

Do's 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 clear and avoid cutting or scribbles.
5. Mind your spelling and grammar — while GSA doesn't deduct marks for this, your expression leaves an impression.
6. In the ability portion, explain analytical ability questions clearly. For a 5-mark part, show all steps and provide clear explanations.

GSA MOCK NOA - 2025 Date: 21.10.2020

PART - II

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

Q.6 (SECTION-I)
 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 candies 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. (Date - Apple = 35). We solve that reasonable interpretation.

Q NO. 03

(a) Why Cells Form Organelles

Formula: Let common factor = k. Apple = 3k, Date = 5k.
 So 5k - 3k = 35 → 2k = 35 → k = 17.5
 Berry = 6k = 6 × 17.5 = 105.

Solution: 2k = 35 → k = 35 ÷ 2 = 17.5
 Berry = 6k = 6 × 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% of 200 = 0.25 × 200.
 Sale price = 200 - discount.
 Tax = 6% of sale price.
 Total = sale price + tax.

Solution (digit by digit):
 Discount = 200 × 0.25 = 50.
 Sale price = 200 - 50 = 150.
 Tax = 150 × 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
 - π = 22/7

Asked: volume of sphere

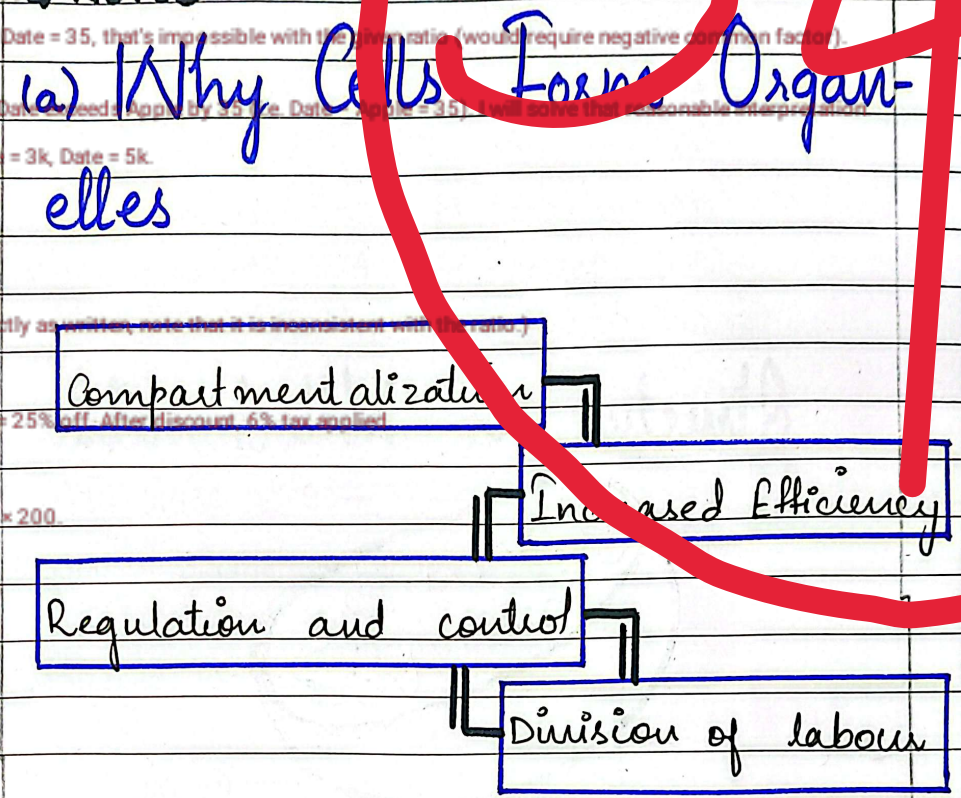
Formula:
 Volume = (4/3)πr³
 Now, let's plug in the values:
 Volume = (4/3) × (22/7) × (7)³
 = (4/3) × 22 × 7 × 7
 = 1437.33 cm³

Answer:
 The volume of the sphere is approximately 1437.33 cm³

(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).

