

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:

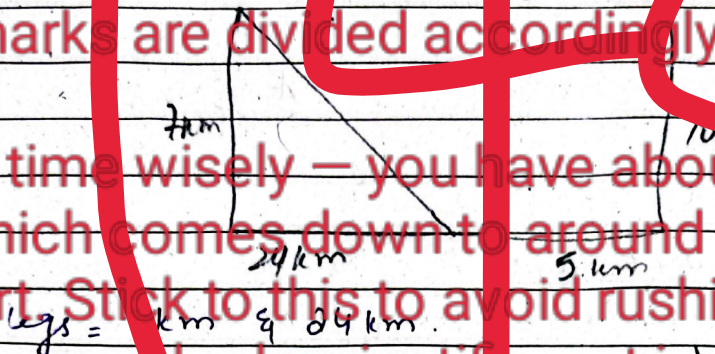
GSA

Ravi Bakhtawar
 15th Oct - 21
 110224

Section I

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.

Question No. 8



$$x^2 = 7^2 + 24^2$$

$$x^2 = 49 + 576$$

$$x^2 = 625$$

$$\sqrt{x} = \sqrt{625}$$

$$x = 25 \text{ km}$$

$$12^2 = 5^2 + 10^2$$

$$144 = 25 + 100$$

$$144 = 125$$

$$12$$

Total distance

before of one loop = $7 \text{ km} + 24 \text{ km} + 25 \text{ km}$
 $= 56 \text{ km}$

After one loop.

Distance from 11th Street

legs 5 km & 10 km

$$x^2 = 5^2 + 10^2$$

$$= 25 + 100 = 125$$

$$x = 11.18 \text{ km}$$

Q.6

a) Candy ratio problem

Given: Packets in flavors Apple : Berry : Cherry : Date = 3 : 6 : 2 : 5.

Total distance of both the triangles.

Asked: If Apple candies exceed Date candies by 35, how many Berry candies are there?

Note (consistency check): The ratio shows Apple = 3 parts

$\begin{array}{r} 12 \\ 24 \\ \hline 36 \\ 12 \\ \hline 48 \\ 187.5 \\ 48 \overline{) 9000} \\ 48 \\ \hline 3420 \\ 384 \\ \hline 3560 \\ 336 \\ \hline 240 \end{array}$	Part 6 Let = $F = x$ $E = x$, $D = 2E = 2x$, $C = 4D = 4(2x) = 8x$ $B = 3C = 3 \times 8x = 24x$, $A = \frac{1}{2} B = \frac{1}{2} \times 24x = 12x$ $A + B + C + D + E + F = 9000$ $12x + 24x + 8x + 2x + x + x = 9000$ $48x = 9000$ $x = \frac{9000}{48} = 187.5$ $x = 187.5$ $A = 12x = 12 \times 187.5 = 2250$ $B = 24x = 24 \times 187.5 = 4500$ $C = 8x = 8 \times 187.5 = 1500$ $D = 2x = 2 \times 187.5 = 375$ $E = x = 187.5$ $F = x = 187.5$	$\begin{array}{r} 8 \\ 10 \\ -48 \\ \hline 42 \\ 48 \\ \hline 3 \\ 240 \\ 6 \\ 48 \\ \times 8 \\ \hline 584 \\ 7 \\ 48 \\ \times 9 \\ \hline 432 \\ 548 \\ \times 7 \\ \hline 336 \end{array}$
$\begin{array}{r} 11 \\ 187.5 \\ \times 12 \\ \hline 3750 \\ 18750 \\ \hline 22500.0 \end{array}$		
$\begin{array}{r} 22 \\ 187.5 \\ \times 24 \\ \hline 7500 \\ 37500 \\ \hline 45000.0 \end{array}$		
$\begin{array}{r} 3 \\ 187.5 \\ \times 8 \\ \hline 1500.0 \end{array}$		
$\begin{array}{r} 7 \\ 187.5 \\ \times 2 \\ \hline 1500.0 \end{array}$		
Part C Rectangular box $L = 6m$ $h = 8m$ $w = 4m$ Volume = $L \times w \times h$ $= 6 \times 8 \times 4$ $= 192 m^3$		

$$\begin{aligned}
 \text{Surface Area} &= 2(lw + wh + hl) \\
 &= 2[(6 \times 4) + (4 \times 8) + (6 \times 8)] \\
 &= 2(24 + 32 + 48) \\
 &= 2(104) \\
 &= 208 \text{ m}^2.
 \end{aligned}$$

Part d

family = 8 members.

