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PART II

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

SECTION II

Question No. 7:

PART A

Two numbers A and B.
Equation from statement

$$5\%A + 4\%B = \frac{2}{3}(6\%A + 8\%B)$$

TO FIND:

$$\text{Ratio} = \frac{A}{B} = ?$$

SOLUTION:

As from the statement

$$5\%A + 4\%B = \frac{2}{3}(6\%A + 8\%B)$$

$$\Rightarrow \frac{5A}{100} + \frac{4B}{100} = \frac{2}{3} \left(\frac{6A}{100} + \frac{8B}{100} \right) \quad \therefore 90 = 1$$

$$\frac{5A + 4B}{100} = \frac{2}{3} \left(\frac{6A + 8B}{100} \right)$$

$$5A + 4B = \frac{2}{3}(6A + 8B)$$

$$3(5A + 4B) = 2(6A + 8B)$$

$$15A + 12B = 12A + 16B$$

OR

$$15A - 12A = 16B - 12B$$

$$3A = 4B$$

A	= 4
B	3

So,

the ratio A:B

$$X = \frac{4}{3} = X$$

PART B

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! 🌟

Given:

Assumed two digit number. having 'x' at ten's digit and 'y' as units digits i.e.

Assumed number $A = 10x + y$ where $y = x + 2$

Equation from the statement.

$$A \times (x + y) = 144$$

To find:

The actual two-digit number = ?

Solution:

As given in statement,

$$A \times (x + y) = 144$$

putting value of $A = 10x + y$ in above.

$$(10x + y)(x + y) = 144$$

$$\Rightarrow (10x + x + 2)(x + x + 2) = 144 \quad \because y = x + 2 \text{ (given)}$$

$$(11x + 2)(2x + 2) = 144$$

opening the equation.

$$22x^2 + 22x + 4x + 4 = 144$$

$$22x^2 + 24x + 4 - 144 = 0$$

$$22x^2 + 24x - 140 = 0$$

Dividing the whole equation by 2.

$$11x^2 + 12x - 70 = 0$$

Applying quadratic equation formula to above equation; $ax^2 + bx + c = 0$ where

$$a = 11 \quad ; \quad b = 12 \quad \text{and} \quad c = -70$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

putting values, we get

$$x = \frac{-(12) \pm \sqrt{(12)^2 - 4(11)(-70)}}{2(11)}$$

$$x = 2(11)$$

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$$x = \frac{-12 \pm \sqrt{144 + 280}}{22}$$

$$x = \frac{-12 \pm \sqrt{3224}}{22}$$

$$x = -12 \pm 56.7$$

PART C:

Given:

Money distribution ratio

$$A : B : C : D$$

$$5 : 2 : 4 : 3$$

$$C = 1000 + D.$$

Find:

B's share, B = ?

Solution:

Let the share of

$$A = 5x$$

$$\text{Total share} = 4x$$

$$B = 2x$$

$$C = 4x$$

$$D = 3x$$

so according to the statement, share of C

$$C = 1000 + D$$

$$4x = 1000 + 3x$$

$$4x - 3x = 1000$$

$$x = 1000$$

Putting value of x in B's share.

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$$B = 2x = 2 \times 1000 = 2000$$

so

$$B's \text{ shop} = 2000$$

PART D:

Age Problem

According to father's statement, let the current age of father be 'F' and that of son be 'x'

Age of father at the time of birth of his son

$$F - x = x$$

Age of father now = F = 38 yrs

Find:

Son's age five yrs back = ?

Solution:

According to Father's statement

$$F - x = x \quad ; \quad F = 38$$

so,

$$38 - x = x$$

$$\text{or } x + x = 38$$

$$2x = 38$$

$$x = \frac{38}{2} = 19$$

or

$$x = 19$$

So, the current age of son is 19 yrs.

Son's age five years back = $x - 5$

$$= 19 - 5 = 14 \text{ years}$$

So, five years back, son was 14 yrs old.

