DAY _____ GSA - Mock DATE 20-1-25

SECTION - B

QUESTION : 06

a)

Data :

Working machine value = Rs. 8748 (after 3years)

Each year depriciation = 10%

Value of machine three years ago = ?

SOLUTION :

Finding 10% of current price

$= 8748 \times \frac{10}{100}$

= 874.8 → 10% of current value

Substituting it from original (current) value

= 8748 - 874.8

= 7873.8 → value 1 year before.

Following same method,

$= 7873.8 \times \frac{10}{100}$ => 787.38

= 7873.8 - 787.38 => 7086.42 → value 2 year before

Finally,

$7086.4 \times \frac{10}{100}$ => 708.64

7086.4 - 708.6 => 6377.8

So, the price of the machine 3 years ago:

= Rs. 6377.8 (Answer)

DAY _____ DATE _____

b.

Data :

Father = 4 times daughter's age

After 5 years = 3 times daughter's age

After more 5 years = ?

Solution :

Age of Father × 4 = Age of Daughter

$4x = x \rightarrow (1)$

After 5 years

$4x + 5 = (x + 5) \times 3$

$4x + 5 = 3x + 15$

$x = 10$ → put it in (1)

∴,

The current age of father : 40

The current age of daughter : 10

After 5 years,

Ratio of their age :

15 : 45

After further 5 years,

20 : 50

Hence, 2 : 5

Concluding,

After 5 more years father is 2.5 years of daughter's age.

Ans

DAY _____ DATE _____

c.

Data:

Volume of a football = ?

Diameter = 12 cm.

SOLUTION:

We need radius for volume so,

Diameter = $\frac{12}{2}$

Radius = 6cm

The formula for the volume of a football,

$= \frac{4}{3}\pi r^3$

$= \frac{4}{3}\pi (6)^3$ (considering $\pi = 3.14$)

$= \frac{4}{3}(3.14) \times 216$

$= \frac{4}{3} \times 678.24$

$= 904.32 \text{ cm}^3$

Answer: 904.32 centimeter cube.

DAY _____ DATE _____

d.

Data:

Train in opposite direction.
Crosses a man in = 27 seconds, 27sec.
Crosses each other = 23 seconds.
Ratio of their speed = ?

SOLUTION:

If speed of one train is 'x', then speed of another train is 'y'.

Now,
We know that
Length of the train = Speed x Time,
1st Train = $27x$
2nd Train = $17y$
Equating,

$$27x + 17y = 23$$

Dividing it with the sum of speed,

$$\frac{27x + 17y}{x + y} = 23$$

$$27x + 17y = 23x + 23y$$
$$27x - 23x = 23y - 17y$$
$$4x = 6y$$
$$\boxed{2x = 3y}$$

Ratio of their speed,

$$\boxed{2 : 3}$$

(Answer)

DAY _____ DATE _____

QUESTION : 07

a)

Data:

Avg. of 7 consecutive number is = 20

Largest of them = ?

SOLUTION:

7 consecutive numbers,

$x, x+1, x+2, x+3, x+4, x+5, x+6.$

Avg is

$$= \frac{x + x+1 + x+2 + x+3 + x+4 + x+5 + x+6}{7} = 20$$

$$\left(\text{because, Avg.} = \frac{\Sigma x}{\text{no. of terms}} \right)$$

$$\frac{7x + 21}{7} = 20$$

$$7x + 21 = 140$$

$$7x = 140 - 21$$

$$x = \frac{119}{7}$$

$$\boxed{x = 17}$$

If x is 17 then largest is,

$$= x + 16 \Rightarrow 17 + 6$$

$$= \boxed{23}$$ Largest number

(Ans.)

DAY _____ DATE _____

b)

Data:

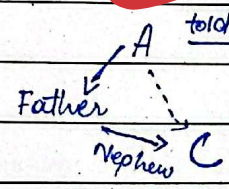
A told B = C is his father's nephew.

D = A's cousin

D = not brother of C

How D and C relates ? ?

Solution:



→ (A)

From the statement we came to know that

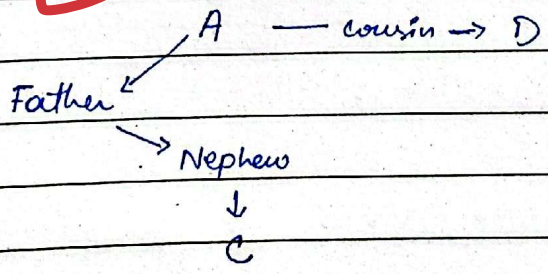
A = Male.

