

CUET PG 2025 Botany Memory based Question Paper With Solution

1. What is the botanical name of Methi (Fenugreek)?

Answer:

The botanical name of Methi (Fenugreek) is **Trigonella foenum-graecum**.

Fenugreek is a herb commonly used in cooking and has a long history of medicinal use. It is primarily cultivated for its seeds, which are known for their distinct aroma and bitter flavor.

The seeds are rich in protein, fiber, and antioxidants.

Quick Tip

Fenugreek is often used to manage blood sugar levels and promote digestion, and it is widely recognized for its medicinal properties.

2. White jute is obtained from which plant?

Answer:

White jute is obtained from the plant **Corchorus capsularis**.

White jute, also known as the superior variety of jute, is a natural fiber widely used for making bags, ropes, and textiles. It is a hardy plant that grows in tropical climates and is an important cash crop in some countries.

Quick Tip

Jute is an eco-friendly alternative to synthetic fibers and is biodegradable, making it an environmentally sustainable choice for textiles.

3. Why do purple and blue colors appear in plants?

Answer:

Purple and blue colors in plants are primarily due to the presence of **Anthocyanins**. Anthocyanins are water-soluble pigments found in the vacuoles of plant cells. These pigments absorb light in the red and blue-green regions of the spectrum and reflect blue, purple, and red wavelengths, depending on the pH and concentration of the anthocyanins.

Quick Tip

Anthocyanins play a role in protecting plants from UV radiation, pests, and environmental stress, and are also known for their antioxidant properties.

4. What elements are found in xylem?

Answer:

Xylem contains the following elements: **Tracheids, Vessels, Xylem Parenchyma, and Xylem Fibres**.

These elements are crucial for the conduction of water and dissolved minerals from the roots to the rest of the plant. Xylem also provides structural support to the plant due to the presence of xylem fibers.

Quick Tip

Xylem is a vascular tissue responsible for water transport and plays a significant role in plant hydration and nutrient transport.

5. Paracytic stomata are found in which plant family?

Answer:

Paracytic stomata are typically found in the **Rubiaceae** family.

Stomata are pores found in the epidermis of leaves, stems, and other organs, allowing gas exchange. In paracytic stomata, two subsidiary cells are positioned parallel to the stoma, facilitating the opening and closing of the pore.

Quick Tip

Paracytic stomata are adapted for efficient gas exchange and are commonly found in plants with high transpiration rates.

6. Phosphorus represents what in plants?

Answer:

Phosphorus is a **Macronutrient vital** for plants.

Phosphorus is essential for energy transfer, photosynthesis, and the formation of nucleic acids and cell membranes. It is a crucial element in DNA and RNA, and it helps in root development and flowering in plants.

Quick Tip

Phosphorus deficiency can lead to stunted growth, poor root development, and delayed flowering in plants.

7. Ethylene is the precursor of which compound?

Answer:

Ethylene is the precursor of **Ethylene oxide**.

Ethylene oxide is a gaseous compound used in industrial applications, such as sterilization and as a precursor in the production of ethylene glycol. Ethylene, a plant hormone, also plays a key role in fruit ripening and stress responses.

Quick Tip

Ethylene is not only important in plant physiology but also has industrial applications due to its role in various chemical reactions.

8. Who conducted the bacterial transformation experiment?

Answer:

The bacterial transformation experiment was conducted by **Frederick Griffith**. Griffith's experiment with *Streptococcus pneumoniae* demonstrated that bacteria could transfer genetic material, a process known as transformation. This laid the foundation for the discovery of DNA as the material responsible for heredity.

Quick Tip

Griffith's experiment was a key milestone in the study of genetics and paved the way for later discoveries, including the structure of DNA.

9. Which enzyme adds the RNA primer during DNA replication?

Answer:

The enzyme that adds the RNA primer during DNA replication is **Primase**. Primase synthesizes a short RNA primer, providing a starting point for DNA polymerase to begin synthesizing the new DNA strand. The primer is essential for initiating DNA replication.

Quick Tip

Primase is crucial in DNA replication as it ensures the correct initiation of the process by providing the necessary RNA primer.

10. What is the interface between G1 and S phase called?

Answer:

The interface between the G1 and S phases is called the **Restriction point**. The restriction point is a checkpoint in the cell cycle that determines whether a cell will proceed into the S phase (DNA synthesis phase) or exit the cell cycle and enter the G0 phase (a resting phase). This point is a critical control mechanism in the regulation of the cell cycle, particularly in response to environmental signals such as growth factors and nutrients.

Quick Tip

The restriction point ensures that a cell only proceeds to DNA replication when conditions are favorable, maintaining genomic integrity.

11. Number of chromosomes in endosperm?

Answer:

The number of chromosomes in the endosperm is **triploid (3n)**.

The endosperm is formed during double fertilization in angiosperms. One sperm cell fertilizes the egg cell to form the zygote (diploid, 2n), and the other sperm cell fertilizes the central cell, which contains two polar nuclei, to form the endosperm (triploid, 3n). The triploid endosperm provides nourishment to the developing embryo.

Quick Tip

The triploid nature of the endosperm ensures that it contains a balanced set of genetic material for its role in nutrient storage for the seed.