Dos and Don'ts for the General Science & Ability Paper

Hi there — you've prepared well! Remember, knowing the content is one thing, but presenting it in the paper exactly as required is another. Here are a few key points to keep in mind:

1. For a 5-mark part, aim to write at least 2 and at most 3 sides of the answer sheet. Often, a question has two or three parts, and the marks are divided accordingly — so address each part fairly.
2. Manage your time wisely — you have about 35 minutes per full question, which comes down to around 8 minutes for each 5-mark part. Stick to this to avoid rushing later.
3. Make your answers look scientific, not just theoretical. Use flowcharts and diagrams wherever they add clarity.
4. Neatness matters — keep your handwriting clean, avoid cutting or overwriting.
5. Mind your spelling and grammar — while GSA doesn't deduct marks for these, your expression leaves an impression.
6. In the ability portion, explain analytical ability questions in words. For a 5-mark part, show all steps and provide clear explanations.

Good luck for CSS 2026 — you're going to ace it, in sha Allah! 🌟

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1, 2, 6, 24, 120, 720

1 × 2 = 2

2 × 3 = 6

6 × 4 = 24

24 × 5 = 120

120 × 6 = 720

X ——— X

PART D:

P < Q ; P > R

S < T ; S > Q

Height of the shortest person = 150 cm

Height of the tallest person = 180 cm.

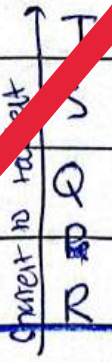
Range of heights = Tallest − Shortest

= 180 − 150

= 30 cm.

T
S
Q
P
R

Sequence of height from tallest to smallest



So the third tallest is Q and range of height is 30 cm.

X ——— X

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QUESTION # 6:

PART A:

Given:

A pipes fills the tank in = A_f = 10 hours.

B Pipe fills the tank in = B = 15 hours.

Pipe C empties the full tank in = C = 30 hours.

To Find:

If all three pipes are opened, time taken by the tank to become full. = T = ?

Solution:

Finding the rates;

Pipe A filling rate = $R_A = \frac{1}{10}$

Pipe B filling rate = $R_B = \frac{1}{15}$

Pipe C emptying rate = $R_C = \frac{1}{30}$

When all three pipes are opened simultaneously.

Combined Rate = $R = R_A + R_B - R_C$

$$R = \frac{1}{10} + \frac{1}{15} + \frac{1}{30}$$

Taking 30 as L.C.M.

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$$R = \frac{1 \times 3}{10 \times 3} + \frac{1 \times 2}{15 \times 2} - \frac{1 \times 1}{30 \times 1}$$

$$= \frac{3}{30} + \frac{2}{30} - \frac{1}{30}$$

$$= \frac{3+2-1}{30}$$

$$= \frac{5-1}{30}$$

$$R = \frac{4}{30}^{2}_{15}$$

$$R = \frac{2}{15}$$

Calculating time taken 'T' from the combined rate

$$T = \frac{1}{R} = \frac{1}{2/15}$$

$$T = \frac{15}{2}^{7.5} \text{ hr.}$$

$$\boxed{T = 7.5 \text{ hr}}$$

Hence, it would take 7.5 hrs for the tank to be full if all the three pipes will be opened simultaneously.

X ——— X

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PART B:

Given:

Ratio of salaries of X, Y & Z = X:Y:Z = 4:5:7

Increase in Y's salary = 10%

Decrease in Z's salary = 25%

New Total = T` = 169500

To Find:

Original salary of employee X = X = ?

Solution:

Let the original salaries according to ratio be.

$X = 4x$

$Y = 5x$

$Z = 7x$

Increase in Y's salary $= Y' = Y + 10\%Y = 5x + \frac{10}{100} \times 5x$

$= 5x + \frac{1}{2}x$

$= \frac{10x + x}{2}$ $(\because LCM = 2)$

$Y' = \frac{11x}{2} = 5.5x$

Decrease in Z's salary $= Z' = Z - 25\%Z = 7x - \frac{25}{100} \times 7x$

$= 7x - \frac{7x}{4}$

$\frac{28x - 7x}{4}$ $(\because L.C.M = 4)$

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$$Z' = \frac{21x}{4}$$

Now, New total of new salary is

$$T' = X + Y' + Z'$$

$$169500 = 4x + \frac{11x}{2} + \frac{21x}{4}$$

Taking LCM 4 on L.H.S

$$169500 = \frac{4x}{1} \times \frac{4}{4} + \frac{11x}{2} \times \frac{2}{2} + \frac{21x}{4} \times \frac{1}{1}$$

$$169500 = \frac{16x}{4} + \frac{22x}{4} + \frac{21x}{4}$$

$$169500 = \frac{16x + 22x + 21x}{4}$$

$$169500 \times 4 = 59x$$

$$x = \frac{169500 \times 4}{59}$$

$$x = \frac{678,000}{59}$$

$$x = 11491.5$$

Now share of X original $X = 4x = 4 \times 11491.5$

$= 45966$

So the original salary share of X is Rs 45966/-

X ——— X

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PART C:

Given

Work completed initially = $W_1 = \frac{3}{5}$

Time taken by original workers = $T_1 = 60$ days

No. of additional workers = $X' = 10$

Remaining work finished in time = $T_2 = 20$ days

To Find:

Original no. of workers = X = ?