Formula: Sum of ratio parts = 1+2+3+4+5 = 15. Smallest = (1/15) × total

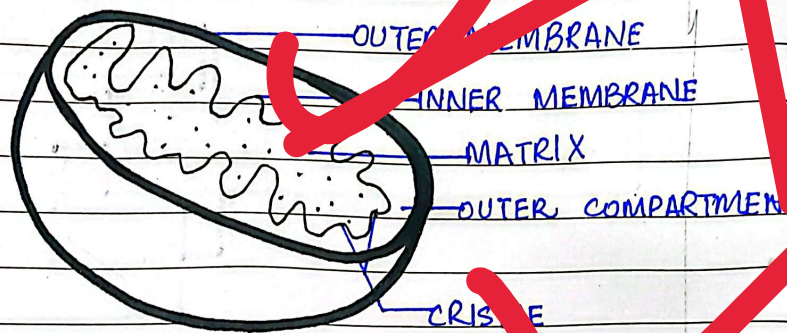


Cells in organisms form organelles in order to compartmentalize different functions and increasing the efficiency. Different secretions are involved in carrying out different functions. The compartmentalization allows these secretions to remain separate and work more efficiently. It also contribute to efficient and speedy work by division of work among organelles.

Mitochondria In Human Cell

"Mitochondria is also called as powerhouse of the cell, because it is responsible for the generation of energy in the form of ATP through cellular respiration."

Structure of Mitochondria



Functions of Mitochondria

Production of ATPs through cellular respiration (to produce energy)

Regulation of metabolism

Apoptosis or
programmed
cell death

Production of
heat to control
body temperature

Calcium
storage

(b) Defining Doping

"It is the process of adding small amounts of impurities to a pure semiconductor to improve its electrical conductivity."

Types of Semiconductors

1. Intrinsic Semiconductor

It is a pure semiconductor with no added impurities. Eg: Germanium, Silicon, etc. It has low conductivity which depends upon temperature variation.

2. Extrinsic Semiconductor

It is a semiconductor doped with controlled impurities to increase conductivity. It is further classified into:

- a. N-type : It is doped with pentavalent elements.
- b. P-type : It is doped with trivalent elements.