Other condition we have,

D $\xrightarrow{\text{cousin}}$ A — (B)

Also, D and C = not brothers.

Following (A)



Following this,

D is the uncle of C.

DAY _____ DATE _____

c.

Data:

Find missing number of the series.

SOLUTION:

(i) 4, 18, _____, 100, 180, 294, 448

The series is going on $x^3 - x^2$

So,

$2^3 - 2^2 = 8 - 4 = 4$

$3^3 - 3^2 = 27 - 9 = 18$

$4^3 - 4^2 = 64 - 16 = 48$

$5^3 - 5^2 = 125 - 25 = 100$ ...

Answer: 4, 18, 48, 100, 180, 294, 448.

(ii) 1, 2, 10, 37, 101, _____.

The series follows, cubes of next number,

$1 + 1^3 = 1 + 1 \Rightarrow 2$

$2 + 2^3 = 2 + 8 \Rightarrow 10$

$10 + 3^3 = 10 + 27 \Rightarrow 37$

$37 + 4^3 = 37 + 64 \Rightarrow 101$

$101 + 5^3 = 101 + 125 \Rightarrow 226.$

Answer: 1, 2, 10, 37, 101, 226.

DAY _____ DATE _____

(iii) 11, 17, 39, 85, ____

11, 17, 39, 85, 136.

(iv) 13, 24, 46, 90, 178, ____.

The series is following : (last number × 2) − 2

13 × 2 = 26 − 2 ⇒ 24 ....

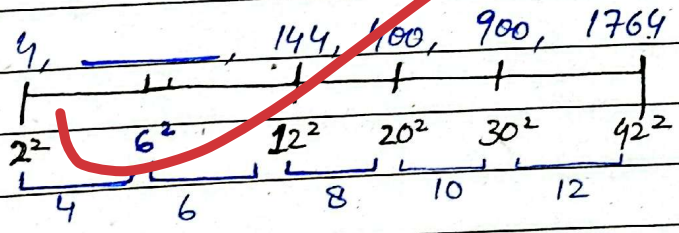
90 × 2 = 180 − 2 ⇒ 178

178 × 2 = 356 − 2 ⇒ 354

Answer : 13, 24, 46, 90, 178, 354.

(v) 4, ____, 144, 400, 900, 1764

The series is following 'square' but in a proper form,



Answer: 4, 36, 144, 400, 900, 1764.

DAY DATE

d)

Data:

Money distributed in Ratios

A : B = 1 : 2

B : C = 3 : 2

C : D = 3 : 4

Diff. in shares of A and D = 2240

B's share = ?

SOLUTION:

A : B :: C : D

1 : 2 :: 3 : 2

2 : 6 ⇒ 1 : 3

1 : 3 :: 3 : 4

4 : 9

A's share, $\frac{1}{17}$

D's share, $\frac{9}{17}$

Diff. of A and D to solve B's share:

$\frac{9}{17} - \frac{1}{17} = \frac{8}{17} = 2240$

Diff. of A and D share, = 4

$\frac{3}{17} = 2240 \Rightarrow$ 12693.3 B's share

Ans

DAY _____ DATE _____

SECTION - A

QUESTION : 04

a)

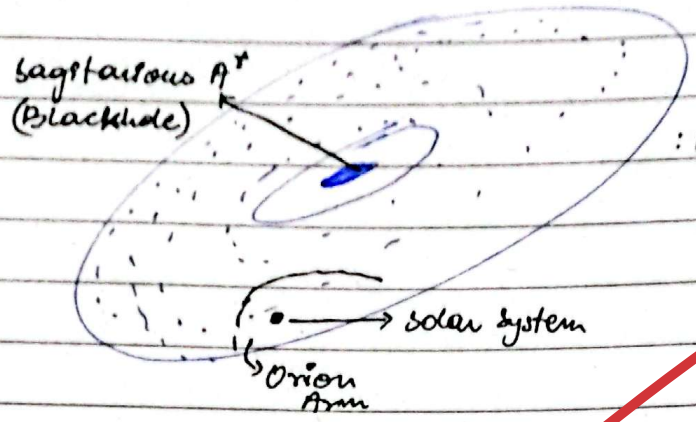
1. **SOLAR SYSTEM**

Solar system is a collection of planets, moons, and other space bodies such as asteriods that revolve around a sun. All the planets in solar system have their own gravity but sun's gravity dominates.

