

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.

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

Q:6

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 $5k - 3k = 35 \Rightarrow 2k = 35$.

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

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

Asked: Total amount paid.

Formula / Steps:

Discount amount = 25% of 200 = 50.

Sale price = $200 - 50 = 150$.

Tax = 6% 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

Given: Distance = 36 km, speed = 18 km/hr, start time = 1:00 PM.

Asked: Arrival time.

Formula: Time = Distance ÷ Speed.

Solution: Time = $36 \div 18 = 2$ 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 cm³

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b- Universe is expanding:-

To simply put it, Yes.

Universe is expanding like a balloon. It has its marked boundaries but those boundaries are also stretching just like a balloon.

Theories:-

There are three main theories of expansion of Universe.

a Big Bang theories

b Cosmic Inflation theory

c Steady state theory

a - Big Bang theory suggests that universe is expanding outwards but soon it will stop expanding due to mutual gravitational force

b - Cosmic Inflation theory suggests that this inflation is everlasting

c - Steady state theory suggests that the expansion is not happening

Conclusion:-

According to all three models, Universe is either like

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blowing a balloon or a Balloon
that has been blown.

C- Balance diet:-

Balance diet is a diet that contains parts of different food groups in sufficient quantity. These groups include carbohydrates, fats, proteins and essential chemicals such as vitamins.

Vitamin deficiency:-

Vitamins are essential compounds that are needed in little quantity but their deficiency can cause a lot of problems-

Vit-A:-

Vitamin A deficiency can cause vision related problems such as night blindness and corneal ulcers. It can also result in weak immune system, hair loss and weak bones.

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Vit. D:-

Vitamin D deficiency cause rickets in children and muscle weakness in adults

Vitamin E:-

Its deficiency results in compromised immune system and can cause lack of muscle coordination

d- GPS:-

Global positioning system or GPS is a satellite based system used to triangulate location of anyone at anytime on earth. It consists of three geostationary satellites, each covers 120° around the earth. With help of radio signals from electronic devices such as phones, pagers or gps trackers their location is triangulated.

Fiber optic:-

It is an extremely thin, hair like glass fiber used in

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an Insulating material for protection. It is used to transfer information from one point to other with light as mode of transmission. These Fibres work on principle of total internal reflection.

Q no. 4.

a - Chlorophyll:-

Chlorophyll is a primary pigment responsible for green color in plants. They are present extensively in leaves of plants. It is responsible for photosynthesis. It helps broaden the range of light absorbed and transfers this energy to chemical energy.

In plants there are two types of Chlorophyll.

- Chlorophyll - a
- Chlorophyll - b

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while chlorophyll a is directly responsible for photosynthesis the chlorophyll b is responsible for better absorption of light.

b- Role of ribosomes:-

Ribosomes are often called protein synthesizing factories of cell. They are directly responsible for "translation" which is conversion of mRNA into amino acids.

Ribosomes receive mRNA from nucleus. It then translates that mRNA, by doing so ribosomes produce specific proteins. This process of translation makes ribosome key component in new cell formation.

c- Solid waste management

Solid waste management includes different methods used to minimize impact of

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Solid waste on environment.

a- Landfills:-

They are used to dispose solid waste. The non reuse able materials are dumped into landfills where they are covered in layers of soil or are used to produce energy.

b- Incineration:-

Solid waste is often used to make energy. The electric powerplant can work on trash and other solid waste. This provides a sustainable energy production pathway.

c- Composting:-

In this method organic solid waste is converted into fertilizer with help of bacteria.

d. Define the terms

1) Biofuel:-

It is specialized bio

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Fuel produced with help of microbes and waste. The bio fuel is useful for power plants, domestic use and for vehicular purposes.

Hydrosphere:-

The water on earth is collectively called hydrosphere. It contains all the seas, lakes, rivers and glaciers, etc.

Troposphere:-

It is lowest layer of earth's atmosphere. It stretches upto 15 km. height. It contains about 80% of atmospheric gases and 10% of water vapours.

Isotopes:-

The atoms of a molecule that have same atomic number but different mass number. For example hydrogen has three isotopes

- Protium
- Deuterium
- Tritium

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adulteration:-

The process of adding low quality substance in a high quality substance is known as adulteration.

