

Dos and Don'ts for General Science & Ability Paper

Date: / / 20

Mon Tue Wed Thu Fri Sat

Hi there, you've done well. Know that acquiring knowledge is one thing and reproducing it in paper according to what's asked is another. There are a few things I would like to highlight.

1. A 5 marks part requires at least 2 and at max 3 sides of a paper. Know that there can be two or three parts of a question and their marks are divided accordingly. So, address all of them in a just manner.

2. Focus on time management. You get 35 minutes to solve one question and about 8 minutes per 5 mark part. Manage your time accordingly.

3. You need to understand that your paper is supposed to look more scientific than theoretical. So, add flowcharts and diagrams where required.

4. Your handwriting and neatness can be really impactful. Avoid cutting and overwriting.

5. Focus on your spellings and your grammar. Here, in GSA there's no deduction in marks but your expression will definitely create an impact.

6. In ability portion, give explanation for analytical ability question in words. You need to understand that a 5 mark part requires all steps written and explained.

Good luck for CSS 2025. You're gonna rock in sha Allah. :)

Quantity of sugar = ?

Solution:

Suppose The quantities of sugar and colored water are $4x$ and $3x$.

$$= 4x : 3x \rightarrow \text{eq. ①}$$

After adding 10 litre of water The eq ① becomes:

$$4x : (3x+10) \rightarrow \text{eq. ②}$$

According to The statement eq ② will be equal to $4:5$.

So,

$$4x : (3x+10) = 4:5$$

$$\frac{4x}{(3x+10)} = \frac{4}{5}$$

$$4x(5) = 4(3x+10)$$

$$20x = 12x + 40$$

$$20x - 12x = 40$$

$$8x = 40$$

$$x = \frac{40}{8}$$

$$x = 5$$

so, The value of sugar in the mixture is $(x) = 5$

(C)

Volume of football = $V = ?$ radius = $r = 12 \text{ cm}$ Solution:

As we know,

$$\text{Volume of sphere} = V = \frac{4}{3} \pi r^3$$

where ' $\pi = 22/7$ '.

By applying formula:

$$\text{volume of football} = V = \frac{4}{3} \pi r^3 \rightarrow \text{eq (1)}$$

as $r = 12 \text{ cm}$.by putting value of ' r ' in eq (1).

$$V = \frac{4}{3} \pi (12)^3$$

$$V = \frac{4}{3} \left(\frac{22}{7}\right) (12)^3$$

$$= \frac{88}{21} (1728)$$

$$= \frac{152,064}{21}$$

$$V = 7241.1428 \dots \text{ cm}^3$$

we can also rewrite it as ' $2304 \pi \text{ cm}^3$ '

$$\text{So the volume} = 2304 \pi \text{ cm}^3 = 7241.1428 \text{ cm}^3$$

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(d)

Given series: $-10, -8, 6, 40, 102, ?$

Solution:

In the given series the sequence appears to increase based on a certain pattern.

$$-10 \text{ to } -8 \rightarrow +2.$$

$$-8 \text{ to } 6 \rightarrow +14$$

$$6 \text{ to } 40 \rightarrow +34$$

$$40 \text{ to } 102 \rightarrow +62.$$

By looking at the differences we have;

$$2, 14, 34, 62.$$

Now, after finding the difference between these differences we have,

'12, 20, 28, 36' which is increasing by a specific number '+8'.

∴ So the next term after 102 would be '200'.

$$-10, -8, 6, 40, 102, 200.$$

Question no: 8

(a)

Given formula $\Rightarrow$ Charge = $\pounds 20 + 4n$.if $n = 7$, where 'n' is the number of windows.

How much he will charge = ?

Solution:

$$\text{Charge} = \pounds 20 + 4n.$$

$$n = 7.$$

Simply putting the value of 'n' in the formula. we will have:

$$\begin{aligned}\text{Charge} &= \pounds 20 + 4(7) \\ &= \pounds 20 + 28\end{aligned}$$

$$\text{Charge} = \pounds 48$$

The charge would be equal to $\pounds 48$, which means Brain charges $\pounds 48$ to his customers.

(b)

Find the correct form of words:

(i) ralciep

(ii) tyhniarum

(iii) arsehce

(iv) moniteah

(v) tareph.

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Mo Tu We Th Fr Sa

Solution:

(i) malcep
replica.

(ii) tyhniaum
humanity.

(iii) arsehee
cashier.

(iv) moniteah
nematation

(v) tareph
teraph

(c)

$$A = \{10, 11, 12, 13, 15\}$$

$$B = \{10, 12, 14\}$$

$$U = \{10, 11, 12, 13, 14, 15, 16, 18\}$$

Verify ;

$$(A \cup B)' = A' \cap B'$$

Solution:

Suppose That $(A \cup B)'$ is left hand side,
and $A' \cap B'$ is right hand side.

