

Mock Exams for CSS 2026
General Science and Ability
073 - Ifrah Naeem. 40799

Part - II
Section - I

Question : 03

a. ~~a~~ Why cells form organelles? Discuss mitochondria in a human cell:-

- Cells form organelles to compartmentalize different biochemical activities that makes the cellular process more efficient. Each organelle perform a special function that allows a cell to survive and function properly.

• Mitochondria in human cell:-

Mitochondria is the powerhouse of a cell. Mitochondria is a double membrane organelle found in some cells that also includes human cells. Their main function is to produce energy through cellular respiration.

b. What is doping? Discuss different types of semiconductors:-

- Doping is the process of adding small amount of impurities in a pure semiconductor to improve its electrical conductivity.
- Types of semiconductors:-

There are two types of semiconductors.

- n-type semiconductors.
- p-type semiconductors.

1- n-type semiconductors:-

→ They are formed by pentavalent impurity like phosphorus. These atoms donate extra electrons.

2- p-type semiconductors:-

→ They are formed by trivalent impurity like These atoms accept electrons.

c. State some merits and demerits of volcanic eruption:-

Merits:-

Some merits of volcanic eruption include,

- 1- The volcanic ash add minerals to the soil that is beneficial for agriculture.
- 2- They also release gases that are useful for industrial purposes-
- 3- They create mountains and also islands.

Demerits:-

- 1- It causes loss of life-
- 2- Volcanic eruption destroys property and lead to human population displacement.
- 3- The gases that are released from volcanos are toxic and it pollutes air and atmosphere.

d. What is dengue? Discuss symptomology, causative agents and remedies:-

Dengue is a viral infection caused by a mosquito bite. It is transmitted usually by the *Aedes aegypti* mosquito.

• **Symptoms:-**

Its symptoms include,

1. High fever.
2. Headache.
3. Pain behind eyes.
4. Vomiting.
5. Muscle and joints pain.

• **Causes :-**

Aedes mosquito is the cause of dengue virus.

• **Remedies:-**

No specific treatment exist for dengue virus. But some of the measures taken are using nets, taking rest, hydration and fever control medicines.

Question : 04

c. Discuss different methods of Solid Waste Management:-

Solid Waste Management is the collection, and disposal of solid waste materials in a way that is safer for the environment.

- Some of its methods include,
 1. Burying it in special land area.

2. Burning at high temperature to create energy.
3. Recycling some items like plastic, glass and paper etc.

b. Describe the role of ribosomes in protein synthesis:-

- Ribosomes are small organelles found in cytoplasm or they are attached to the rough endoplasmic reticulum. They are made up of RNA and proteins.
- Ribosomes are the sites of protein synthesis. The mRNA that is messenger RNA carries the genetic code from DNA to ribosomes and transfer RNA (tRNA) brings amino acids to ribosomes.
- Ribosomes link amino acids together to form a chain which creates a functional protein.

d. Define the terms:-

i) Biofuel:-

Biofuel is a renewable energy source made from plants and animal waste. They help reduce the dependency on fossil fuels.

iii) Hydrosphere:-

Hydrosphere includes all the water bodies on earth that takes 71% of earth's surface including

lakes, sea, water vapors and ice caps etc.

W) Troposphere:-

Troposphere is the lowest layer of Earth's atmosphere. It extends to 8-15 km above earth surface and contains atmospheric gases.

Section-II

Question : 06

- a. A store has packets of candies in flavors Apple, Berry, Cherry and Date in the ratio 3:6:2:5. If Apple candies exceed Date candies by 35, how many berry candies are there?

- The given ratio is,

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

- Let x be the common multiplier,

$$A : B : C : D = 3x : 6x : 2x : 5x$$

- If apple candies exceed date by 35,

$$\Rightarrow 3x - 5x = 35$$

$$-2x = 35$$

$$x = -17.5 \text{ or } 17.5$$

Since,

$$\text{Berry} = 6x = 6(17.5)$$

$$= 105 \text{ berry candies.}$$

- b. A camera priced at 200\$ gets 25% off plus 6% tax. Calculate the total amount paid:-

- Price = 200\$
Discount = 25% = $\frac{25}{100} \times 200 = 50\$$
→ Price after discount = ~~200~~ $\times 200 - 50$
= 150\$
- Tax = 6% of 150\$
= $\frac{6}{100} \times 150 = 9\$$
- Final price = 150 + 9 = 159\$

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

- Bicycle covers 18 km/hr
~~which~~ means,
- Time = $\frac{\text{distance}}{\text{speed}} = \frac{36 \text{ km}}{18 \text{ km/h}} = 2 \text{ hours}$
- Starting Time = 1pm
- Arrives at 3:00 pm

- d. Unscramble the terms:-

- STSTAICITS
→ STATISTICS
- LGEBMAR
→ ALGEBRA

Date: _____

Day: _____

Question : 07

- a. Calculate volume of a sphere with diameter 14 cm :-

Since,

$$\text{Diameter} = 14 \text{ cm}$$

$$\rightarrow \text{Radius} = \frac{14}{2} = 7 \text{ cm}$$

We know that,

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

$$= \frac{4}{3} \times \frac{22}{7} \times (7)^3$$

$$= \frac{88}{21} \times 343$$

$$= \frac{4312}{7} = 1437.33 \text{ cm}^3$$

- b. Five friends, total saving = 25000 Rs.
ratio 1:2:3:4:5 - Find the smallest share :-

$$\Rightarrow \text{Total shares} = 1+2+3+4+5$$
$$= 15$$

$$\Rightarrow \text{Savings} = 25000$$

$$\text{Per share contain} = \frac{25000}{15} = \frac{5000}{3}$$
$$= 1666.66$$

hence the smallest share is

$$\boxed{1666.67 \text{ Rs}}$$

c. Spot the error / Complete the series:-

i. 2, 6, 18, 54, 162, 486

Series contains numbers increasing by multiplying by 3.

As,

$$2 \times 3 = 6 \times 3 = 18 \times 3 = 54 \dots$$

but $162 \times 3 = 648 \rightarrow$ is the error.

Correct series is,

$$2, 6, 18, 54, 162, 648$$

ii. 3, 5, 7, 11, 13, ?

3, 5, 7, 11, 13, 17 (prime numbers)

d. Triangle with sides 5 cm, 12 cm, 13 cm. Find all angles:-

Let the 3 sides be a, b and c respectively then,

$$a = 5 \text{ cm}$$

$$b = 12 \text{ cm}$$

$$c = 13 \text{ cm}$$

$$\text{Since, } (5)^2 + (12)^2 = 169 = (13)^2$$

• means it is a right-angled triangle.

Hence angle opposite to side c is 90°

• If $\theta_1 = 90^\circ$

Then,

~~$$\cos \theta_1 = \frac{5}{13}$$~~

Also,

~~$$\cos \theta = \frac{(12)^2 + (13)^2}{5^2}$$~~

• $\sin \theta_2 = \frac{5}{13} \Rightarrow \theta_2 = 22.6^\circ$

• $\theta_3 = 180 - 90 - 22.6 \Rightarrow \theta_3 = 67.4^\circ$