result of convection process. On the other hand, Volcanic eruption is the outburst of lava from a volcano due to the same convection process. During the convection process, the colder molten lava goes down whereas the hotter comes up. This results in pressure difference causing which is exerted towards the surface. Such a difference in pressure is responsible for seismic activity causing earthquake as well as volcanic eruption.



Q4.

a)

Noise pollution is an increase in noise with varying sound waves in an environment. It has resulted in hearing problems in humans which in some cases has resulted in loss of hearing. In addition, it has resulted in ~~psycho~~ psychological issues such as frustration, and anxiety which affects productivity, creativity and a loss of economic activity.

There are various ways to curb this issue. Industries can be installed away from the cities to avoid the noise pollution from heavy machinery used. Transport vehicles could be switched to hybrid or electric models causing a significant effect on reducing traffic noise pollution. Sound proof windows can be installed in homes and offices. The work as insulator responsible for absorbing sound waves, and hence, avoiding preventing unnecessary noise.

b)

Fibre is indigestible food containing cellulose that helps in smooth digestion of food. They prevent constipation by smoothening the flow of waste products in intestine. An absence of fibre could result in excessive absorption & retention of water during digestion.

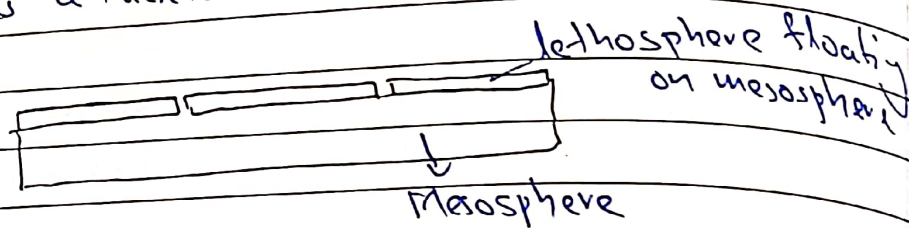
A platter of food would contain variety of food products such as beef, mutton, fish, mix vegetable and legumes. Hence, it would have variety of sources & supplements that would provide human body

with sufficient nutrients to keep body healthy. For example, beef and chicken are rich in proteins providing a healthy intake of the required daily proteins while the use of carrots in mixed vegetables provide Vitamin A. Hence, each item of food would contain sufficient amount of daily required nutrients. If you only eat beef, you may not be able to obtain other required nutrients and an excess of protein and creatinine. This would not only result in malnutrition but also medical conditions due to excessive Uric Acid.

c) Water is an essential part of human body. Drinking water quality should be ensured so that a human body remains healthy. Drinking water quality is the provision of different minerals by the water used for drinking. It must be ensured that it is free from excessive presence of chemicals such as sodium chloride or the presence of bacteria or viruses. An acidic water with pH below 7 has different health implications. Water should be boiled and filtered ~~down~~ before drinking. This would prevent spread of diseases such as typhoid and diarrhea.

d) Lithosphere is the upper <sup>layer</sup> surface of earth which is composed of earth's crust. It is composed mainly of silicon that is hard in texture and floats on the smoother lower layer of mesosphere. It is divided into different

tectonic plates such as Indian and Arabian plates. These plates move causing earthquakes. It has a thickness of around 30-35 km.



Rocks are formed when the molten lava cools down making them a hard material. Minerals are different compounds found in the lithosphere which are used for commercial purposes. The exploration of copper and gold in Saindeh is an example. Copper is used in making wires while gold is used in jewelry.

due to its good conduction properties

## Section-II

6-

a) Arithmetic mean =  $\frac{\text{Sum of all number}}{\text{Total number}}$

$$15 = \frac{9+8+10+k+12}{5} \Rightarrow 75 = 39+k \Rightarrow k=36$$

$$\begin{array}{r} 11 \\ 75 \\ 39 \\ \hline 36 \end{array}$$

b)

$$4x + 3y = y - (1)$$

$$4x + 5y = y + 10 - (2)$$

and Substitute (y) from equation (1) into (2)

$$4x + 5y = 4x + 3y + 10$$

$$2y = 10$$

$$y = 5$$

Initial quantity = 4(5)

of Sugar solution = 20 litres

c)

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

$$= 2 \times \frac{22}{7} \times 12$$

$$= 24 \times 3.142$$

$$V = 75.41 \text{ cm}$$

R.W

$$\begin{array}{r} 1 \\ 142 \end{array}$$

$$\begin{array}{r} 24 \\ \hline 1 \\ 568 \end{array}$$

$$\begin{array}{r} 2842 \\ \hline 3.1408 \end{array}$$

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d)

-10, -8, 6, 40, 102, ?

$$\begin{array}{r} 1 \\ 24 \\ 3 \\ \hline 72 \end{array}$$

$$\begin{array}{r} 24 \\ 3 \\ \hline 72 \end{array}$$

The difference in the above given numbers are as follow: 2, 14, 34, 62, ~~98~~. We further take their differences which gives us the following:

12, 20, 28, ~~36~~. These number have similarity

in their differences. Each number is '8' more

than the previous one. Hence the next number

after ~~36~~ will have '8' more, making it 36.

36 is added to 62 which is the difference

between 4th and 5th number. It gives us 98.

98 is therefore the difference between 5th and

the unknown 6th number. Hence 98 is added

to 102 to give 200. ~~200~~ Therefore the

next number is 200.

	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>
no	-10	-8	6	40	102	? = <u>200</u>
Difference		2	14	34	62	x = 98
Difference			12	20	28	y = 36
Difference				8	8	∴ 8

7-

a)

$$0.2x = y$$

$$x = \frac{y}{0.2}$$

$$y \cdot x 20 = x \Rightarrow ?$$

$$= \frac{y}{100} \times 20 \rightarrow \text{substitute } y \text{ with } 0.2x$$

$$= \frac{0.2x}{100} \times 20$$

$$= \frac{2x}{5} \times \frac{2}{5} = \frac{x}{25}$$

b)

$$P + Q = 550 \quad (1)$$

$$Q + R = 6250 \quad (2)$$

$$P + R = 5200 \quad (3)$$

$$Q = 6250 - R$$

Substitute Q in equation (1)

$$P + 6250 - R = 550$$

$$P - R = -1200 \quad (4)$$

$$P + R = 5200$$

$$P - R = 1200$$

} elimination method

$$2P = 6400$$

$$P = 3200$$

 $\therefore P \text{ salary is } \underline{\underline{Rs. 3200}}$ 

c)

$$\text{Probability} = \frac{\text{no. events}}{\text{Total}}$$

$$\text{Two heads} = \frac{1}{2} \times 21$$

$$= \frac{21}{100}$$

$$\text{One head} = \frac{2}{2} \times 27$$

$$= \frac{11}{20}$$



$$\begin{array}{r} 24^6 \\ \hline 500 \\ 100 \\ \hline 8025 \end{array}$$

$$\sqrt{\quad} = \frac{6}{25}$$

d) let Jamie be  $x$

$$\text{Jamie's dad} \Rightarrow 4x = y \quad (1)$$

$$\text{14 year later} \\ x+14 \Rightarrow 2(x+14) = y+14 \quad (2)$$

$$x+y = ?$$

Substitute equation (1) into (2)

$$2x + 28 = 4x + 14$$

$$2x = 14$$

$$x = 7$$

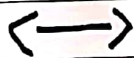
$$\text{Find } y \Rightarrow 4(7)$$

$$y = 28$$

$$\therefore x+y \Rightarrow 7+28$$

$$= 35$$

The sum of their ages is  $\boxed{35}$



End