Solution:

Basic formula for work is

Work = Total rate × time

Work = $X \times R \times T$ ($\because$ Total rate = $X \times R$)

The first 60 days,

Work(W) = $X \times R \times T$

$\frac{3}{5} W = X \times R \times 60$ —— ①

$$\frac{2}{5}W = (X+X') \times R \times T$$

$$\frac{2}{5}W = (X+10) \times R \times 20$$

$$W = (X+10) 20R \times \frac{5}{2} \quad \text{——(2)}$$

From eqn (1), we get

$$W = X \times R \times 60 \times \frac{5}{3} \quad \text{——(3)}$$

So, balancing both equations

$$(X+10) \times \overset{10}{\cancel{20}}R \times \frac{5}{\cancel{2}_1} = X \times R \times \overset{20}{\cancel{60}} \times \frac{5}{\cancel{3}}$$

$$(X+10) \times 50R = X \times R \times 100$$

$$50X + 500 = 100X$$

$$500 = 100X - 50X$$

$$50X = 500$$

$$X = \frac{\cancel{500}^{10}}{\cancel{50}}$$

$$\boxed{X = 10}$$

So, the original number of workers was 10.

X ——— X

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PART D:

Given:

Average score of the class = $A_1 = 78$

Top five scores = 98, 95, 92, 90, 85 (removed)

New Average = $A_2 = 75$

To Find:

Total no. of student = $n = ?$

Solution:

According to the formula of average.

$$\text{New Average} = \frac{\text{Sum of values}}{\text{No. of values.}}$$

$$A_2 = \frac{\text{sum of values } (\Sigma X)}{n-5}$$

$$75 = \frac{\Sigma X}{n-5}$$

or $\Sigma X = 75(n-5)$

Now, old average

$$A_1 = \frac{\text{Sum of value}}{\text{total no. of cells}}$$

$$78 = \frac{\Sigma X + 98+95+92+90+85}{n}$$

or $78n = 75(n-5) + 460$

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$$78n = 75n - 375 + 460$$

$$78n - 75n = 460 - 37$$

$$\frac{3n}{3} = \frac{6}{3}$$

$$\boxed{n = 28}$$

So total number of students in class is 28.

X ——— X

SECTION - I

Q2 **PART A: DIFFERENCE BETWEEN STAR & PLANET**

	STAR	PLANET
1-	Star is a cellestial body having light of its own.	Planets are orbiting bodies that lack an internal source of light and depends on external source for light.
2-	A star has a life cycle.	Planets donot have a life cycle.
3-	There are millions and millions of stars in universe.	There are limited number of planets orbiting a star, for example solar system has eight planets

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4-	Stars are huge in size and have high temperatures	Planets are relatively smaller and have lower temperature.
5-	Stars are uninhabitable and have no signs of life.	Planets like Earth are habitable and support life.
6-	They move freely in universe with a twinkly effect.	Planets follow specific trajectory and orbit the star.
7-	Sirius is the example of star.	Earth, Mars, Venus and Jupiter are examples of planets of solar system

LIFECYCLE OF STAR:

A star ~~grow~~ goes through series of evolutionary steps from Nebula to blackhole. Nebula is the cold cloud of gas (H_2 or He) and dust Due to gravity, nebula contracts and spinning of the gases and dust heats it up forming Proto star. When the core temperature of proto star reaches 15 million kelvin, nuclear fusion of hydrogen ~~y~~ begins. This phase is called main sequence phase. It is

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a stable but short-lived phase due to consumption of fuel (H₂ & He). So, when hydrogen is depleted, fusion stops and core begins to collapse and heat up. This triggers fusion reaction across the core which expands the outer layer of star making it a huge and luminous Red Supergiant. After successive rounds of fusion, star develops an onion-like structure and core becomes of iron. After formation of iron core, star runs out of ways to support its burning and survival, and the core collapse. A violent explosion causes the temperature to spike which rebounds the supersonic neutron core. The outer layer blast into the space generating shockwaves. This powerful explosion is called supernova. The gravitational collapse of core crushes the matter into an infinitely small point called singularity, surrounded by event horizon. This is called blackhole.

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Nebula → Protostar → Main sequence phase.

Red Supergiant → formation of Iron core. → Super-Nova → black hole.

