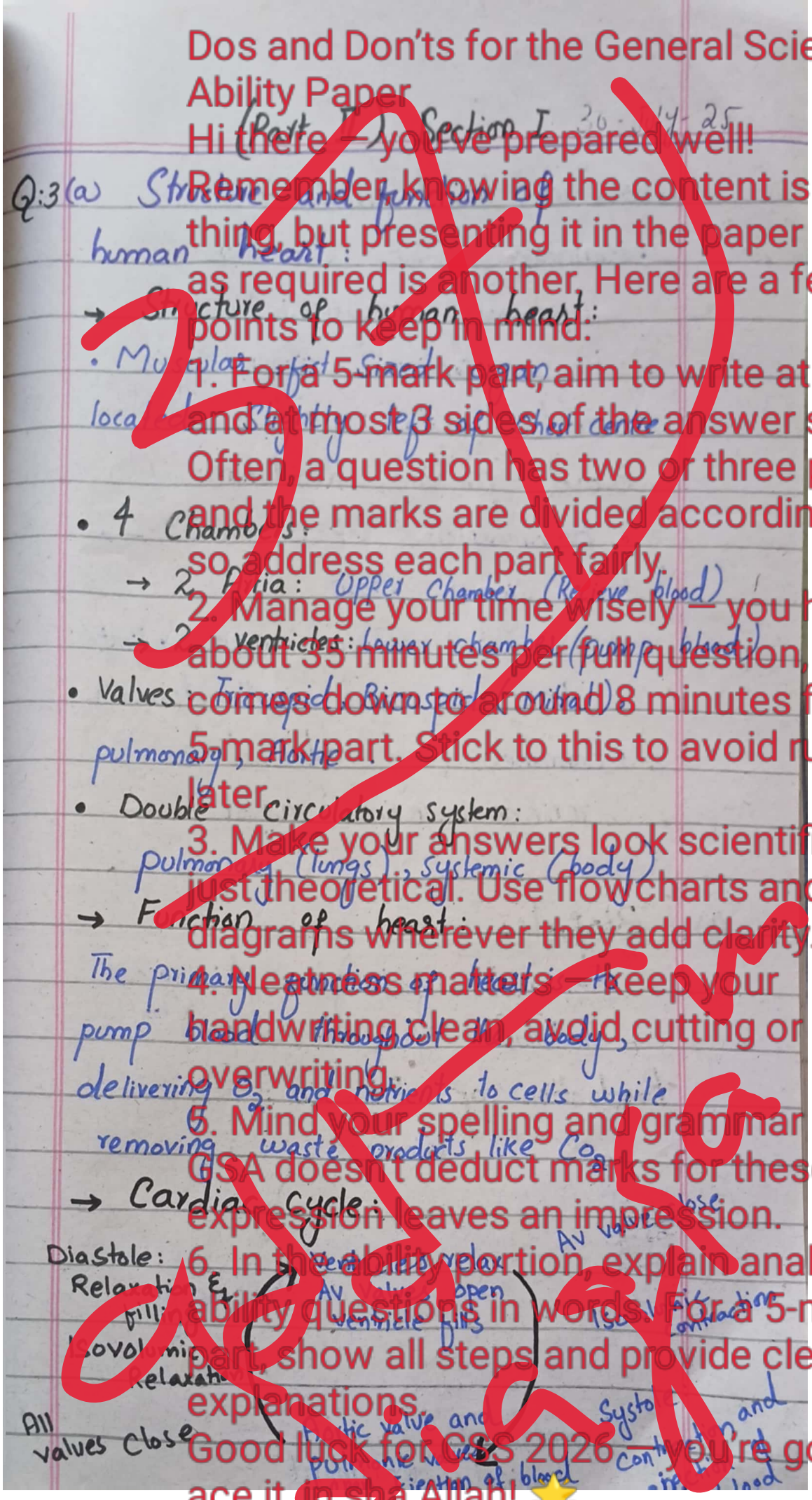

Dos and Don'ts for the General Science & Ability Paper

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! 🌟

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→ Role in blood circulation:

- Maintain double circulation (pulmonary + systemic)
- Ensure continous oxygen supply and waste removal.