Section - 11

6- A camera is priced at 200 \$ gets 25% off plus 6% tax. calculate total amount paid.

$$25\% \text{ discount on } 200\$ = 25\% \times 200$$

$$= \frac{25}{100} \times 200$$

$$= 50 \$$$

$$\begin{aligned} \text{Price after discount} &= 200 - 50 \\ &= 150 \$ \end{aligned}$$

$$\text{Sales tax} = 6\%$$

$$= 6\% \times 150$$

$$= \frac{6}{100} \times 150$$

$$= 9 \$$$

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$$\begin{aligned} \text{discount price} + \text{sales tax} &= 150 + 9 \\ &= 159 \$ \end{aligned}$$

K- A bicycle covers 36 km at 18 km/hr starting at 1 pm. what time does it reach?

$$\text{Distance} = 36 \text{ km}$$

$$\text{Speed} = 18 \text{ km/hr}$$

$$\text{starting time} = 1 \text{ pm.}$$

time to cover distance at

$$\text{given speed} = t = \frac{d}{v}$$

$$t = \frac{36}{18}$$

$$t = 2 \text{ hr.}$$

time to reach destination = $t + \text{starting}$

time.

$$= 2 \text{ hr} + 1 \text{ pm}$$

$$= 3 \text{ pm.}$$

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d- Unscramble these words

1- STSIAICIT

= STAT

= STATISTICS

2- LGEBMAR

= ALGEBRA

Q8

A:-

Length of triangle = 7 km

Height of triangle = 24 km

Hypoteneus = ?

loop = a + b + c

Distance a = 100 km

distance b = 5 km

Hypoteneus = $a^2 + b^2 = ?$

by using Pythagorean theorem

$$c = \sqrt{a^2 + b^2}$$

$$c = \sqrt{(7)^2 + (24)^2}$$

$$c = \sqrt{49 + 576}$$

$$c = \sqrt{625}$$

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

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$$\begin{aligned}\text{Distance of loop} &= a+b+c \\ &= 7+24+25 = 56 \text{ km}\end{aligned}$$

$$\begin{aligned}\text{Total distance walked by hiker} &= 56 \text{ km} + 10 \text{ km} + 5 \text{ km} \\ &= 71 \text{ km}.\end{aligned}$$

Total distance from start

$$a = 10 \text{ km}$$

$$b = 5 \text{ km}$$

$$a^2 + b^2 = c^2$$

$$10^2 + 5^2 = c^2$$

$$\sqrt{100 + 25} = \sqrt{c^2}$$

$$\sqrt{125} = c$$

$$c = \sqrt{125} \text{ km}$$

b-

$$\text{Total amount} = 9000$$

$$A = 2B$$

$$B = 3C$$

$$C = 4D$$

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$$D = 2E$$

$$E = F$$

Expressing all Hms in term
of E

$$F = E$$

$$D = 2E$$

$$C = 4D = 4(2E) = 8E$$

$$B = 3C = 3(8E) = 24E$$

$$A = 2B = 2(24E) = 48E$$

Total shares = 9000

$$48E + 24E + 8E + E + E = 9000$$

$$84E = 9000$$

$$E = \frac{9000}{84}$$

$$E = 107.14$$

Share of A:-

$$A = 48E$$

$$A = 107.14 \times 48$$

$$A = 5142.72$$

$$A = 2250$$

Share of B:-

$$B = 24E$$

$$B = 24 \times 107.14$$

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$$B = 4500$$

$$C = 8E$$

$$C = 8 \times 187.5 = 1500$$

$$D = 2E = 187.5 \times 2 = 375$$

$$E = 187.5$$

$$F = 187.5$$

$$C =$$

$$\text{Length} = 8\text{m}$$

$$\text{width} = 6\text{m}$$

$$\text{Height} = 4\text{m}$$

$$\text{Volume } V = L \times w \times h$$

$$V = 8 \times 6 \times 4$$

$$V = 48 \times 4$$

$$V = 192\text{m}^3$$

$$V = 192\text{m}^3$$

$$\text{Surface area} = 2(Lw + Lh + wh)$$

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

$$= 2 \times [48 + 32 + 24]$$

$$= 2 \times 104$$

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

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d- Number of men = 4

Number of women = 4

Total members = 8

Total consumption by men = 72 kg

Total consumption by women = 50 kg

After Anna joins consumption = 67 kg

Total men's consumption:

$$4 \times 72 = 288 \text{ kg}$$

Total women's consumption

$$4 \times 50 = 200 \text{ kg}$$

Total consumption

$$200 + 288 = 488 \text{ kg}$$

Final consumption

$$9 \times 67 = 603 \text{ kg}$$

Anna's consumption

$$= 603 - 488 \text{ kg}$$

$$= 115 \text{ kg}$$

Anna ate 115 kg of food