X ——— X

PART B: SEMICONDUCTORS

1- SEMICONDUCTORS:

Semiconductors are materials having electrical resistance between that of a conductor and an insulator. It is an integrated circuit chip or microchip made from pure elements like silicon or Germanium. The conductivity of semiconductor can be controlled by adding impurities (doping) or rising their temperature. They are used in making transistors, diodes and micro chips. Two types of semiconductor are made from doping: N-type and P-type.

2- DIFFERENCE BETWEEN N-TYPE AND P-TYPE:

	N-TYPE SEMICONDUCTOR	P-TYPE SEMICONDUCTORS
i-	N-type semiconductors are formed by adding pentavalent	P-type are semiconductors formed by doping silicon

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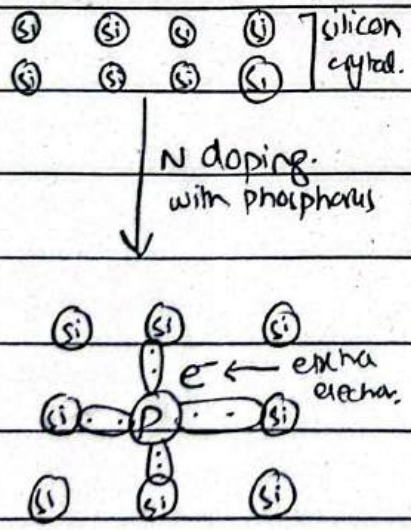
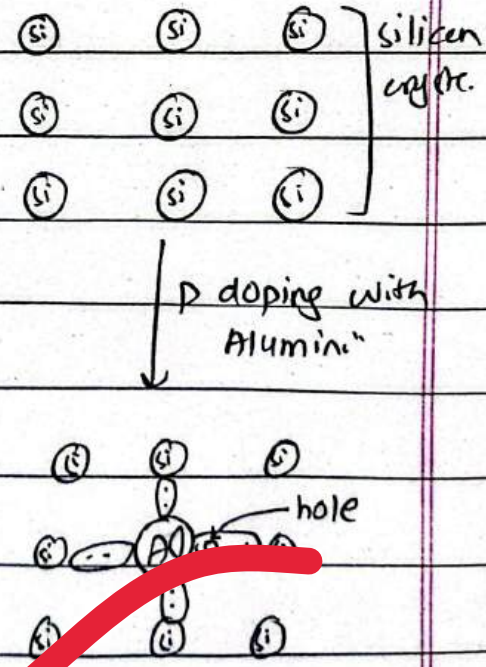
(having 5 electrons in outer most shell) are doped with silicon, like Phosporus or Arsenic.	with trivalent impurities, having 3 electrons in outer most shell, like Aluminium or Boron
2- Current is carried through electrons majority which donated by impurity atom after forming covalent bond with silicon.	Current is carried through holes (missing electron) for the forth bond with silicon and the impurity accepts an electron.
3- Electrons are negative charge carrier.	Holes are positive charge carrier.





→ **MODERN APPLICATIONS OF SEMICONDUCTORS:**

Semiconductors are excessively used in modern electronics.

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Their popound use includes in telecommunication (smartphones), and household appliances like refrigerators, microwave and washing machine also work on semiconductor. Moreover, in banking sector, digital accounts, ATMs and security camera are completely semiconductor.

X ——— X

PART C: GLOBAL WARMING

1- GLOBAL WARMING:

Global warming is the rise in the surface temperature of Earth due to green house effect. Green house gases forms a blanket over Earth with warms up its surface temperature through successive reflection. Mostly, this phenomena is natural but human activities has sped it up through excessive release of ~~excessive~~ green house gase. Global warming is caused by fossil fuel burning, smoke from industries and vehicles, deforestation, use of chloroflorocarbons and stubble burning. Global warming has been contributed to the change of weather

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cycle resulting in torrential rains, prolonged droughts, extreme heat waves, and other extreme weather events. According to Intergovernmental Panel on Climate Change (IPCC), the world temperature has crossed the threshold of 1.5°C expected by 2040 already. This shows how global warming is increasing day by day.

2- MECHANISM OF GREEN HOUSE EFFECT:

The Green-house effect is a natural process where certain gases in Earth's atmosphere maintains the temperature suitable for life by trapping heat. Its mechanism involves a three-step cycle of incoming solar radiation, absorption by Earth's surface and re-radiation.

a- Incoming Solar Radiations:

The sun emits its energy in form of waves which reaches the Earth. Around 30% of these radiations are reflected back by clouds and atmosphere and 50% are passed to the Earth's surface. These waves warm up the surface of land and