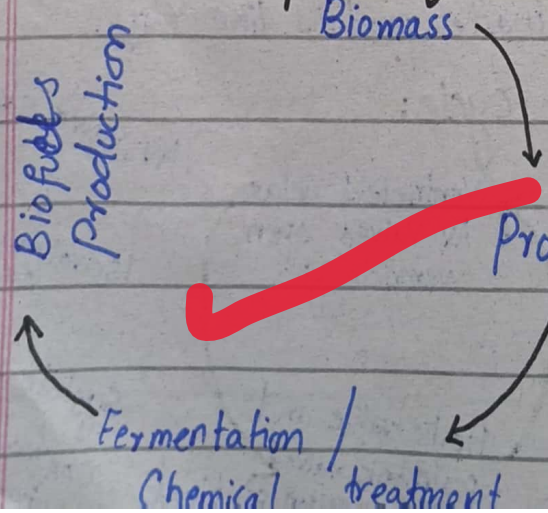
→ Blood pressure Regulation:

- Baroreceptors detect pressure → Signal brain
- Autonomic nervous system adjusts heart rate and vessel diameter.
- Hormones (e.g. adrenaline, renin angiotensine) assist.

(b) Biofuels:

"Renewable fuels from biological materials (plant, waste)"

Production of Biofuels:



- Bioethanol: from sugar cane, corn (fermentation).
- Biodiesel: from vegetable oils/ fats (transesterification)
- Biogas: from animal/organic waste (anaerobic digestion)

Advantages:

- Renewable and biodegradable.
- Reduces dependence on fossil fuels.
- Lower CO_2 emissions.

Disadvantages:

- Competes with food crops.
- Require large land/water crops resources.
- Lower energy content.

Emission Reduction:

- Plants absorb CO_2 during growth
- Net carbon emissions are lower than fossil fuels.

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c Key factors determining food quality:

- Nutritional content
- Taste, aroma, texture.
- Freshness and apperance

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- Absence of contaminants

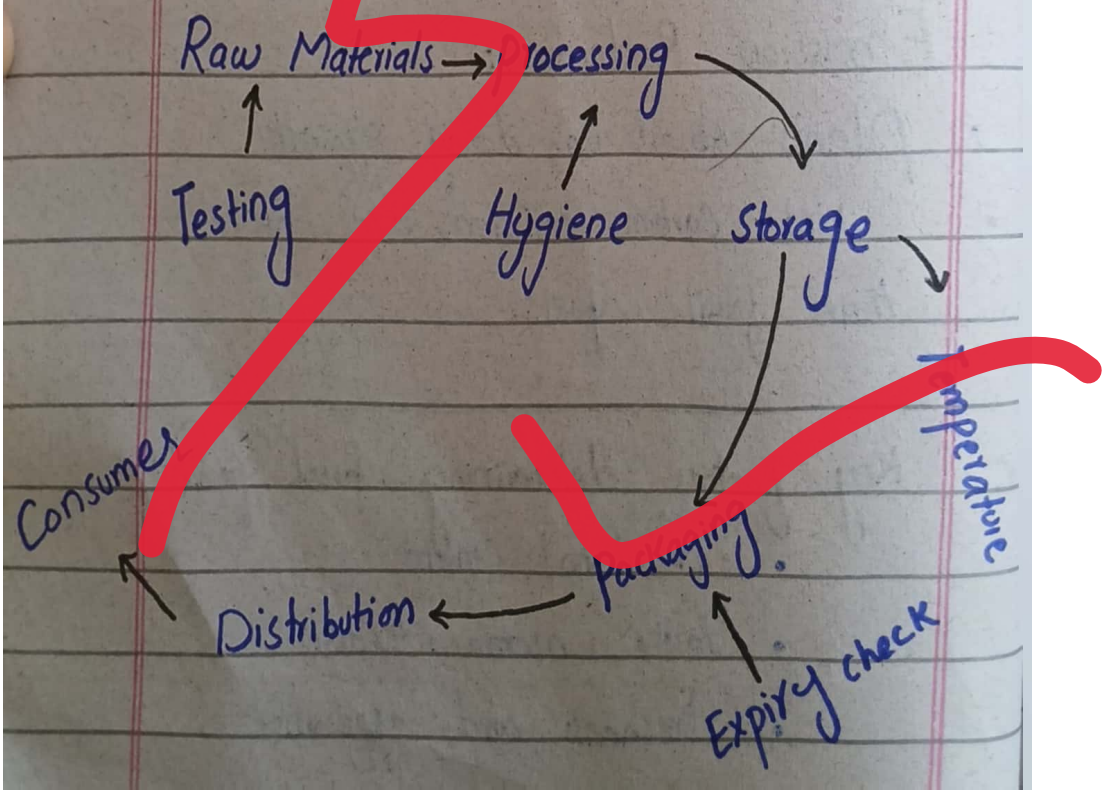
Importance of food Safety:

- prevents foodborne disease
- protects public health
- Ensure Consumer trust.

Food Quality Control measures:

- HACCP (Hazard Analysis and critical control points)
- ISO standards, lab testing.
- Expiry date monitoring and proper storage.

Food Safety Control:



How Consumers Ensure safety:

- Read labels / Expiry dates.
- Buy from reputable sources.
- Cook food thoroughly
- Store food properly

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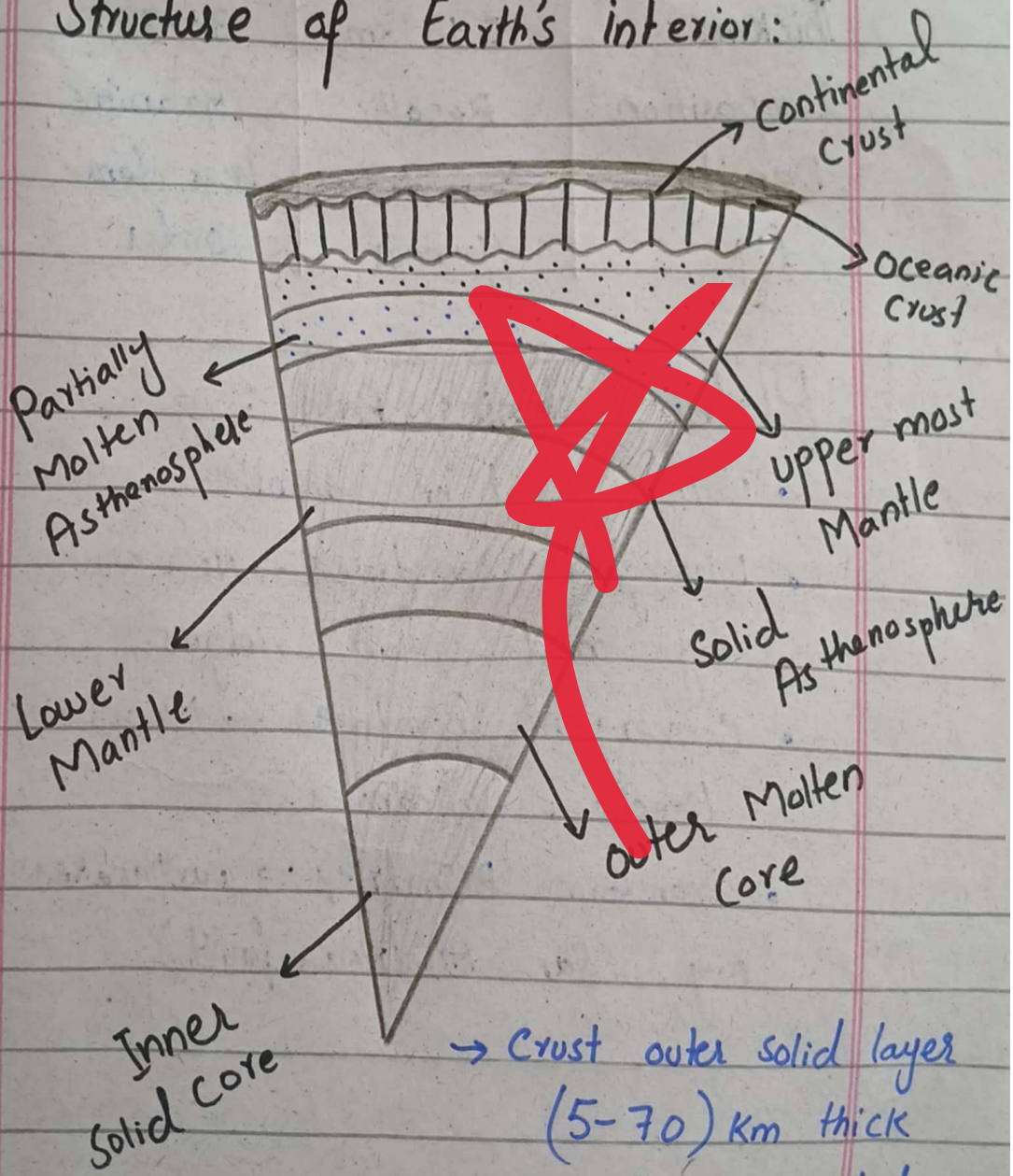
d Structure of Earth's interior:



→ Crust outer solid layer (5-70) Km thick

→ Mantle Semi Solid, Convection current (2900 Km)

Core :

- Outer Core : Liquid (iron, Nickel)
- Inner Core : Solid (dense, iron)

Difference b/w Oceanic VS Continental Crust:

Feature	Oceanic	Continental
Thickness	5-10 km	30-70 km
Composition	Basaltic	Granitic
Density	More dense	less dense
Age	Younger	older

Plate tectonics Role :

- Plate float on mantle.
- Divergent boundaries → New crust e.g mid-ocean ridges.
- Convergent Boundaries → Mountains, trenches, Volcanoes.
- Transform Boundries → Earthquakes e.g San Andreas fault)

Q: No 4

(a) Characteristics of a tropical Cyclone:

- Low-pressure system with organized thunderstorms.
- Strong winds rotating Counter-Clockwise (Northern hemisphere) or Clockwise (Southern hemisphere)
- Eye (calm centre), eye wall (strongest winds), rainbands
- Wind speed exceed 119 km/h (74 mph)
- Heavy rainfall and Storm surge

Formation Process:

- Warm ocean water (> 26.5 °C)
- Moist air rising and creating low pressure.
- Coriolis effect cause rotation.
- Continuous heat release from Condensation fuels Storm.
- organized into Cyclone system.

Intensity factors:

- Sea surface temp.
- Atmospheric moisture content.

- Wind Shear (less shear = stronger storm)
- Upper-level divergence.

Impacts on Coastal Communities:

- Flooding from Storm.
- High winds damaging.
- Salinization of freshwater Supplies.
- Displacement of populations.
- Disruption to agriculture and fisheries.

(b) Remote Sensing:

The use of satellite or aerial sensor technologies to collect data about earth's surface.

Uses:

- Tracking land/use land cover change.
- Monitoring deforestation.
- Assessing vegetation health
- Observing climate change
- Disaster response (floods, fires etc)

Advantages:

- Wide area coverage.
- Frequent, repetitive data collection.
- Access to remote or dangerous area.
- Multispectral and temporal data.

Limitations:

- High cost of satellites and data processing.
- Cloud cover interferes with optical sensors.
- Limited ground truthing.

(C) Types of vitamins and their role in health:

→ Fat-Soluble Vitamins:

- Vit A, vision, immune function, skin health.
- Vit D, Bone, Calcium absorption.
- Vit E, Antioxidant, skin protection.
- Vit K, Blood Clotting.

→ Water-Soluble Vitamins:

- B-Complex (B_1 to B_{12}) Energy metabolism, nerve function,

diagram

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red blood cell formation.

