

Mock Exam CSS-2026
January 2026 (Final Mock)
General Knowledge
General Science and Ability

Q. No. 2

(a).

There are several theories about the creation of universe out of which Big Bang Theory is the prominent one. According to this theory the structure of the universe emerges from expansion, gravity and physical laws over time.

Singularity:

According to this theory the entire universe was inside a bubble. It was hotter and denser. The explosion resulted and universe was created.

Formation of Galaxy

The Universe grew from smaller than a single atom to bigger than galaxy. Expansion and cooling resulted into changing of energy to matter and anti-matter. These opposite particles destroyed each other and some matter survived.

(b).

Urinary system

The urinary system filter waste and excess fluid from the blood to produce urine, maintaining the body's water, electrolyte and pH balance and consists of kidneys, ureters, bladder and urethra.

Structure and function of nephron

Nephron is the structural and functional unit of kidney. Nephrons are arranged along both cortex and medulla region.

There is a cup shape structure present at proximal end of nephron called Bowman's Capsule. From Bowman's capsule there arises a long narrow tube, which is further divided into 3 parts

- convoluted part as proximal
- long U shape part
- distal tubule.

The function of the nephron includes filtering, reabsorbing and secreting glutamate, carbohydrates and solutes.

(C).

Unbalanced Diet:

A diet which lacks all the essential nutrients of food in a proper portion is called unbalanced diet.

An unbalanced diet example is one heavy processed foods, sugar drinks and refined carbs like (chips, soda, white bread, pastries while lacking fresh fruits vegetables, whole grain and sufficient protein.

Effects of unbalanced diet

While relying on a balanced diet is good for health but an unbalanced diet can lead to negative effects of human health. An unbalanced diet in health leads to major health problems like obesity, Type 2 diabetes, heart disease, cancers and hypertension. It weakens the immune system and can be very harmful in a long run. One might see the effects of unbalanced diet in ~~late~~ old age.

Q3.

(a)

While Global warming cannot be reversed overnight but it can be slow and limited by reducing human emissions of heat-trapping gases and black carbon. Alternative methods to slow or reduce global warming have been proposed that are collectively known as "climate engineering" or geoengineering. Some geoengineering proposals involve cooling Earth surface by injecting reflective particles into upper atmosphere to scatter and reflect sunlight back to space.

(c).

Working of optic fibers:

An optical fiber transmits information as light, not electricity, using total internal reflection

Core $\rightarrow$ thin glass / plastic with high refractive index.

Cladding $\rightarrow$ surrounding layer with lower refractive index.

Jacket $\rightarrow$ mechanical protection

The

1. Light enters the fiber at a suitable acceptance angle.
2. Inside the core, the light hits the core-cladding boundary.
3. Because the core has a higher refractive index, light reflects back entirely instead of escaping.
4. This reflection repeats along the fiber, guiding light over long distances.

Working of a Mobile phone:

A mobile phone is a two-way radio system connected to a cellular network.

The coverage area is divided into cells. Each cell has a cell tower.

The phone is always connected to the nearest tower.

Section - B

(a).

- Ahsan's brother's only daughter - Ahsan's niece
- That niece is the granddaughter of the woman.
So the woman must be the mother of Ahsan's brother → Ahsan's Mother.

(b).

Given Data

Ratio of Length : Breadth = 3 : 2

Speed = 12 km/hr

time = 8 mins

 $= 8 \times 60$ $= 480 \text{ sec or}$ $2/15 \text{ hr}$ find ~~per~~ Perimeter.Distance = Speed $\times$ Time

$$= 12 \times \frac{2}{15} = 1.6 \text{ km}$$

$$P = 1600 \text{ m}$$

Let dimensions

Length = $3n$ width = $2n$

Perimeter

$$2(3n + 2n) = 10n = 1600$$

$$n = 160$$

$$\text{Area} = 3n \times 2n = 6n^2$$

$$= 6(160)^2$$

$$= 153600 \text{ sq.m}$$

(C)-

Given.

- Unit digit = Ten digits + 2
- Number $\times$ (Sum of digits) = 144

Let ten digit = x

$$\text{Unit digit} = x + 2$$

$$\text{Number} = 10x + (x + 2) = 11x + 2$$

$$\text{Sum of digits} = 2x + 2$$

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

$$x = 2$$

$$\text{Number} = 24$$