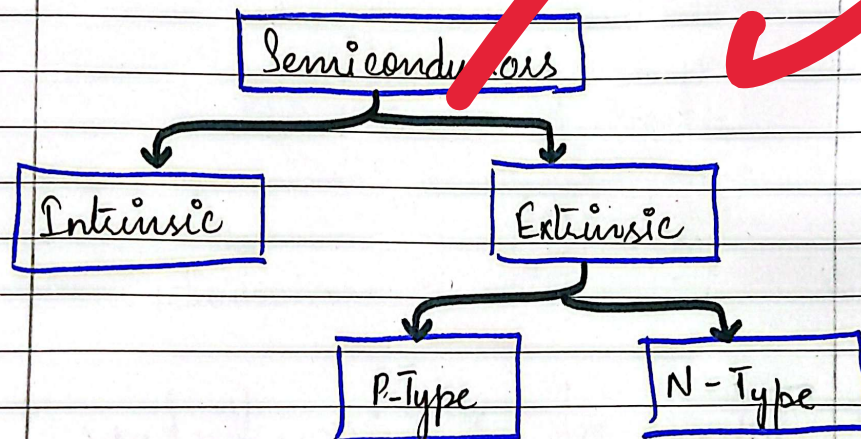


fig: Classification of semiconductors

c) Volcanic Eruptions: Merits and Demerits



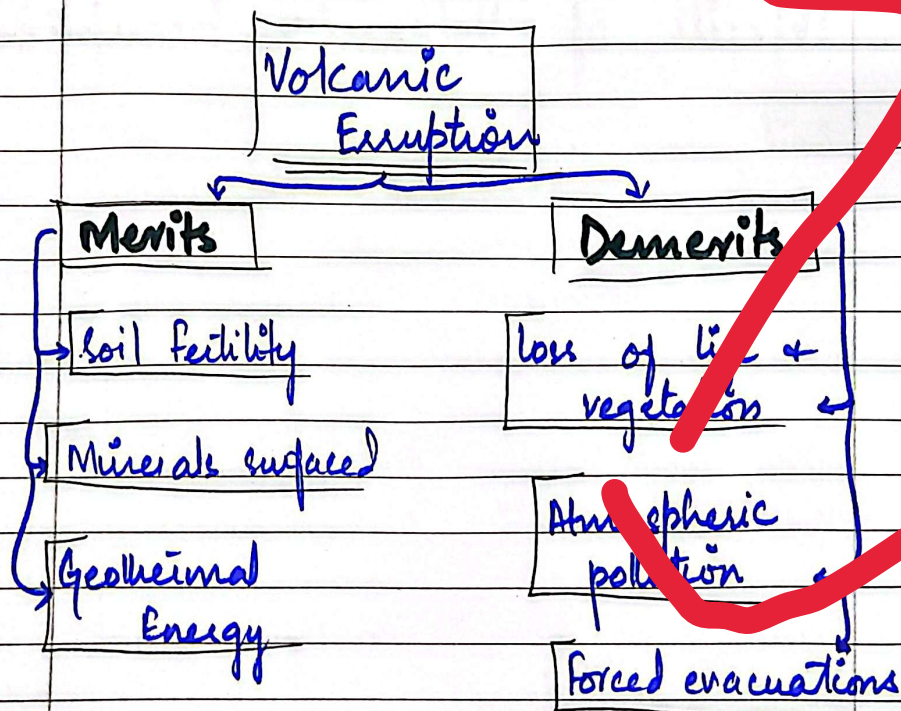
Fig: visual representation of a volcanic eruption

Merits of Volcanic Eruption

1. Soil Fertility: Volcanic ash and lava break into mineral rich soil.
2. Mineral Resources: Eruptions bring important minerals to the surface.
3. Geothermal Energy: They provide a renewable source of geothermal energy.
4. New land formation: Lava solidifies into new lands and islands. e.g. Hawaii.

Demerits of Volcanic Eruptions are:

- 1- Loss of life and property.
- 2- Gases and ash increasing air pollution.
- 3- Forced evacuation of local masses.
- 4- Lava and ash from eruptions can cause destruction of vegetation and contamination of water sources.



(d) Dengue: Symptoms, Causes and Remedies

"Dengue is a viral disease transmitted to humans through the bite of female *Aedes aegypti* mosquito. It is a common viral infection in tropical and subtropical regions."

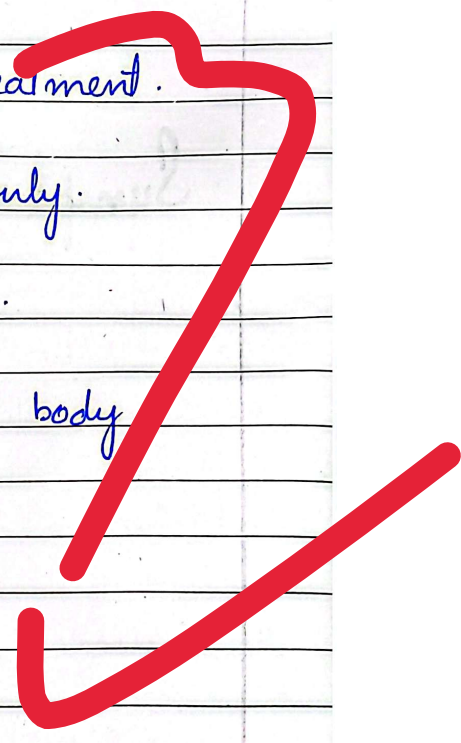
Symptoms of Dengue are:

- 1- High grade fever (104°F or more)
- 2- Severe headache and pain behind eyes
- 3- Joint and muscle fatigue.
- 4- Nausea and vomiting.
- 5- Skin rash
- 6- Low platelet count.

