

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 lines in 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 GS doesn't deduct marks for these, your expression leaves an impression.
6. In the ability portion, explain analytical parts of questions in words for 5-mark parts. Show steps and provide clear explanations.

Q.No. 2

(a)

"Data is new oil"

Here's a brief key/sample of your Ability questions

Q.6 In this technological era, it is
 a) Candy ratio problem
 Given: Packets in flavors Apple : Berry : Cherry : Date = 3 : 6 : 2 : 5.
 Asked: If Apple candies exceed Date candies by 35, how many Berry candies are there?

Note (consistency check): The ratio shows Apple = 3 parts and Date = 5 parts, so Date is larger than Apple in the ratio. The statement "Apple candies exceed Date candies by 35" contradicts the ratio. (Apple cannot exceed Date if ratio is 3:5). Two ways to handle this:

1. If the problem truly intends Apple - Date = 35, that's impossible with the given ratio (would require negative common factor).
2. Most likely the intended meaning is Date exceeds Apple by 35 (i.e. Date - Apple = 35). I will solve that reasonable interpretation.

Formula: Let common factor = k. Apple = 3k, Date = 5k.
 So $5k - 3k = 35 \Rightarrow 2k = 35 \Rightarrow k = 17.5$

Solution: $2k = 35 \Rightarrow k = 35/2 = 17.5$.
 Berry = $6k = 6 \times 17.5 = 105$

Answer: 105 Berry candies.
 (If you intended the other wording exactly as written, note that it is inconsistent with the ratio.)

b) Camera discount + tax

Given: Original price = \$200. Discount = 25% off. After discount, 6% tax applied.
 Asked: Total amount paid.

Formula / Steps:
 Discount amount = $25\% \text{ of } 200 = 0.25 \times 200$.
 Sale price = $200 - \text{discount}$.
 Tax = $6\% \text{ of sale price}$.
 Total = sale price + tax.

Solution (digit by digit):
 Discount = $200 \times 0.25 = 50$.
 Sale price = $200 - 50 = 150$.
 Tax = $150 \times 0.06 = 9$.
 Total paid = $150 + 9 = 159$.

Answer: \$159.00

c) Bicycle travel time

Given: Distance = 36 km, Speed = 18 km/hr, Start time = 1:00 PM.
 Asked: Arrival time.

Formula: Time = Distance / Speed

Solution: Time = $36 / 18 = 2$ hours. Start 1:00 PM + 2 hours = 3:00 PM.

Answer: 3:00 PM

d) Unscramble math terms

I. STATISTICS
 II. GAMBLER

Q7.

Given:

- Diameter (d) = 14 cm
 - Radius (r) = $d/2 = 14/2 = 7$ cm
 - $\pi = 22/7$

Asked: volume of sphere

Formula:
 Volume = $(4/3)\pi r^3$

Now, let's plug in the values
 Volume = $(4/3) \times (22/7) \times (7)^3$
 = $(4/3) \times 22 \times 7 \times 7$
 = 1437.33 cm^3

Answer:
 The volume of the sphere is approximately 1437.33 cm^3

(b) Five friends' savings (total Rs. 25,000, ratio 1:2:3:4:5)

Given: Total = Rs. 25,000. Ratio = 1 : 2 : 3 : 4 : 5.
 Asked: Smallest share (the "1" part).

to be believed that data is new oil which provides and updates the individual level to the international level. Data comprises of integrated information, analyzing and comparing the past with present and provide pathway to detect future outcomes either in a favour of us or not.

Examples:

- ① Geographic Information System - GIS helps in various range of daily life aspects.
- ② In economical aspect, track record of all budgeting, investment and reserves shows the value of progress or downfall of the country.
- ③ Data feeds into our daily life; the major example is the upcoming earthquakes, cyclones, tsunamis, without the data it is not possible to

Interpret them

(C)

Balanced Diet

"Let thy food be thy medicine"

Definition:

Balanced diet is the diet comprising of all essential nutrients that is required for the proper functioning and maintenance of body.

Key Components:

Proteins, Carbohydrates, lipids, Fat and Oil, Dietary Fibre, and Vitamins are the key components of our balanced diet.

Deficiency of Vit A, D, E

Vitamin A, D, E, and K are called as fat soluble vitamins and they do not cause harm if use excessively because they store in our body for the later use. Their uptake is so important because they required fat from our food to

completely function.

Imbalances:

Deficiency of vit A cause poor eyesight, night blindness, retarded function of retina. Deficiency of D causes osteomalacia, rickets, bone weakness and degeneration. Deficiency of Vit E cause fatigue, loss of appetite.

Q.No. 3

(d)

Dengue

Causative Agent: Dengue is caused by Flavivirus.