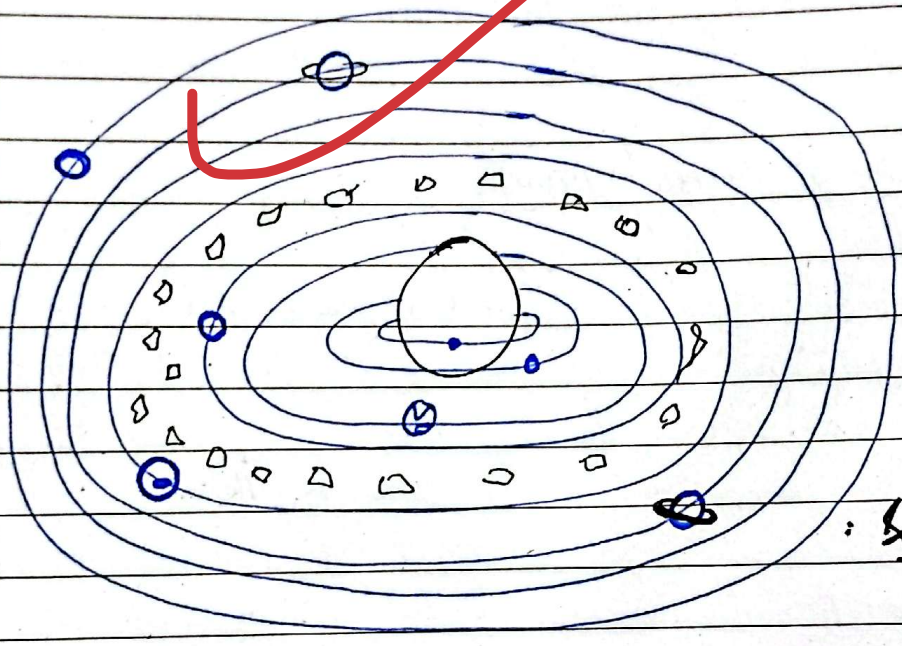
2. **FACTS ABOUT SOLAR SYSTEM :**

i) Our solar system is 4.6 bn years old
ii) Our solar system has star or sun at the center that is a yellow dwarf.
iii) The astronomical name of sun is Helio.
iv) Our solar system has eight planets in total.
v) The planets are either rocky or gaseous in solar system.
vi) There is an asteroid belt in our solar system that is between mars and Jupiter.
vii) Every planet revolves around the sun and its own axis
viii) The sun also revolves around its own axis along with around the blackhole, Sagitarious A*, at the center of Milkyway.
ix) Until now, sun has revolved around 22 times around milkyway, known as galactic year.
x) Our solar system is in Orion belt of Milky way.

DAY_____ DATE_____



: Milky way



: Solar system

3. Planets:

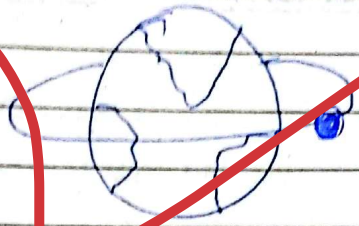
i.	Mercury	v.	Jupiter
ii.	Venus	vi.	Saturn
iii.	Earth	vii.	Uranus
iv.	Mars	viii.	Neptune

- Venus has longest day in our solar system.
- Jupiter has the shortest day
- Mercury has the shortest years.
- Neptune has the longest years.
- Earth is known as blue planet.
- Moon of Earth is tightly locked. (to Earth's gravity)

DAY _____ DATE _____

- Saturn has the most number of moons (100+).
- Only Uranus and Saturn have ~~big~~ rings.

4. EARTH:



- Earth is the only planet with life.
- Earth has one moon known as Luna
- Earth is 23.5° tilted to its axis
- It takes 365.25 days to have our year on earth
- Astronomical name of Earth is Terra.
- Earth has Oceans, Rivers, Atmosphere that make life possible.

X ═══ X

b.

1. PITUITARY GLAND:

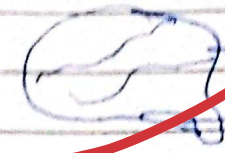
It is gland in human brain, at the base, that controls other glands. Its functioning is important for overall body.

2. FUNCTION OF PITUITARY GLAND

i) It releases hormones and command other glands to do so.

ii) It also regulates bodily functions.

DAY DATE



3. SIGNIFICANCE OF PITUITARY GLAND

i) Regulates sweating
ii) Controls and manages hormonal discharge
iii) It helps in growth of overall body.
iv) Metabolism is controlled by it.
v) Reproduction is facilitated by it.
vi) Salt balance in body
vii) Stress management is also done by it.
viii) It is known as Master Gland because it controls all other glands.

X ——— X

C.

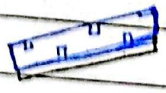
RAM:

It stands for Random Access Memory. It is computer's main memory, storing data for the time being.