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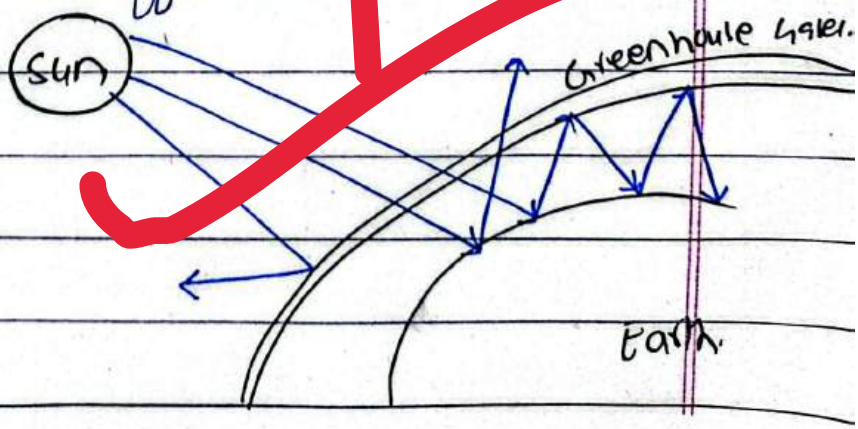
ocean.

b- Emission of Infrared Heat:

The Earth's surface warmed by sun's radiation send back the energy in the form of infrared wever. This radiation can be felt in a hot sunny day..

c- Trapping by the Green-House Gases:

Visible waves passes through atmosphere more easily than infrared radiation. Green-house gases accumulated in the atmosphere block the passages of infra-red radiation back into space. These gases are released as a result of ~~the~~ combustion of fossil fuels use of chloroflurocarbons etc and their molecular structure ~~to~~ trap the re-rediated radiation, resulting in a spike of surface temperature. This phenomenon is called Green-house effect.



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3- **MAJOR GREENHOUSE GASES:** Three major Green-house Gases are Carbon dioxide (CO_2), methane (CH_4), and Nitrous Oxide (N_2O).

X ——— X

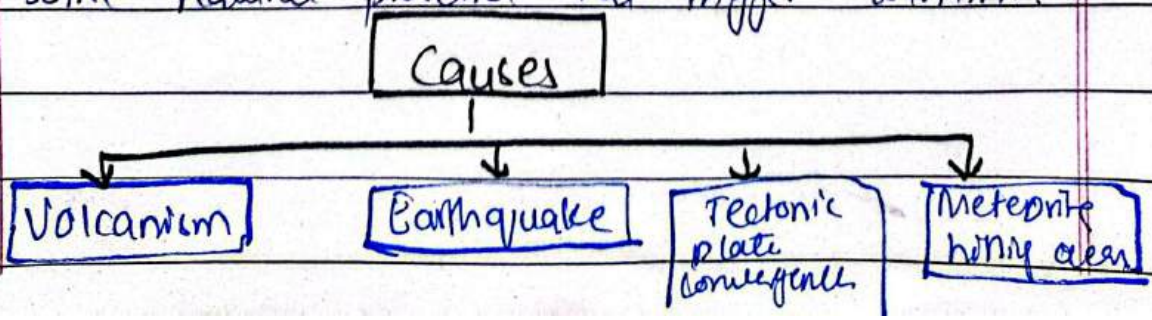
PART D: TSUNAMI.

1- **TSUNAMI:**

Tsunami is a Japanese word meaning 'harbor wave'. It is a wave in ocean produced due to some geographical reason and it occurs under the surface of ocean. A tsunami wave is more then thousand kilometers in height - its wavelenght is mostly more then 30 meters till reeching the coastal area. The Worst ever tsunami was Sumatra (2004) in Indian Ocean wreeking to Japan and Indonesia.

2- **NATURAL PROCESS THAT TRIGGERS TSUNAMI:**

Following are some natural process that trigger tsunami:



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1- **Volcanism:** Volcanic eruption is a natural cause of tsunami in most cases. After explosion a huge mass of volcano is dropped into surrounding sea or ocean causing tsunami. Moreover, volcanic landslides also cause tsunami

2- **Earthquakes:** The collision of tectonic plates creates a snap upwards which cause a significal vertical uplift of a large area of ocean. This results in tsunami. The tsunami caused by earthquake is mainly due to subduction and sliding of tectonic plates do not cause tsunami

3- **Meteorite hitting the ocean:** If a meteorite from outer space, hits the ocean surface, the impact can create a wave of ~~water~~ wavelenght 30 meters or more, this wave is called tsunami

4- **Land sliding:** Land sliding due to volcanic eruption or earthquake in the coastal area can also cause tsunami

3- **POTENTIAL IMPACT ON COASTAL AREAS:**

A tsunami wave can ~~caus~~ flood the coastal area upon

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hitting it. It results in destruction of infrastructure loss of human and animal life also reported. When the tsunami passes over, it leaves the area contaminated with various bacteria and sea creatures hazardous to human life. It also affects the tourism industry of that particular coastal area. In short, it causes immense damage to the coastal area.

X ⟶ X