

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! ★

iii. **Electric Vehicles:**

i. Reduce Greenhouse Gas Emission

ii. Transition to Renewable Energy:

iii. Energy Efficiency:

iv. Improve energy efficiency in buildings, transportation, and industries through technology and better practice.

v. Shifting from fossil fuels to solar, wind, and hydroelectric power to reduce carbon emission.

vi. Reserving global warming in order to stick to this to avoid rushing later.

vii. Part a - Answer:

viii. Part b - Answer:

ix. Part c - Answer:

x. Part d - Answer:

xi. Part e - Answer:

Promote electric and hybrid vehicles to reduce emissions from transportation.

2. Carbon Capture and Storage:

i) Capture CO₂ Emission:

Implement technologies that capture carbon dioxide from industrial processes and store it underground.

ii) Direct Air Capture:

Invest in technologies that can remove CO₂ from the atmosphere.

3. Reforestation and Afforestation:

i) Plant Trees

ii) Sustainable Land Management:

Implement practices that preserve existing forest, improve soil health and increase biodiversity.

4. Sustainable Agriculture:

i) Regenerative Practices:

Use techniques like cover cropping

and agroforestry to enhance soil carbon storage.

- Reduce food waste throughout the food supply chain.

6. Policy and International cooperation:

- strength international agreements on climate.

e.g: Paris Accord

- carbon pricing: Implement carbon taxes or cap and trade system to incentivize reduction.
- Reduce, Reuse, Recycle.

7. Public Awareness, education and technology innovation:

- Educate communities on climate change impact and personal carbon footprint reduction.

- community engagement - Encourage in climate action initiative.

Conclusion:

Reversing global warming require collaborative effort from individuals, government, and industry worldwide. Each of these measure can contribute significantly to decreasing CO₂ concentration and mitigate climate change.

Part b.

Answer:

Ceramics:

"Ceramics are inorganic, non-metallic material made from powdered chemical and are typically hardened by heating."

E.g: tiles, bricks, Porcelain, and glass.

Properties of Ceramics:

- **Hardness**) Ceramic possess high hardness making them resistant to scratching and wear.

- **Brittleness** } can fracture under tensile stress.
- **Chemical resistance** } Generally resistant to corrosion and chemical attack, making them suitable for harsh environment.

- **Thermal stability** } They can be withstand high temperature without melting or deforming.

- **Low Electrical conductivity** } Most are poor conductor of electricity, which makes them excellent insulators.

- Application of Ceramics:

- **Construction Material** } Used in bricks, tiles and sanitary ware.
- **Electronics** } serve as insulators and substrate in capacitors etc.

• **Medical Device** } Employed in dental implants
prosthetics

• **aerospace)- Utilized in thermal
barriers and components that
require high strength and
thermal resistance.**

• **Household
Items** } commonly found in
dishes, cookware

Part. c.

Answer

Optical Fibers:

Definition:

Optical fibers are thin strands of glass or plastic that transmit data as pulses of light over long distances.

E.g: They are used for

- Telecommunication
- Internet connection
- medical instrument

Working Principle:

1. Total Internal reflection:

Optical fibers operate on the principle of total internal reflection. When light travels from a denser medium to a less dense medium (air), it reflects back into the glass if it hit the boundary at an angle greater than the critical angle.

2. Core and Cladding:

→ Core → The central part that carries light made of glass or plastic

→ cladding → Surrounds the core and has a lower refractive index to maintain total internal reflection.

3. Light Transmission:

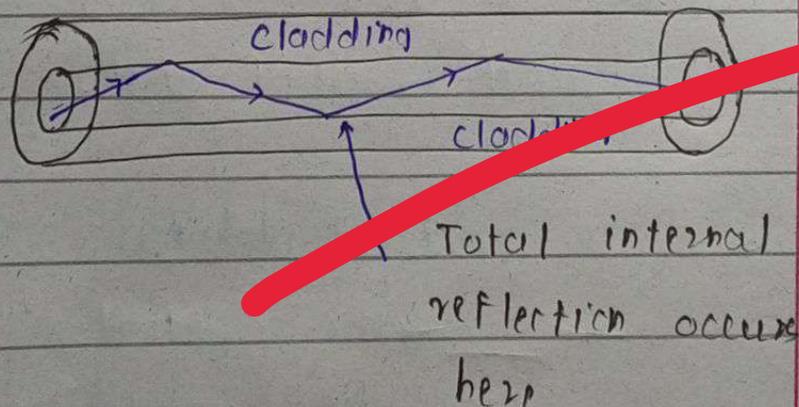
Light is injected into core, travels along the fiber by bouncing off the walls

4. Multiplexing:

It can be sent simultaneously at different wavelengths.