L.H.S
 $(A \cup B)'$

R.H.S
 $A' \cap B'$

we have,

$$U = \{10, 11, 12, 13, 14, 15, 16, 18\}, A = \{10, 11, 12, 13, 15\},$$

$$B = \{10, 12, 14\}.$$

$$A \cup B = \{10, 11, 12, 13, 14, 15\} \quad A' = U - A = \{14, 16, 18\}$$

$$(A \cup B)' = U - (A \cup B)$$

$$= \{16, 18\}$$

$$B' = U - B = \{11, 13, 15, 16, 18\}$$

$$A' \cap B' = \{16, 18\}$$

$$(A \cup B)' = \{16, 18\}$$

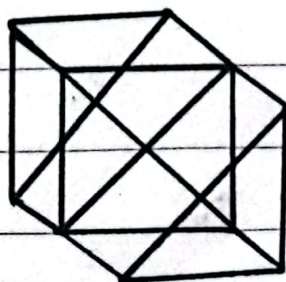
$$(A \cup B)' = \{16, 18\}$$

$$A' \cap B' = \{16, 18\}$$

Hence, proved that $(A \cup B)' = A' \cap B'$.
as both sides are equal.

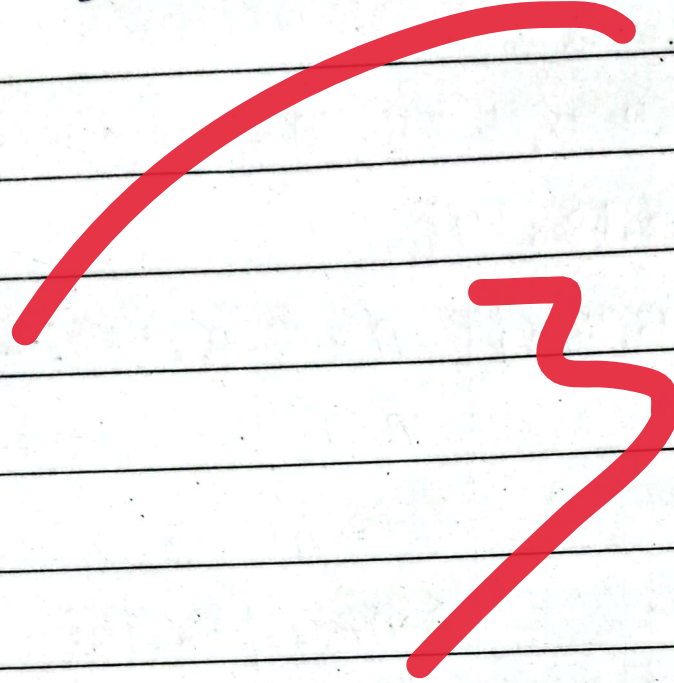
(d)

Find The number of triangles in the given figure.



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There are '24' number of triangles in the given figure.



PART - II

(Section - I)

Question no : 3

(a)

Lunar Eclipse:

When Earth comes between the Sun and the Moon, it is known as lunar eclipse.

There are two types of lunar eclipse:

- (i) Partial lunar eclipse.
- (ii) Total lunar eclipse.

(S) (E) M (lunar eclipse).

In this situation the light of Sun could not reach the surface of moon, so it does not visible from Earth and appears darker.

(i) Total lunar eclipse:

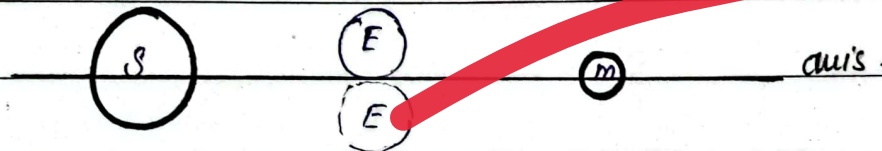
When Earth is exactly aligned on the same line, joining the centre of Sun and moon, it is known as

total lunar eclipse.



(iii) Partial lunar eclipse:

When the Moon is above or below the axis line joining the centre of Sun and moon, it is known as partial lunar eclipse.



(b)

Function of Enzymes:-

Enzymes:

"Enzymes are the globular proteins which help to run the metabolic activities."

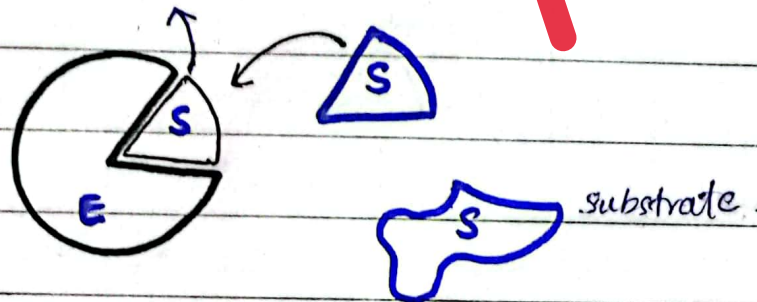
Enzymes are the biological catalysts.