4 Avg. men = 72 kg.

4 Avg. women = 50 kg.

9 people = 67 kg.

$$\text{Total (M)} = 4 \times 72 = 288 \text{ kg.}$$

$$\text{Total (W)} = 4 \times 50 = 200 \text{ kg.}$$

$$\text{Total of 8 people} = 488 \text{ kg.}$$

$$\begin{aligned}
 \text{Total of 9 people} &= 67 \times 9 \\
 &= 603 \text{ kg.}
 \end{aligned}$$

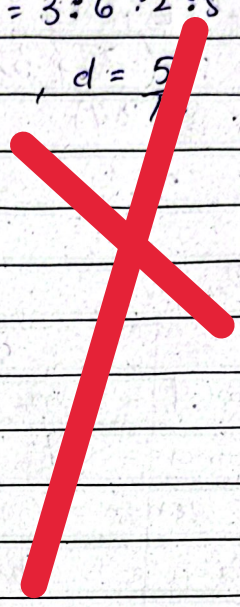
$$\begin{aligned}
 \text{Anna's consumption} &= 603 - 488 \\
 &= 115 \text{ kg.}
 \end{aligned}$$

$$\begin{array}{r}
 67 \\
 \times 9 \\
 \hline
 603
 \end{array}$$

Question No. 6.

Apple : Berry : Cherry : Date = 3 : 6 : 2 : 5

$$A = \frac{3}{16}, b = \frac{6}{16}, c = \frac{2}{16}, d = \frac{5}{16}$$

$$\frac{3}{16} + 135 = \frac{5}{16}$$


Part- b.

camera price = \$200.

discount = 25%.

tax = 6%.

$$\text{Price after discount} = \frac{200 \times 75}{100}$$

$$= 200 - \left(\frac{200 \times 25}{100} \right)$$

$$= 200 - 50$$

$$= \$150$$

$$\text{Price after tax} = 150 + \left(\frac{150 \times 6}{100} \right)$$

$$= 150 +$$

$$= \$159$$

Part C.

Distance = 36 km.

Speed = 18 km/h.

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$= \frac{36 \text{ km}}{18 \text{ km/h.}}$$

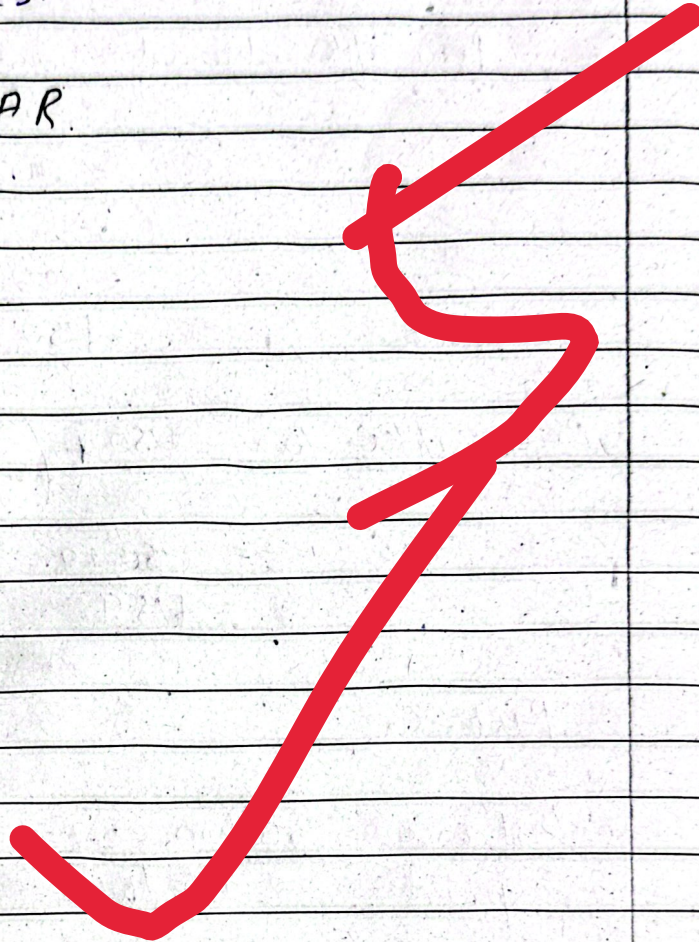
$$\text{Time} = 2 \text{ hours.}$$

It will reach after 2 hours at
3 pm.