Symptoms:

Dengue cause various symptoms:

- Red spots on body
- High Fever
- Fatigue
- Bodyaches
- Rashes on various part.
- Weakness

Remedies:

- Immediate consult to a doctor if you're suffering from dengue virus.
- Proper use of lotion at dawn or dusk.
- Stay away from marshy area.
- Keep the lid close on water objects in order to prevent mosquitoes lay egg.
- Raise awareness for the preventive measures in the community.

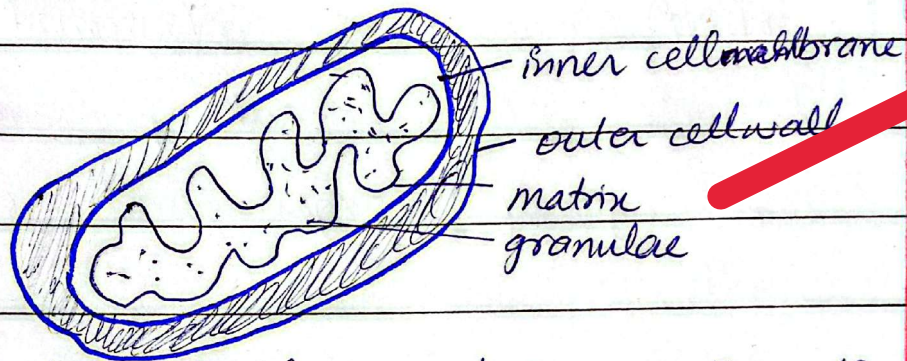
(a)

Why cells form organelles?

Each unit combine to form a large unit as the cells do, they form organelles i.e. boxes term in order to function collectively. Organelles play a important role in our body. Few examples are Golgi Apparatus, Ribosomes, Mitochondria, and Endoplasmic Reticulum.

Mitochondria

Mitochondria is the "power house" of cell. It plays crucial role in terms of providing energy. It includes ATP (Adenosine Triphosphate).



It has double membrane, eukaryotic cell which also play function as Apoptosis, cellular respiration and energy production.

Qno.4

(b)

Ribosomes

Ribosome is famous because it synthesizes protein in our body. Proteins act as chief component of energy and vital for the maintenance of body.

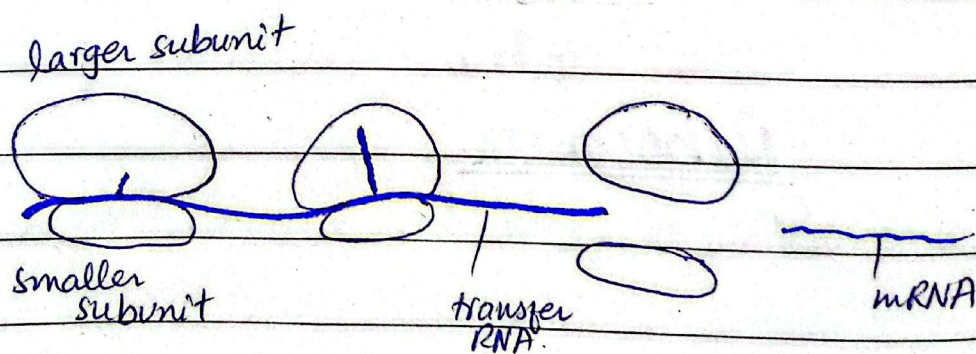
Types:

Ribosomes is of three types and they collectively perform their activities, however, each as separate function.

1- rRNA known as ribosomal RNA (Ribonucleic acid) make up ribosomes comprising of larger and smaller subunits.

2- tRNA known as transfer RNA which transfer the ribosomes on the strand to form a mRNA.

3- mRNA known as messenger RNA usually a strand that carry message for the protein synthesis.



(d)

Biofuel:

Biofuel is the fuel that is

actually derived from the living matter. Biofuel is mostly used in cases of green initiatives, they do not produce harmful or toxic effects.

Adulteration:

The phenomenon of adding foreign matter or mixing of the chemical, poison or converting the process of food into less effective or less nutritious form known as adulteration.

Hydrosphere:

Hydrosphere is the component of the Earth's surface that includes water bodies, oceans, surface, lakes, and seas.

Troposphere:

The layer lowest to the Earth's atmosphere is known as troposphere. Mainly storms, rains, and clouds fall under this layer. It is up to 10 miles high.

Isotopes:

Isotopes is the chemical

combination of atoms having the same proton number but a different neutron number.

Example

Isotopes of Carbon are C-12, C-13, C-14, having different atomic number.

Q.No-5

Atmosphere is Blanket of Earth

Yes, atmosphere is the blanket of Earth because it provides the ecosystem, biodiversity, natural habitat, human life etc, a covering that is vital for the survival. The major aspect is it blocks the UV rays coming from the Sun and other harmful rays that cause devastating impacts. However, human manipulatory activities and the non-seriousness associated to the ecosystem caused a deteriorating

Impacts on atmosphere. But the fact we can't deny that it still serves as a blanket. With the integration of healthy resources, we can still make it more improveable.