- Vit C (Ascorbic acid), collagen production, antioxidant, immune support.

Importance for Skin, Hair, eyes:

- vit A:
  Prevents dry eyes, maintains vision
- vit C:
  support collagen for skin
- Biotin (B7):
  Healthy hair and nails
- vit E:
  prevent skin aging.

Consequences of Deficiencies:

vit A: Night blindness
vit C: Scurvy
vit B1: Beriberi
vit D: Rickets
Biotin: Hair loss

(d) Poliomyelitis (polio):

- A viral disease caused by polio virus.
- Attacks nervous system, can cause paralysis.

Transmission:

Fecal-oral route ⟶ Contaminated (water / food)

Person to person via ⟶ oral secretions.

Global Eradication efforts:

- led by WHO, UNICEF, CDC, Rotary, Gavi and GPEI.
- use of oral polio vaccine and Inactivated polio vaccine.
- Mass immunization campaigns.

Challenges:

- Inaccessibilty in conflict zones.
- Vaccine misinformation and hesitancy.
- Incompleted surveillance.
- Vaccine derived polio strains.

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Importance of Vaccination

- prevents infection and transmission.
- builds herd immunity.
- essential for global eradication.

Section II

Q.No6 (a)

Original Selling price = x

Then

Original profit = x - 100

New sp = 2x

New profit = 2x - 100

New profit = 3 x original profit.

So,

$2x - 100 = 3(x - 100)$

$2x - 100 = 3x - 300$

$-100 + 300 = 3x - 2x$

$200 = x$

So,

sp = Rs 200 and

cp = Rs 100

profit = 200 - 100 =

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100.

Profit :

$$\frac{100}{100} \times 100 = 100\%$$

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b Let y's pay = y

Then x's pay = 120% of y =

$1.2y$

Total pay:

$$y + 1.2y = 2.2y = 550$$

Solving

$$y = \frac{550}{2.2} = 250$$

So,

y is paid Rs 250, and x is paid Rs 300.

C Let breadth = b

then perimeter = $5b$

perimeter of rectangle = $2(l+b) = 5b$

$$2(l+b) = 5b \Rightarrow l+b = \frac{5b}{2} \Rightarrow l = \frac{5b}{2}$$

$$-b = \frac{3b}{2}$$

Area $= l \times b = 216$

$\frac{3b}{2} \cdot b = 216 \Rightarrow \frac{3b^2}{2} = 216$

$3b^2 = 432 \Rightarrow b^2 = 144$

$b = 12$

Then

$l = \frac{3 \cdot 12}{2} = 18$

Length = **18 cm**

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d) List of tickets : 1 to 20

Multiples of 3 : 3, 6, 9, 12, 15, 18 → 6 nos

Multiples of 5 : 5, 10, 15, 20 → 4 nos

Common multiple of both (3, 5) = 15 counted twice

So total,

$6 + 4 - 1 = 9$

$= \frac{9}{20}$

Q No: 7

(a) 5% of A + 4% of B = (2/3) x

6% of A + 8% of B.

Convert % to decimal.

$0.05A + 0.04B = \frac{2}{3}(0.06A + 0.08B)$

Multiply both sides by 3,

$3(0.05A + 0.04B) = 2(0.06A + 0.08B)$

$0.15A + 0.12B = 0.12A + 0.16B$

So,

$0.15A - 0.12A = 0.16B - 0.12B \Rightarrow$

$0.03A = 0.04B \Rightarrow \frac{A}{B} = \frac{0.04}{0.03} =$

$\frac{4}{3}$

A:B = 4:3

c Let Common multiplier = x

Then :

A = 5x

B = 2x

C = 4x

D = 3x

Given

$4x - 3x = 1000$

$x = 1000$

Now B's share $= 2x = 2 \times 1000$

$= 2000$

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d Son's present age = x

father's age at son's birth = $38 - x$

At Son's birth, father's age = Son's current age

$38 - x = x \Rightarrow 2x = 38 \Rightarrow x = 19$

Son's current age = 19

Son's age five years ago = 19 - 5

= 14