Causative Agents of Dengue are:

- 1- Dengue virus (DENV)
- 2- Four strains of DENV ie; DENV-1, DENV-2, DENV-3, and DENV-4.

Remedies and Treatments include:

- 1- No specific antiviral treatment.
 - 2- Symptomatic treatment only.
 - 3- Rest and rehydration.
 - 4- Paracetamol to contain body temperature.
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Q. NO. 05

(a) Causes of Population Explosion In Pakistan:

Pakistan is the 5th most populous country in the world with rapid population growth straining its development and resources. Following are some of the causes for it:

High birth rate due to early marriages and large family structures in culture.

Lack of ~~literacy~~ and awareness among masses - no family planning

Poor families tend to bear more children for economic support.

Misconception that family planning is unethical.

Measures to Control Population Growth in Pakistan

Educating masses on family planning and reproductive health.

Encouraging women empowerment may delay early marriages.

Introducing affordable contraceptives in the market.

Engage religious scholars in guiding the populace about misinterpretation of religious education.

(b) Remote Sensing

"Remote sensing is the science of collecting information about the Earth's surface without actual physical contact using different sensors."

Role Of GIS

In Environmental Science Is :

→ It monitors environment by tracking changes in land use, deforestation, and pollution over time.

→ It works in disaster management by predicting earthquakes and floods, etc.

→ It helps in resource management (natural resources).

→ It helps in determining climate change by mapping weather conditions.

(c) Atmosphere Is The Blanket Of Earth

"Atmosphere is the blanket of earth: this phrase is usually said to mean that atmosphere acts as a shield for earth and protects it against external harm."

Justifying the Phrase through Evidences

The atmosphere blocks the UV rays from sun from harming the life on earth.

It traps gases like CO_2 and water vapour, maintaining the temperature of earth.

It provides O_2
for supporting
life on earth
and CO_2 gas
plants to carry
out photosynthesis

It enables cloud
formation by cap-
ping the vapours
thereby regulating
water cycle on the
planet.

(d) Define the terms:

Hydrometer →

An instrument
used to measure
relative dens-
ity of the liquids.

The point on earth's
surface directly
above the focus
of an earthquake.

← **Epicenter**

Eye Wall
of Cyclone →

The circular ring
of dense clouds
surrounding the
eye of a cyclone
which contains
the strongest winds
and heaviest
rainfall.

It refers to an
earthquake that
occurs at a focus
deeper than 20 km
depth in the earth

← Deep focus

Light Year →

It is the astronomical
unit of distance which
is equal to the
distance light travels
in one year. ~ 9.6
trillions kms.

SECTION-II

Q.No. 06

(a) Data Given:

$$\text{Apple} : \text{Berry} : \text{Cherry} : \text{Date} = 3:6:2:5$$

common multiplying factor = x

$$\text{Apple} = 3x$$

$$\text{Berry} = 6x$$

$$\text{Cherry} = 2x$$

$$\text{Date} = 5x$$

Condition given;

$$\text{Apple} = 5x + 35$$

or,

$$3x = 5x + 35$$

Required :

How many Berry Candies:?

Solution:

Solve for x :

$$3x = 5x + 35$$

$$5x - 3x = -35$$

$$2x = -35 / 2$$

$$x = -17.5 \text{ (since apple candies exceed by 35, -ve quotient can be ignored)}$$

$$\therefore x = 17.5$$

Hence,

$$\text{Berry candies} = 6 \times 17.5$$

and

$$= 105 \text{ candies}$$

$$\begin{array}{r} 17.5 \\ \times 6 \\ \hline 105.0 \end{array}$$

(b) Data Given:

Price of camera = 200 \$

Discount = 25% off

Tax = 6%

Required:

Amount paid = ?

