Dos and Don'ts for Generaral Science & Ability Paper

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.

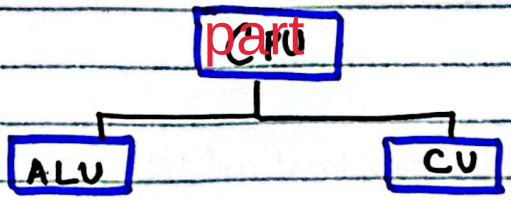
5. Focus on your spellings and your grammar. Hence, in GSA there's no deduction in marks but your expression will definitely create an impact.

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. :)

computer. The computer is made up of various input and output devices, memory storage devices, buses, registers and much more. In order to ensure, these components work efficiently, the CPU was designed.

Properly answer the asked part



∴ Division of CPU

Furthermore, the CPU is divided into 2 parts

1) ALU :-

The ALU or arithematic logic unit is a part of the CPU responsible for all the arithematical and logical calculations being performed by the CPU.

2) CU :-

The Control Unit is a part of the CPU that manages the components attached to the rest of computer. It interprets those signals coming from I/O devices and communicates with the requisites devices to perform the necessary tasks.

3) What do you mean by balanced diet? Deficiency of vitamins A, B, C can result into what type of imbalances in the human body?

BALANCED DIET - A BREIF INTRODUCTION

Humans need nutrition in the form of food and drink to survive and ensure their well-being

on a day-to-day basis. Ensuring proper nutritional intake is an important part of the day for everyone. A balanced diet can be defined as

"A dietary intake that covers all the necessary vitamins, minerals and other requirements needed for any organism to not only survive but also function to the best of their ability."

Add pie chart

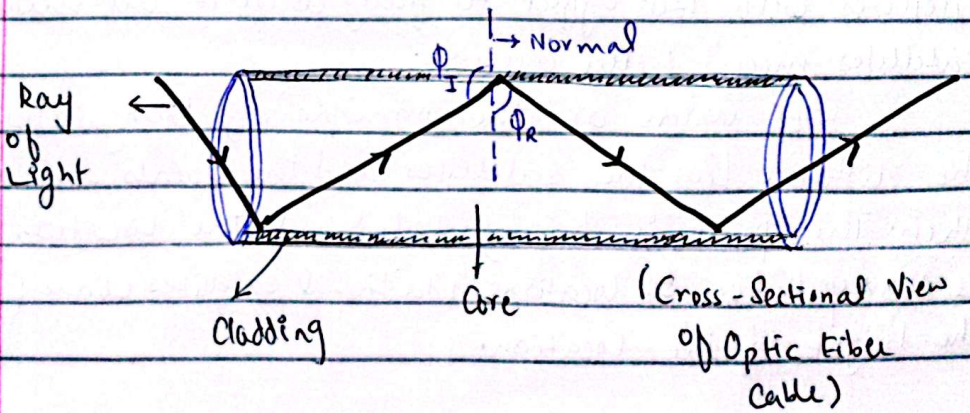
For humans, these requirements range from consuming proteins, carbohydrates, fats and much more.

Deficiency of Vitamins :-

	Disease Related to the Deficiency	Vitamin
1)	The Deficiency of Vitamin A Causes 'Night Blindness'	A
2)	The Deficiency of Vitamin B Cause 'Rickets'	B
3)	The Deficiency of Vitamin C causes 'Scurvy'	C

4) Discuss the working of Optical Fibers. What is GPS? How 2D and 3D locations are measured by satellites?