ROM:

It stands for Read-only memory. It is used for permanent storage of data. Without it, data will be deleted once computer is shut-down.

DAY _____ DATE _____



RAM

USB Hard drive

ROM

3. DIFFERENCE BETWEEN RAM AND ROM

RAM	ROM
• Volatile memory storage	• Non-volatile storage.
• Quick access for running programs	• Used for computer's instructions only.
• Faster speed	• Slow in speed
• Less storage	• More storage
• Active when not done.	• Works in background.
• Examples: Flash memory, SD-RAM	• Examples: USB, Hard-drives.

4. NIBBLE

Unit of data composed of 4 bites. It is less than a byte which is of 8 bites. It is a way of transmitting information.

• Application:

i. In programming language such as Phython.

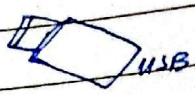
ii. low-level programming.

Good attempt

DAY

5. **USB**

It stands for Universal serial bus. (USB). It is used for storage purpose mainly. USB can also exchange information.



- **FUNCTION:**

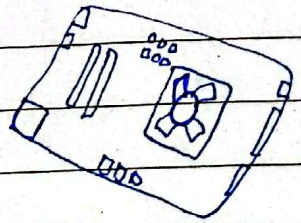
i. Storage of data for longer period of time.
ii. File transfering.
iii. Upload Data.

4. **MOTHERBOARD**

It is a circuit board in a computer. Its purpose is to let all the components of PC communicate with each other.

- **SIGNIFICANCE :**

It connects all the transistors, components and wires on single platform.
Backbone of PC.
Without it, RAM, hard-drive, graphic cards cannot work.
All components are connected on it with peripheral connections.



Motherboad.

DAY _____ DATE _____

d.

1. **COP29:**

COP29 happened in Baku where 200+ countries participated along with NGOs and independent bodies to discuss climate challenges. This was the 29th Conference of Party (COP) under UNFCCC of UN.

2. **AIMS OF COP29:**

i. Limit global temp. to 1.5°C
ii. Regulate Climate Fund.
iii. Switch to renewables.

3. **COP29 IS A FAILURE:**

It is a failure because the proposal adopted by developing world to finance climate fund was not accepted by majority of countries. Other than that there was no sanction over non-renewable energy sources. Lastly, global temperature has surpass the 1.5°C so it is vague to point out to aim.

4. **IMPLICATIONS OF COP29:**

i. Global temperature limit put to 1.75°C now.
ii. Climate fund is a myth.
iii. The world will witness another record breaking climate disaster year due to COP29 failure.

X ═══ X

DAY _____ DATE _____

QUESTION : 03

a)

1. **PROTEINS**

They are made up of chemical bonds called amino acid. Their function is to repair muscles and bones. They are the sources of energy, without them a person feels lazy.

2. **SOURCES:**

i. Fish.

ii. Meat.

iii. Eggs.

3. **DIGESTION OF PROTEIN**

i) **Chewing:** First step of digestion through teeth.

ii) **Stomach:** Hydrochloric acid in stomach break down proteins in food.

iii) **Small Intestine:** The amino acid are further break-down here. Then absorbed in body.

4. **CARBOHYDRATES**

They are sugar molecules basically. Carbohydrates provide energy to a body Glucose is their product that is used by body to regulate sugar levels in the blood. $C_6H_{12}O_6$ is its example.

DAY _____ DATE _____

5. SOURCES :

i. Grains
ii. Bread
iii. Rice

6. WHY IS IT IMPORTANT

It is one of the main nutrient a body requires besides protein and fats. If excessive levels can be dangerous, causing diseases.

Nutrition IN A BODY

Carbohydrates | Protein | Facts

7. DIGESTION OF CARBOHYDRATES

Its breakdown is common as protein but after small intestine, it goes into bloodstream and cells. In this way, sugar in blood is managed. If sugar level high then insulin is released by pancreas.

Mouth → Stomach → Small intestine

↓

Cells ← Blood stream

DAY _____ DATE _____

b)

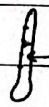
1. **ATMOSPHERIC PRESSURE:**

It's the force exerted by the air pressure upon a body. This exists due to the pull of Earth's gravity. Barometer is used for its measurement. It is measured in 'bars'. On average, 14.7 pounds per square inch is the atmospheric pressure on Earth. It decreases with altitude, therefore, water does not boil at 100°C on mountain top. This occurs due to the inverse relation between pressure and temperature.

2. **TEMPERATURE:**

It is the average increase or decrease of kinetic movement of particles in a certain place. Thermometer is used for its measurement. It holds inverse relation with pressure, but direct with volume. Celcius, Farenheit or kelvin scale is used for its unit. It defines sustainable environment for living thing.