5. Input and output:

At the endpoint, light signals are converted back electrical signals for processing and use.



- Mobile Phone:

Definition:

"Mobile phones are wireless devices enabling communication via voice, text, and data over cellular network"

Working Principle:

1. Radio communication:

- Use radio waves to send and receive signals.

2. cellular network:

- The area is divided into cellular cells tower

3. signal transmission:

- Voice converted into digital signals and transmitted as radio waves to the nearest cell tower.

4. Routing:

- The base station forwards these signals to central switching center connecting your call to the recipient.

5. Reception:

- The recipient's phone converts the signals back into sound or data.

Q. No. 3

Part. d:

Food Additives:

Definition:

Food additives are substances added to food to enhance its flavour, appearance, texture. They can also help preserve food quality.

Example:

- Coloring agents
- Flavour enhancer
- Texturizers

Food Preservatives:

Definition:

Food preservation are substances used to prevent spoilage, extend shelf life, and maintain the safety of food product by inhibiting microbial growth.

Example:

- Sodium Benzoate in acidic foods

Food Adulteration:

1 Definition:

"Food adulteration refers to the addition of inferior or harmful substances to food, compromising its quality and safety."

Example:

- Water added to milk.
- Artificial colour in turmeric powder.
- ~~Metanil~~ Metanil yellow dye in rice.

Food Contamination:

Definition:

"It occurs when food is tainted by harmful bacteria, chemicals, posing health risk."

Example:

- Biological contamination
- Chemical contamination:
pesticide residues on fruits and vegetables.

Q. No. 4

ANSWER:

Part.c.

• Carbohydrates:

- Energy source:

Quick energy for bodily function

- storage:

storage as glycogen in liver and muscles.

- Digestive health:

Provide dietary fiber for digestion.

• Proteins:

- ↳ Building Blocks
- ↳ Enzymatic Function
- ↳ Immune Function

• Fats:

- ↳ Energy storage
- ↳ cell structure
- ↳ Nutrient Absorption

calcium:

- Bone health
- Muscle Function
- Blood clotting

- Iron
 - oxygen transport
 - Energy Metabolism
 - Immune Function

Q. No. 4

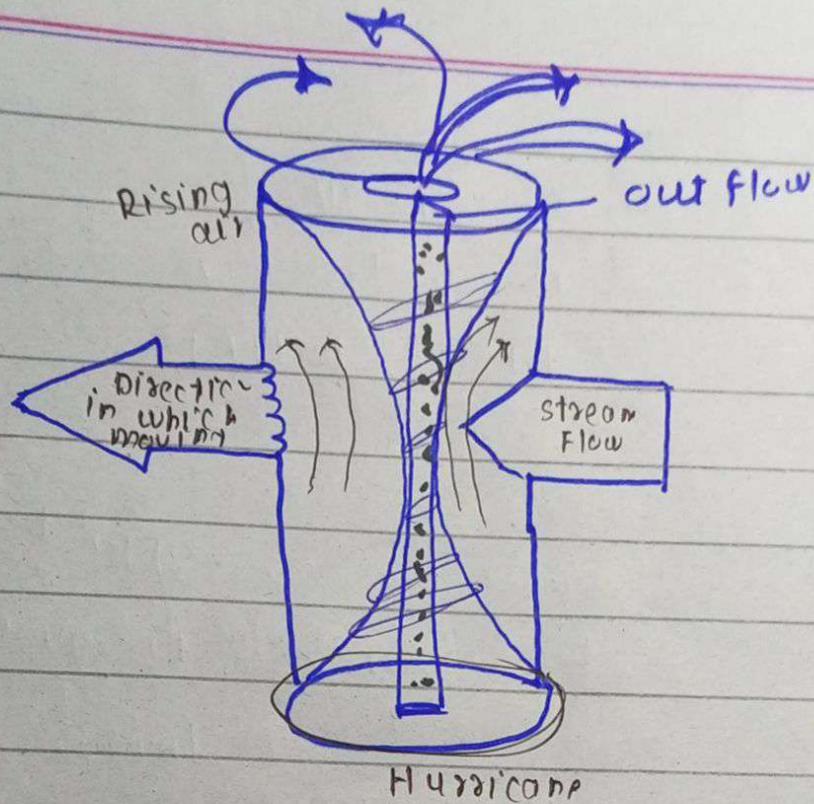
Part b.

Cyclone:

definition:

"A cyclone is a large scale rotating air mass around a low pressure center, characterized by strong winds and heavy rainfall."