Functions of Enzymes:

- (i) They speed up the rate of reaction.
- (ii) Small proportion of enzymes can catalyse or run a chemical reaction.

- (iii) They do not influence the nature of product.
- (iv) Participate in a chemical reaction to just speed up the reaction.
- (v) They are reusable.
- (vi) They are highly sensitive to the temperature, pH concentration.

Diagram:



According to the lock and key model, the active side of enzyme is rigid, it only allows such substrate which is identical.



(c)

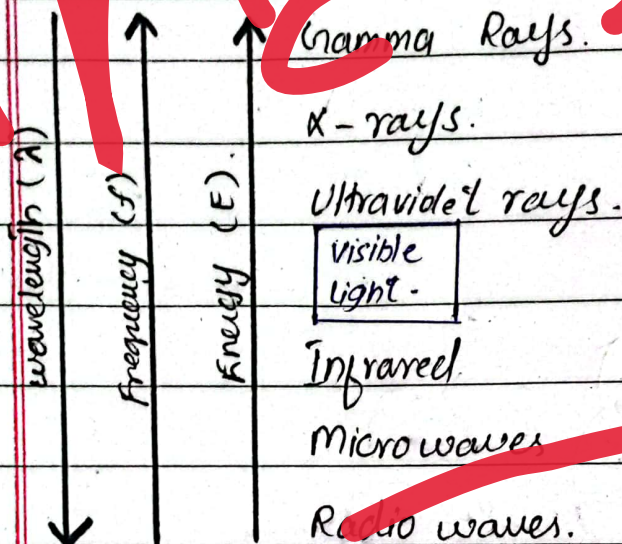
Electromagnetic radiations:-

Defination:

"It is a stream of photons travelling with speed of light in vacuum or air."

According to the Planck The Energy of electromagnetic radiations is ' $E = hf$ ', where ' h ' is the Planck's constant.

Spectrum of electromagnetic radiations:



We can see from the above diagram that Gamma rays has the highest Energy and frequency, but lowest wavelength. and Radio waves has the highest wavelength but lowest energy and frequency.

(d)

Are earthquakes and volcanic eruption interconnected? if yes, then how?

Yes, earth-quake and volcanic eruption are interconnected primarily, because they both involve movements within the Earth's

crust and mantle.

How they are linked:

(i) Tectonic plates movement

Earthquake usually occurs along the boundaries, where plates collide, pull apart, or slide each other. These boundaries also host volcanoes.

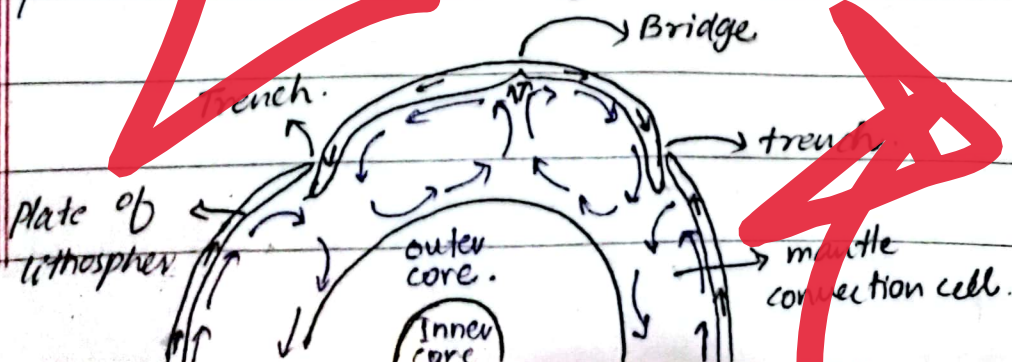
Earthquake can trigger volcanic eruption by creating additional stress in volcanic regions.

(ii) Pressure Changes

Earthquake can cause changes in pressure and stress around a magma chamber, which can destabilize it. This leads to the fracturing of rocks, allowing magma to move out.

(iii) Volcanic Earthquakes

Before a volcanic eruption, small earthquake occurs as magma rises through cracks in the Earth's crust, exerting pressure on surrounding rocks.



Question no: 4.

(a)

Noise Pollution:

"The presence of unwanted or harmful sounds in the environment is known as noise pollution."

Sources:

- Industrial activities such as mining operations, factories, construction.
- Sound of loudspeakers, public events, household gadgets.
- Traffic on roads, air ports produces specific noise pollution.

Effects of noise pollution:

- Noise pollution can lead to stress, hearing loss, sleep disturbances.
- It also can disrupt animal's communication, hunting, especially for species that rely on sound.
- It can hinder concentration and productivity in workplaces and schools.

Ways to control:

- Design quiet zones around hospitals and schools.
- Install noise barriers or insulation in buildings.
- Impose noise limits on industries, construction and vehicles.

(d)

Lithosphere:

Lithosphere is the rigid outer layer of Earth's crust, consisting of the crust and upper mantle, and it is broken into tectonic plates.

Plate tectonics:

The earth's crust divided into twelve major plates.