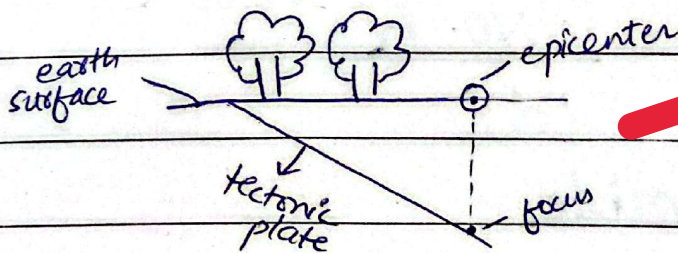
(d)

Hydrometer

Hydrometer is the meter that is used to measure the water levels and the density of liquids.

Epicenter:

Center that is directly above from the focus point from where the movement starts known as epicenter of earthquake.



Eye wall of cyclone:

The ring of violent thunderstorm surrounding the calm eye having strongest storm and the

heaviest rainfall called as eye wall of cyclone.

Deep focus.

When the focus is in more than 300km called as deep focus earthquake. It causes devastating impacts often leading to tsunami.

Light year:

Light year is unit of distance, not of time that a light travels the distance in one Earth year. It is 5.88 trillion miles.

SECTION-II

Qno. 6

(d)

Unscramble

i- Statistics

ii- Algebra

(a)

How many Berry Candies there?

Ratio = 3:6:2:5

Let assume 'x' for candies

Apple = 3x

Berry = 6x

Cherry = 2x

Date = 5x

If Apple candies exceed Date candies by 35;

$$5x - 3x = 35$$

$$2x = 35$$

$$x = \frac{35}{2}$$

$$x = 17.5$$

Now, calculate Berry candies,

$$6x = 6 \times 17.5 = \boxed{105.0}$$

$$\begin{array}{r} 17.5 \\ 2 \overline{) 35} \\ \underline{35} \\ 0 \end{array}$$

$$\begin{array}{r} 3 \\ 4 \overline{) 17.5} \\ \underline{12} \\ 5.5 \\ \underline{4.0} \\ 1.5 \end{array}$$

Q.No. 7

(b)

Smallest share

Ratio 1:2:3:4:5

Let assume 'x'

$$1x : 2x : 3x : 4x : 5$$

Total saving = 2000

Total ratio = $1+2+3+4+5 = 15$

$$\frac{2000}{15} = 1666.6$$

Smallest share will be 1x

$$1 \times 1666.6 = \boxed{1666.6 \text{ Rs}}$$

$$\begin{array}{r} 1666.6 \\ 3 \overline{) 5000} \\ \underline{3} \\ 20 \\ \underline{18} \\ 20 \\ \underline{18} \end{array}$$

(c)

i- 2, 6, 18, 54, 162, 486

$$\frac{6}{2} = 3, \frac{18}{6} = 3, \frac{54}{18} = 3, \frac{162}{54} = 3, \frac{486}{162} = 3$$

These numbers having the same answer, so series is correct

ii- 3, 5, 7, 11, 13, —

It is list of prime number.

3, 5, 7, 11, 13, 17

Q.No. 8

(b)

Sin Sibling share Rs. 9000

$$A = \frac{1}{2} B, B = 3C, C = 4D, D = 2E, E = F$$

$$E = F$$

$$D = 2E = 2F$$

$$C = 4D = 8F$$

$$B = 3C = 24F$$

$$A = \frac{1}{2} B = 12F$$

$$\text{Total is } 1F + 2F + 8F + 24F + 12F = 48F$$

$$F = \frac{9000}{48} = 187.5$$

Find each amount.

$$A = 12 \times 187.5 = 2250.0$$

$$B = 24 \times 187.5 = 4500.0$$

$$C = 8 \times 187.5 = 1500.0$$

$$D = 2 \times 187.5 = 375.0$$

$$E = 1 \times 187.5 = 187.5$$

(c)

Rectangular Box

$$8m \times 6m \times 4m$$

$$l = 8m$$

$$w = 6m$$

$$h = 4m$$

$$\text{volume} = 8\text{m} \times 6\text{m} \times 4\text{m}$$

$$\boxed{\text{volume} = 192\text{m}^3}$$

Find total surface area;

$$\text{TSA} = 2(lw + lh + hl)$$

$$= 2(8 \times 6 + 6 \times 4 + 8 \times 4)$$

$$= 2(48 + 24 + 32)$$

$$= 2(104)$$

$$\boxed{\text{TSA} = 208\text{m}^2}$$

$$\begin{array}{r} 48 \\ 24 \\ \hline 32 \\ 104 \end{array}$$