Formation of a cyclone.



- Warm moist air:

Cyclone form over warm ocean water (about 26.5°C) where moist air rises, creating low pressure,

- convergence and updraft:

Cool air moves in to fill vacuum convergence at the surface.

- Cloud Formation

Rising air cools, causing water vapour into cloud releasing heat

- Low pressure system:

The continuous rising air lowers the pressure further with Coriolis effect causing rotation, leading a defined cyclone structure.

Section - B

Q. No. 6

A. Answer:

The woman is Abson's mother.

B. Answer:

Given Information:

- Ratio of length to breadth = 3:2
- Speed of man = 12 km/hr
- Time taken for one complete round = 8 minutes

- To find area of park

Calculations:

step 1: convert speed to meters per min.

$$\text{speed} = 12 \text{ km/hr} = \frac{12 \times 1000}{60} \text{ m/min} = 200 \frac{\text{m}}{\text{min}}$$

step 2: perimeter of the park

- Time taken = 8 minutes
- Distance covered in 8 min = speed \times Time

$$= 200 \text{ m/min} \times 8 \text{ min} = 1600 \text{ meters}$$

Step 3: Dimension in term of variable.

Length $3x$ breadth $2x$

$$P = 2(L + B) = 2(3x + 2x) = 2(5x) = 10x$$

set Perimeter equal to 1600 meters:

$$10x = 1600$$

Step 4: Calculate

$$\text{Length} = 3x = 3 \times 160 = 480 \text{ m}$$

$$\text{Breadth} = 2x = 2 \times 160 = 320 \text{ m}$$

Step 5:

$$A = L \times B = 480 \text{ m} \times 320 \text{ m}$$

$$A = 153600 \text{ sq. m}$$

Thus, the area of the field is 153600 sq. m

C. Answer:

Let the two digit number be

$$10a + b$$

Given information:

1. The unit digit exceeds the ten's digit by 2:

$$b = a + 2$$

2. The product of the number and the sum of its digit equals 144

$$(10a + b)(a + b) = 144$$

Steps:

1. substitute b:

$$b = a + 2 \Rightarrow 10a + b = 10a + (a + 2) = 11a + 2$$

$$a + b = a + (a + 2) = 2a + 2$$

2. set up the equation:

$$(11a + 2)(2a + 2) = 144$$

3. Expand:

$$22a^2 + 22a + 4 = 144 \Rightarrow 22a^2 + 22a - 144 = 0$$

4. simplify:

$$11a^2 + 11a - 70 = 0$$

5. solve using quadratic formula:

$$a = 5 \Rightarrow b = 7$$

Hence, The number is 57.

D. Answer:

Let the two numbers be $2x$ and $3x$
Given:

$$\text{L.C.M} = 48$$

$$\text{Ratio} = 2:3$$

Steps: 1. Product relationship

$$\text{L.C.M} \times \text{G.C.D.} = \text{product of the num.}$$

$$\text{Let G.C.D.} = 1$$

$$48 \times 1 = (2x)(3x) = 6x^2 = 48$$

$$48 = 6x^2 = 4x^2 = 8 = 4x^2 = 8$$

2. Numbers:

$$\bullet \text{ First number: } 2x = 4\sqrt{2}$$

$$\bullet \text{ Second number: } 3x = 6\sqrt{2}$$

3. Sum: $4\sqrt{2} + 6\sqrt{2} = 10\sqrt{2}$

Q. No. 3

Part A.

Answers!

Information:

1. A is to the right of B = $B < A$

2. E is to the left of C

and right of A : $A < E < C$.

3. B is to the right of D = $D < B$

Arranging house:

• From point 1, we have:

$$D < B < A$$

• From point 2, we add:

$$A < E < C$$

Combining these:

$$D < B < A < E < C$$

Thus, ^{in the} middle is A.

Part B.

Answer

1. Distance from the starting point = 1 km

2. Final direction while finishing = west

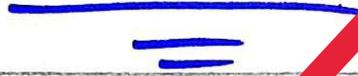
3. Direction after the second around = south

4. Direction to return to the starting point: West.

Post c.

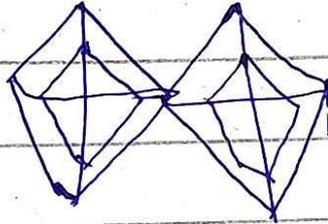
Answer:

odd man out is AOTC.



Post n.

Answer:



This figure is a classic visual puzzle. The two main diamond shapes each contain 14 triangles, for a total of 28.