Solution:

for determining discounted price;

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

$$\text{Discount} = 50 \$$$

$$\text{Discounted price} = 200 - 50$$

$$= 150 \$ \rightarrow (1)$$

But,

$$\text{Tax paid} = \frac{200}{100} \times 6$$

$$\text{Paid Tax} = 12 \$ \rightarrow (2)$$

$$\therefore \text{Paid amount} = 150 - 12$$

$$= 162 \$$$

(c)

Data Given:

Distance covered = 36 km.

velocity of bicycle = 18 km/h

start time = 1 pm.

Required:

Time after covering distance?

Solution: $\therefore$ speed is 18 km/h

Total time required
to cover the distance $\Rightarrow \frac{36}{18}$
of 36 km can be
given as (in hours)

Time (in hours) = 2 hours.

Hence, bicycle shall reach the
destination by 3 pm.

Date: _____

1d) unscramble the terms:

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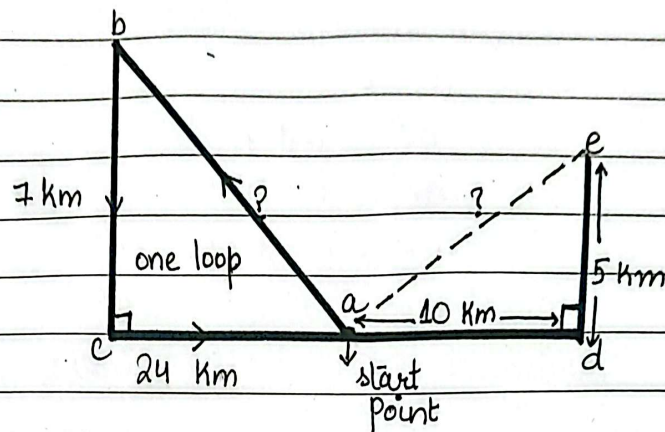
STATISTICS

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Q.NO.08

(a) Data Given:



Required:

Total distance covered = ?

Distance from start point = ?

Solution:

$$\text{Total distance} = ab + bc + ca + ad + de.$$

$$= ab + 07 + 24 + 10 + 05 \rightarrow \text{①}$$

∵ for right triangle;

$$H^2 = P^2 + B^2.$$

$$\therefore ab^2 = bc^2 + ca^2$$

$$ab^2 = (07)^2 + (24)^2$$

$$ab^2 = 49 + 576$$

$$ab^2 = 625$$

Taking $\sqrt{\quad}$ on both sides:

$$\sqrt{ab^2} = \sqrt{625}$$

$$\therefore ab = 25$$

$$\begin{array}{r} 24 \\ 24 \\ \hline 49 \\ 248 \\ \hline 1576 \\ 49 \\ \hline 625 \\ \hline 25 \\ 51 \end{array}$$

$\therefore$ eq ① becomes;

$$\text{Total distance} = 25 + 01 + 24 + 10 + 05$$

$$\boxed{\text{Total dist.} = 71 \text{ km}}$$

Now, distance from starting point;

i.e: ae ;

$$ae^2 = ad^2 + de^2$$

$$ae^2 = 10^2 + 2^2$$

$$ae^2 = 100 + 4$$

$$ae^2 = 125$$

Taking $\sqrt{\quad}$ on both sides;

$$\sqrt{ae^2} = \sqrt{125}$$

$\therefore$

$$\boxed{ae = 11.2 \text{ km}}$$

Hence total distance covered by the hiker is 71 km and distance from starting point is 11.2 km

$$\begin{array}{r} 11.2 \\ 11.2 \\ \hline 224 \\ 112 \times \\ 112 \times \times \\ \hline 125.44 \end{array}$$

Date: _____

(b)

Data Given:

no. of Siblings = 06.

Amount = 9000 RS.