X X

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PART B

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Given

$$\text{Pay of } X \text{ \& } Y = X + Y = 550$$

$$\text{Pay of } X = 120\% \text{ of } Y$$

$$\text{or } X = \frac{120}{100} Y$$

To Find:

$$\text{Pay of } Y \text{ per week} = Y = ?$$

Solution:

As

$$X + Y = 550$$

putting $X = \frac{120}{100} Y$ into above.

$$\frac{120}{100} Y + Y = 550$$

Taking LCM = 100 on left hand side

$$\frac{120}{100} Y + Y \times \frac{100}{100} = 550$$

$$\frac{120Y + 100Y}{100} = 550$$

$$\frac{220Y}{100} = 550$$

$$\Rightarrow 220Y = 550 \times 100$$

$$Y = \frac{550 \times 100}{220}$$

$$Y = 50 \times 5$$

$$\boxed{Y = 250} \text{ Ans}$$

so

pay of Y is 250 rupees per week.

PART C:

Given:

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Ratio b/w Perimeter and breadth

$$\frac{\text{Perimeter}}{\text{Breadth}} = \frac{P}{b} = \frac{5}{1}$$

Area of rectangle $= A = 216 \text{ m}^2$

To Find:

length of rectangle $= l = ?$

Solution:

Perimeter of a rectangle is

$$P = 2(l+b)$$

and as given

$$\frac{P}{b} = \frac{5}{1}$$

$$\text{or } \frac{2(l+b)}{b} = \frac{5}{1} \quad (\because P = 2(l+b))$$

$$\frac{2l+2b}{b} = \frac{5}{1}$$

By cross multiplication we get.

$$2l+2b = 5b$$

$$2l = 5b - 2b$$

$$2l = 3b$$

$$\text{or } 3b = 2l$$

$$b = \frac{2l}{3} \quad \text{--- (1)}$$

Now, area of rectangle $= A = l \times b$ and
as given

$$\text{Area} = 216$$

$$l \times b = 216$$

$$b = \frac{216}{l} \quad \text{--- (2)}$$

Now,

$$\text{Breadth} = \text{Breadth}$$

$$\frac{22}{3} \times \frac{216}{2}$$

Cross multiplication gives us-

$$(22)2 = 3(216)$$

$$22^2 = 648$$

$$22 = \sqrt{648}$$

$$2$$

$$22 = \sqrt{324}$$

Taking ' $\sqrt{\quad}$ ' on both sides.

$$\sqrt{22^2} = \sqrt{324}$$

$$22 = 18^2$$

$$22 = 18 \text{ m} \text{ Ans}$$

So,

length of rectangle is 18 meters.

PART D

Given:

Total number of tickets = $n = 20$

To Find:

Probably if the drawn card is a multiple of 3 or 5 = $P_{3 \text{ or } 5} = ?$

Solution:

Multiples of 3 less than 20 are 3, 6, 9, 12, 15, 18 i.e., total 6 cards.

Multiples of 5 in 20 are 5, 10, 15 and 20, i.e., total 4 cards. But one card is a multiple of 3 and 5 i.e., 15.

So total cards having multiple of 3 or 5 are = $6 + 4 - 1 = 9$.

Probability that the ticket drawn can be a multiple of 3 or 5 is

$$A \quad P_{\text{3 or 5}} = \frac{9}{20}$$

$$\text{or } \boxed{P_{\text{3 or 5}} = 0.45} \quad \text{Answer.}$$

X ————— X

PART A:

Given:

Let Cost Price = C.P

Selling Price = S.P

Profit = P

New selling Price = 2SP

New Profit = 3P.

To Find:

Profit in percent = P% = ?

Solution:

As Profit = Selling Price - Cost Price.

$$\text{i.e. } P = SP - CP \quad \text{--- (1)}$$

and according to given statement.

$$3P = 2SP - CP \quad \text{--- (2)}$$

Taking equation (1)

$$P = SP - CP$$

$$\text{or } CP = SP - P$$

Putting value of CP in equation (2)

$$3P = 2SP - (SP - P)$$

$$3P = 2SP - SP + P$$

$$3P - P = SP$$

$$2P = SP \quad \text{--- (3)}$$

so value of new selling price is 2P.