Optical Fibers - Working



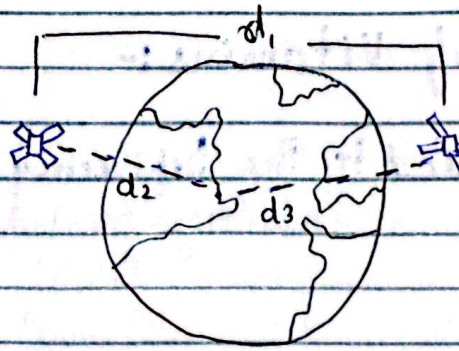
(Cross-Sectional View of Optic Fiber Cable)

Optical fiber cables work on a principle of 'Total Internal Refraction'. It is the process of the ray of light bending inward into the medium that it originates from such that the angle of incidence is smaller than the angle of refraction.

$$\sin\Phi_I < \sin\Phi_R$$

Φ_I = angle of incidence
Φ_R = angle of refraction

GPS - GLOBAL POSITIONING SYSTEM



d_1 = distance b/w satellites
d_2 = distance of location from satellite 1
d_3 = distance from the orbit the earth
Satellite 2

GPS is a constellation of satellites that orbit the earth. They are used for the purpose of locationing and positioning in real time. They numbered close to 36 each with 10° sphere of reference. Since the earth is a sphere, it takes only 3 satellites with 120° offset to fully cover it, but more satellites mean better coverage.

GPS works on the principle of triangulation. The distance b/w the satellites and the point are taken. The point is triangulated and the location is conveyed. For 3D locations, additional satellites convey the height of the location.

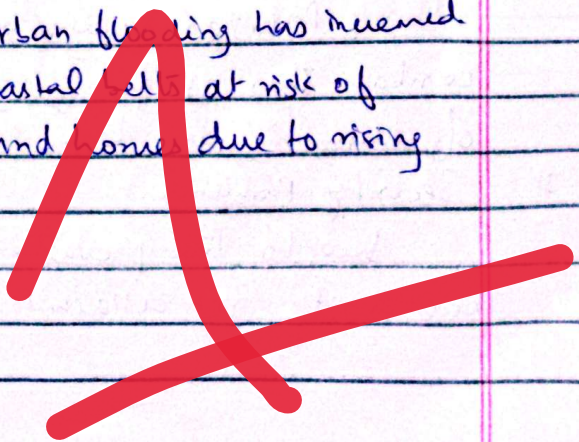
3) what are the merits and demints of global warming.

MERITS AND DE-MERITS OF GLOBAL WARMING

Global warming, is a phenomenon that has taken the world hostage. The continously increasing rising temperatures are leading to the polar ice caps melting. This in turn raises the sea levels. Threatening costal belts, town and areas due to increased risk of flooding. The merits of global are non-existent as it is considered as a life-threatening phenomenon.

De-merits

1) Increased risk of flooding due to rising levels of the sea
2) Increase in temperature, leads to variation in crop cycles
3) Increase in sea levels leads to risk of contamination of fresh-water sources
4) Variation in rainfall patterns.
5) Threat of bio-diversity loss of endangered and un-endangered plants and animals species.
6) Migration patterns of animals are at risk.
7) Threat of wildfires, urban flooding has increased
8) Population lying at the coastal belts at risk of losing their livelihoods and homes due to rising sea levels.



What is polio? what are challenges in eradicating polio from Pakistan?

POLIO - A BREIF INTRODUCTION

Polio is a life long illness that affects the lower musculoskeletal system of the human body. Polio attacks the muscular system of the body at a tender age. It is often diagnosed in infants and children under the age of 5. Currently, There is no cure of polio and the only way to avoid is through immunization drops. It is a waterborne disease and is often found due to contaminated water supplies.

Challenges for Polio Eradication

1) Societal Acceptance and Regressive Attitude

Due to malicious attempts in the past by some individuals, today people view polio immunization with alot of skepticism. In this era of fake news, it has compounded this problem as people are not willing to accept this narrative of polio being a disease.

2) Resources are Inadequate

Pakistan's meagre reasources are unable to combat this as far flung areas are often out of the reach of immunization teams.

3) Security Problems

Due to the prevailing situation, polio teams constantly get attacked.