Part d.

i - STSTALCITS.
- STATISTICS.

ii - LGEBMAR.
- GAMBLER.



Section 1

Q. No. 5

Part a.

Pakistan is fifth most populous country in the world with a population exceeding 240 million (as of 2025)

Major causes

i. High fertility rate:

Due to low use of contraceptives and preference for a male child and large families.

ii. Early marriages:

longer reproductive span increases chances of birth.

iii. Low literacy rate:

especially among women, it limits awareness of family planning.

iv. Religious & cultural beliefs:

Birth control is highly rejected in the conservative parts of the country.

v. Poverty:

children are viewed as contributors to household income and old-age security.

Control Measures

- i. Promote family planning:
Promote contraceptive use and gap between births.
- ii. Female education & empowerment:
Educated women marry later and have fewer children.
- iii. Economic development:
Poverty reduction helps limit family size.
- iv. Legislation:
Minimum marriage age laws enforcement.

Part 6

Remote sensing is the science of obtaining information about objects or areas from a distance, typically using satellites, aircraft or drones, without making physical contact.

Role of GIS in environmental science

- i. Environmental monitoring:
Detects change in forests, agriculture and urban changes.
- ii. Disaster management:
Identifies and maps flood, drought and earthquake risk zones.
- iii. Pollution control:
Locates air, water, and soil pollution sources for timely action.

iv - Climate weather analysis.

Studies
temperature, rainfall and long-term
climate trend.

Part C

The atmosphere acts as a protective blanket around the Earth that makes life possible. It regulates the planet's temperature by trapping heat, preventing extreme cold at night and excessive heat during the day. The ozone layer shields living beings from harmful ultraviolet rays of the Sun, while the air provides essential gases like oxygen and carbon dioxide for respiration and photosynthesis. The atmosphere also burns incoming meteoroids, preventing them from hitting the surface and supports the water cycle by enabling cloud formation, rainfall and weather pattern. Thus, it truly serves as a life sustaining blanket for the Earth.

Part d

i- Hydrometer

An instrument used to
measure the specific gravity (density)
of liquids.

ii- Epicenter :

The point on Earth's surface directly above the origin (focus) of an earth quake -

iii- Eye wall of cyclone:

The ring of dense clouds around the cyclone's eye having strongest winds & rainfall.

iv- Deep focus :

An earthquake that originates more than 300 km below the Earth's surface -

v- Light Year :

The distance light travels in one year i.e 9.6 trillion km.

Q. No. 4

d -

i- bio fuel :

Fuel derived from biological sources like plants, algae or animal waste e.g. biodiesel, ethanol.

ii- Adulteration :

The mixing of inferior or harmful substances with food or other products for profit -

iii - Hydrosphere :

The total water layer of earth including oceans, rivers, lakes etc

iv - Troposphere :

The lowest layer of the atmosphere where weather phenomena occur, extends upto 12 km

v - Isotopes :

Atoms of the same element having the same number of protons but different number of neutrons.

Part 6 .

Ribosomes are small, spherical organelles found in the cytoplasm or attached to the rough endoplasmic reticulum. They are known as protein factories of the cell. During protein synthesis, ribosomes read the genetic code carried by messenger RNA and join together specific amino acids brought by transfer of RNA to polypeptide chains.

The process occurs in two steps

1- Transcription

ii- Translation

Part C:

Solid Waste management involves the proper collection, segregation, treatment and disposal of waste materials to reduce their harmful effects on health and the environment. The main objective is to minimize waste generation and promote reuse of resources.

i- Landfilling:

Waste is buried underground, it is simple but needs proper lining to prevent leachate.

ii- Composting:

Decomposition of organic waste into useful manure.

iii- Recycling:

Reprocessing of materials like paper, plastic, glass and metals for reuse.

iv- Incineration:

Burning of waste at high temperature to reduce volume and generate energy.

v- Waste to energy conversion:

Converts non-recyclable waste into energy through combustion, gasification.

vi- Vermi composting:

Uses earthworms to decompose organic waste into nutrient rich compost, ideal for agriculture.