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

$$B = 3C$$

$$C = 4D$$

$$D = 2E$$

$$E = F$$

$$\begin{array}{r} 1125 \\ 2250 \\ 4500 \\ 9000 \\ 1125 \\ 2250 \\ 4500 \\ 9000 \\ 1125 \\ 2250 \\ 4500 \\ 9000 \\ 1125 \\ 2250 \\ 4500 \\ 9000 \end{array}$$

Required:

Share of each:?

Solution:

$$\therefore A + B + C + D + E + F = 9000 \text{ RS} \rightarrow (1)$$

From the given data;

$$E = F \quad 187.5 \quad 187.5$$

$$D = 2E = 2F \quad 375$$

$$C = 4D = 8E = 8F \quad 1500$$

$$B = 3C = 12D = 24E = 24F \quad 4500$$

$$A = \frac{1}{2} B = \frac{3C}{2} = \frac{12D}{2} = \frac{24E}{2} = \frac{24F}{2} \quad 2250$$

writing eq. 1 again it becomes

$$\frac{24F}{2} + 24F + 8F + 2F + F + F = 9000$$

$$12F + 24F + 8F + 4F = 9000$$

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

$$F = 187.5 \text{ RS.}$$

Date: _____

$$\therefore E = F$$

$$\therefore E = 187.5 \text{ RS.}$$

$$D = 2F$$

$$D = 2 \times 187.5$$

$$\therefore D = 375 \text{ RS.}$$

$$C = 8F$$

$$C = 8 \times 187.5$$

$$\therefore C = 1500 \text{ RS.}$$

$$B = 24F$$

$$B = 24 \times 187.5$$

$$\therefore B = 4500 \text{ RS}$$

$$A = \frac{24F}{2}$$

$$A = \frac{24 \times 187.5}{2}$$

$$\therefore A = 2250 \text{ RS.}$$

To Verify, let's add all the amounts;

$$187.5 + 187.5 + 375 + 1500 + 4500 + 2250 = 9000 \text{ RS}$$

Hence, the shares of siblings are;

$$A = 2250 \text{ RS.} \quad D = 375 \text{ RS.}$$

$$B = 4500 \text{ RS.} \quad E = 187.5 \text{ RS.}$$

$$C = 1500 \text{ RS.} \quad F = 187.5 \text{ RS.}$$

(c) Data Given:

Rectangular box.

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

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

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

Required:

Total surface area = ?

Volume of box = ?

Solution:

Total surface area of rectangle $= 2(lw + hw + lh)$

"

"

"

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

$$= 2\{ 48 + 24 + 32 \}$$

$$= 2 \times 104$$

$\therefore$

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

$$\begin{array}{r} 24 \\ 32 \\ \hline 56 \\ 48 \\ \hline 104 \\ 104 \\ \hline 208 \end{array}$$

now,

Volume $= l \times w \times h$

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

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

$$\begin{array}{r} 48 \\ 4 \\ \hline 192 \end{array}$$

(d) Data Given:

family members = 08
 average: men eat = 72 kg of food
 average: women eat = 50 kg of food.
 Anna joined;
 new average consumption = 67 kgs.

Required:

food Anna ate = ? (in kgs).

Solution:

Average of overall = $\frac{\text{men} + \text{women}}{\text{family}}$

$$4 = \frac{72 + 50}{2}$$

$$4 = \frac{122}{2}$$

$$\therefore 4 = 61 \text{ kgs.}$$

Avg. after Anna = $\frac{\text{family} + \text{Anna}}{2}$

$$67 = \frac{61 + \text{Anna}}{2}$$

$$61 + \text{Anna} = 67 \times 2$$

$$\text{Anna} = 134 - 61$$

$$\therefore \boxed{\text{Anna} = 73 \text{ kgs}}$$

$$\begin{array}{r} 67 \\ 67 \\ \hline 134 \\ 61 \\ \hline 73 \end{array}$$

Thus, Anna ate 73 kgs of food.