Question No.3

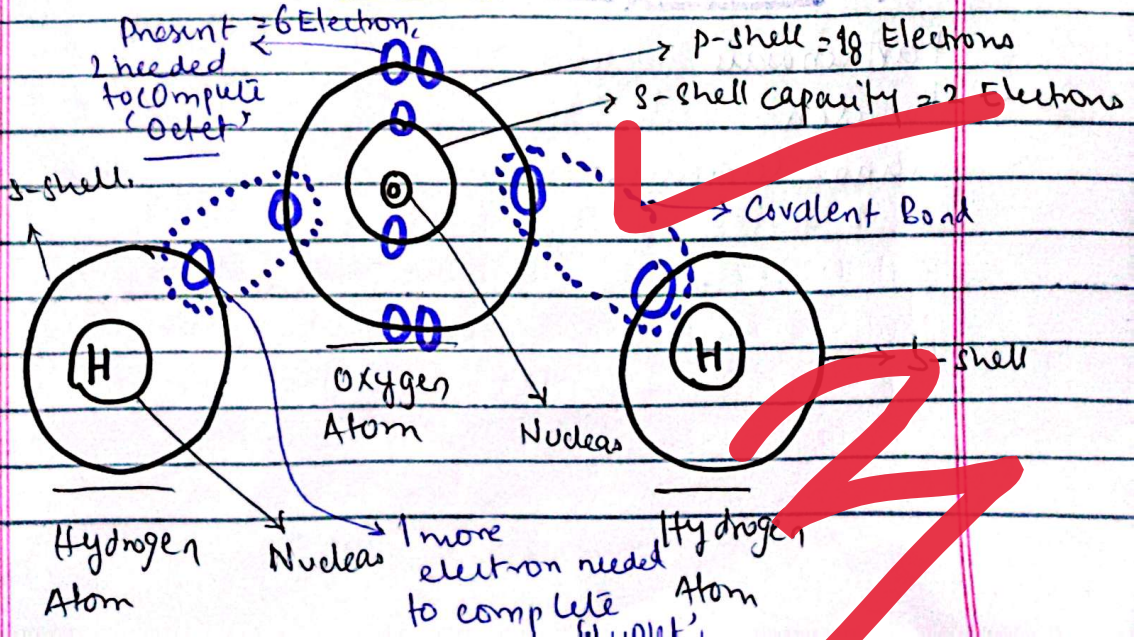
1) Why atoms form chemical bonds? Discuss covalent bond in a water molecule?

CHEMICAL BONDS:-

Atoms are in a constant struggle to become stable. Except the Group VIII colons, every other element is electron afficient or deficient. This affinity and deficiency leads them to trade, share or combine with other atoms to attain stability. The major chemical bonds are listed below

i) Ionic Bond
ii) Covalent Bond
iii) Dipole-Dipole Bond and many others.

COVALENT BOND IN WATER MOLECULE



As denoted in the diagram, O_8^{16} is an electron deficient atom. It has 2 atoms less in the p-shell of the a To fulfill this, it pairs up with H_1^2 which has 1 electron in valence shell. It is mutually beneficial bond as both atoms attain stability from sharing the electron.

2) What is Doping? Discuss different types of ceramics.

DOPING:-

It is the process of adding an impurity from either Group IV or VII elements to increase the electrical conductivity of an element. It is of 2 types

→ Intrinsic Doping
→ Extrinsic Doping

Intrinsic Doping is when Group IV elements are added to silicon, Germanium to increase their electrical conductivity. If Group VII elements are used it is referred to as extrinsic doping.

Types of ceramics:-

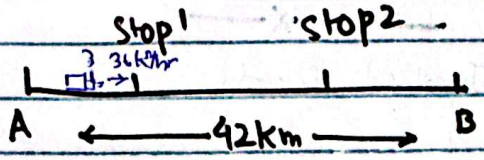
- Earthenware
- Porcelain
- Nano-ceramics.

Section-C

Question 6

c) **Data:-**

S= Distance = 42km
v= Average Speed = 36 km/hr
Time of Departure = 4pm
Arrival =?



Apply Formula:

$$S = Vt$$

Re-arrange

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

$$= \frac{\cancel{36}\ 42}{\cancel{42}\ 36}$$

$$= 0.88 \text{ hrs}$$

or $= 68.4 \text{ mins}$

If the train departs at 4pm it shall reach its destination by 5:08 pm.

b) **Data:-**

Cost = $80
Discount 15%
Sales Tax = 10%
Final Price =?