Barometer

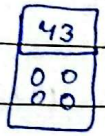


Thermometer

- Normal body temperature is 96°F - 98°F
- Mercury is used in thermometer.

3. **HUMIDITY**

The amount of water vapours in environment is called humidity. It helps to maintain moisture and temperature in the air and surrounding. Its significance can be seen in Australian bush fire, California fire that happened due to lack of moisture. However, excessive humidity is also bad as it can cause water everywhere from buildings, to tables. This recently happened in China To put things in perspective, hurricans are the result of high humidity. It is measured by hygrometer in gram per meter cube.



c.

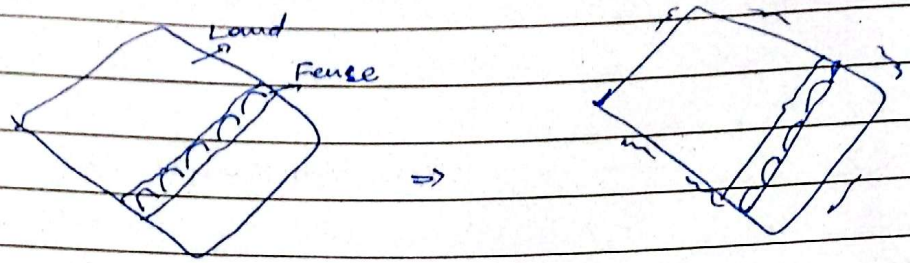
EARTHQUAKE:

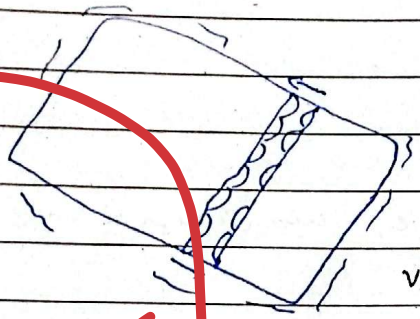
It is a natural phenomenon that is caused because of the movement of plate tectonics. It is short-lived from seconds to minutes. Earthquake have three stages,

i. Focus
ii. Origin
iii. Event

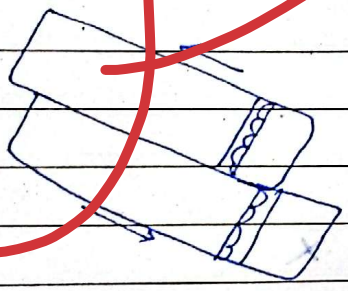
DAY DATE

2. EPHEMERON OF EARTH-QUAKE





Vibrations making plates going divergent.



Land is divergent because of Earthquack.

x ═══ x

d.

RADAR

It is a system that uses radio waves to determine distance, direction and velocity of an object. It works under high skill-set and usually used for military purpose.

DAY DATE

WORKING OF RADAR

Radar stands for 'Radio Detection and Ranging'. Its working is as,

SENDS SIGNAL :

A radar sends signal out in radio waves. The waves bounce off and return to radar.

Analysis by RADAR

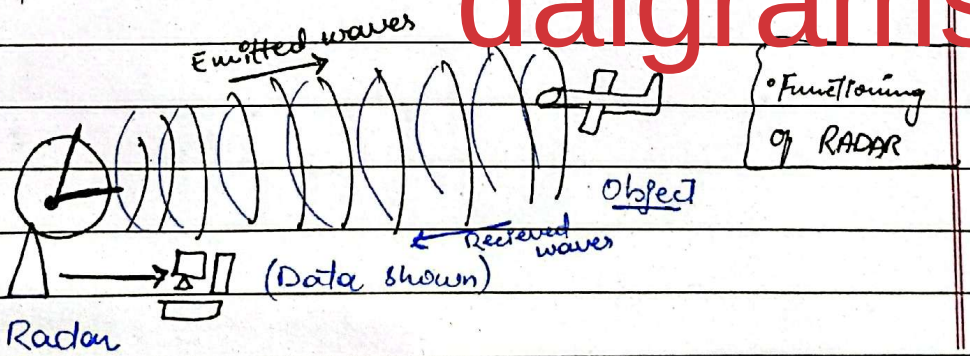
Radar analyses the amount of time in sending and recieving to estimate the distance. It further analyses the frequency of 'sent signal' with 'received signal' to know the velocity of object.

OUTPUT

Radar then provides user with output in the form of visual data or numericals. It is common in many places.

APPLICATIONS

Air traffic control, self-driving cars, Fighter planes, police radar to catch over-speed.



• Functioning of RADAR

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