Now finding cost price

$$CP = SP - P$$

$$= 2P - P$$

$$CP = P \quad \text{--- (4)}$$

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Formula for profit percentage is

$$P\% = \frac{\text{Profit}}{\text{Cost Price}} \times 100$$

$$= \frac{SP - CP}{CP} \times 100$$

putting values of SP & CP from equation

(3) & (4) in above-

$$P\% = \frac{2P - CP}{P} \times 100$$

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

$$P\% = 100\% \text{ Ans}$$

So the profit percentage is 100%

~~X~~

SECTION - I

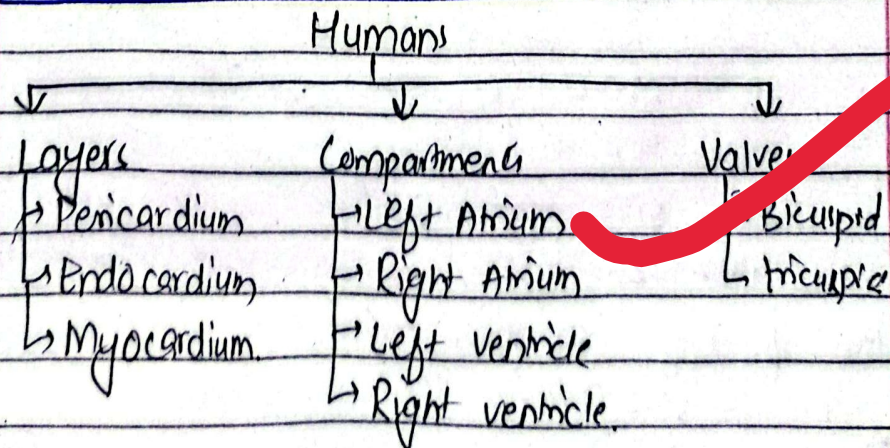
QUESTION #3

PART A:

HUMAN HEART

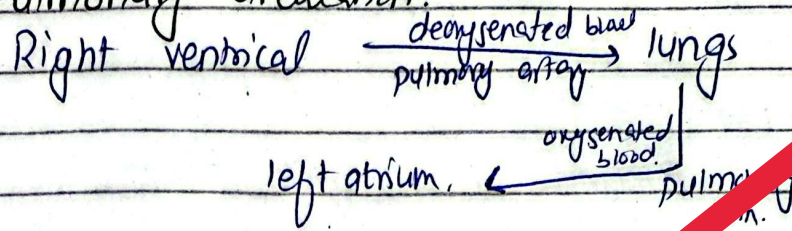
1- HEART: Heart is the primary pumping organ of human body. It is located in chest cavity slightly to the left. Its function is to ensure smooth regulation and pumping of blood through out body.

2- STRUCTURE OF HUMAN HEART:

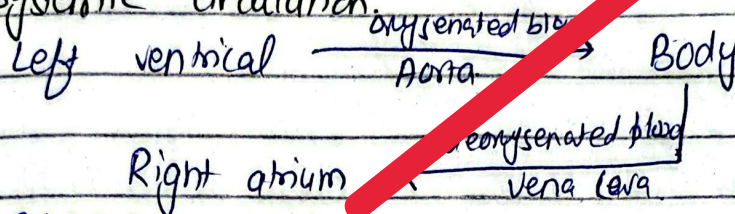


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Pulmonary circulation:

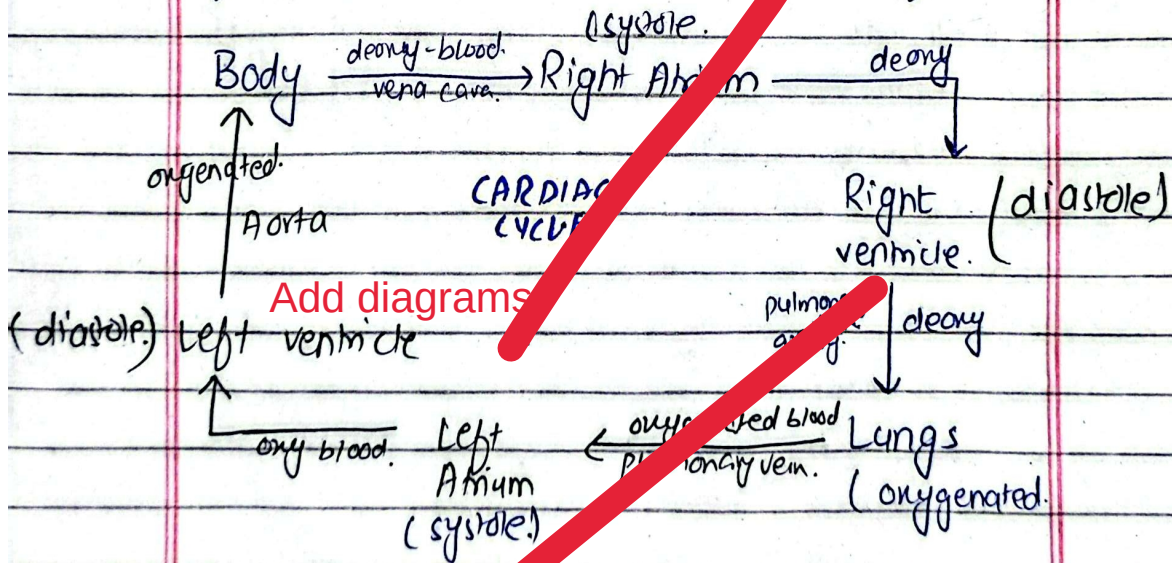


Systemic circulation:



4- CARDIAC CYCLE:

Cardiac cycle is the full sequence of one pump carried by Heart. It has 2 main phases: systole (contraction of ventricles) and diastole (relaxation of ventricles).



5- REGULATION OF BLOOD PRESSURE BY HEART

The heart regulate blood pressure through heart rate and volume of blood being pumped. Moreover, hormones and autonomic nervous system also play role in increasing and decreasing heart rate.

X = X

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PART B BIOFUELS

1- BIOFUELS: Definition

Biofuels are renewable energy resource that are produced from organic matter like plants, decaying animal, animal waste etc. They are used as an alternative to fossil fuels. Major categories of biofuels include bioethanol, biogas and biodiesel. Bio fuels are mostly used for heating, electricity generation and transport.

2- PRODUCTION OF BIO FUELS:

Production

Bio ethanol	Biodiesel	Biogas
- made from fermentation of corn, sugarcane etc.	- made from transesterification of vegetable oils like soybean & palm oil.	- generated through anaerobic digestion of organic waste. (food, manure)
- Starch is broken down into sugar and fermented by yeast into ethanol. This ethanol is then distilled for use.	- Alcohol is made to react with vegetable oil and animal fats resulting in biodiesel and glycerol.	- Through anaerobic digestion, microbes produce methane gas.

3- ADVANTAGES OF BIOFUELS:

- They are renewable sources of energy.

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- b- Biofuels produce lower level of carbon emission.
- c- Extensive use of biofuels can replace the consumption of fossil fuels.
- d- No sophisticated machinery or process is required for producing biofuels.
- e- They are environmental friendly.
- f- By using animal waste, agricultural plants and food scraps, biofuels lower the overall pollution.

4- DISADVANTAGES OF BIOFUELS:

- i- Biofuels have high production costs.
- ii- The resources required to make biofuels are costlier than fossil fuels.
- iii- To establish a set for biofuel generation, land is required and this creates land use issues as it can cause deforestation or use of arid land.

5 CONTRIBUTION OF BIOFUELS TO REDUCE GHG EMISSIONS:

- Biofuels can be helpful in reducing greenhouse gas emission by
- i- being a substitute for fossil fuels
 - ii- inherently emitting less carbon in atmosphere
 - iii- being energy efficient.

X ————— X