Solution:-

Required
=> Cost = Discount - Tax
%

= 15% - 10%

= 5%

Final Cost = Total Cost - (Required % Cost * Cost)

= 80 - (5% of 80)

= 80 - (0.05) 80

= Rs. 74.8

Final Cost = Rs $ 74.8

d) Arrange the Jumbled words

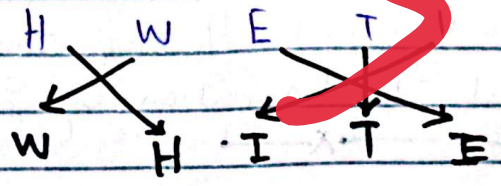
(a) teninsuperted

T E N IN SUP E R TE D

SUPERINTENDED

The following word is 'superintended' and the following has blocks of words which have been jumbled. Super is a block, Ten is a block and the rest are seperate words.

(ii) hweti



The following word is white. The 1st and 2nd letter has been interchanged and the 3rd and 5th letter too. The 4th letter is same as it at the correct place.

a) **Data:**

Ratio = A : B : C : D

$\Rightarrow 4 : 7 : 3 : 1$

A = 50 + C

B = ?

Solution:-

Sum of the ratio = 4 + 7 + 3 + 1

= 15

A : B : C : D

(50+C) 4 : 7 : 3 : 1

Product of means = Product of extremes

Question No. 7

(a) **Data:**

Radius = 30cm

Height = 1m

Volume = ?

Use Formula

$$V = \pi r^2 h$$

$V = \pi \cdot (30)^2 \cdot 100$

$= \pi \cdot 900\,cm^2 \cdot 100\,cm$

$= \frac{22}{7} \cdot (900 \cdot 00)$

$= \frac{22}{7} \cdot 900\,m^3$

Convert into 'm'

$= \frac{22}{7} \cdot 9\,m^3$

$= \frac{198}{7}\,m^3$

$= 24\,m^3$

(b) **Data:-**

Average age = 15

Ratio = 3:5:7

youngest boy age = ?

Solution

Let A:B:C be the ratios

A	B	C
3	5	7

average age = 15

So age of A = $15 \times \frac{1}{3}$

= 5 years

age of B = $15 \times \frac{1}{5}$

= 3 years

age of C = $15 \times \frac{1}{7}$

= 2.5 years

Hence youngest boy age is 2.5 years

c) Identify the series

(i) 8, 19, 52, 151, 447, _? (what is wrong number in series.

The series follows the rules of ((Number × 3) − 5). The jump from 8 → 19 is following this rule. However, the last number 447 is wrong as it is not following this rule. The correct form is:

8, 9, 52, 151, 448, 1339

(ii) 11, 13, 17, 19, 23, __?

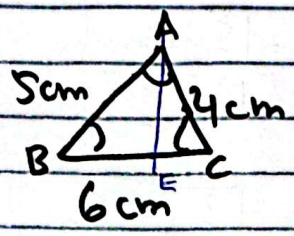
The following series in increments of +2 and +4, the jump from 11 → 13 is of +2. Then the next jump from 13 → 17 is of +4. Similarly the pattern is followed by the next two as well. Resultantly, the next number will be 25.

⟹ 11, 13, 17, 19, 23, 25, 4

d) **Data:-**

Sides of Δ = 4cm, 5cm, 6cm

Angles of each side = ?



Let E be midpoint of $\overline{BC}$ such that $\overline{BE}$ = 3cm and $\overline{CE}$ = 3cm

So, ~~$\Delta AEC = \Delta EAC$~~

$\overline{AE} = \sqrt{\overline{AC} + \overline{CE}}$

$= \sqrt{4^2 + 3^2}$

$= \sqrt{25}$

$= 5cm$

Now

~~$\angle A = \frac{1}{2} EAC +$~~

Sum of $\angle$ of Δ = 180°