MHT CET 2023 Question Paper Shift 2

Question 1. If the gene controls two or more traits, it is an example of?

Answer. Pleiotropy
Solution. If a gene controls two or more traits, it is an example of pleiotropy. Pleiotropy occurs when a single gene affects multiple phenotypic traits. This means that a change or mutation in the gene can have effects on multiple aspects of an organism's phenotype, such as its physical appearance, behavior, or susceptibility to diseases. Pleiotropy is an important concept in genetics because it helps to explain why some genetic disorders can have multiple symptoms and why seemingly unrelated traits can be inherited together.

Question 2. In angiosperms anther are mostly?

Answer. Pollen grains
Solution. In angiosperms, the anthers are mostly the male reproductive structures that produce and contain the pollen grains. Anthers are part of the flower's stamen and are usually located at the top of a thin stalk called the filament. The anthers are composed of two lobes called microsporangia, which contain the microsporocytes, the cells that undergo meiosis to produce the microspores. The microspores then develop into the male gametophyte or pollen grain. The shape, size, and number of anthers can vary among different species of angiosperms. For example, some flowers have only one anther, while others may have multiple anthers fused together in a ring or in other configurations.

Question 3. After fertilization which hormone helps ovary to become fruit?

Answer. Auxin
Solution. After fertilization, the hormone that helps the ovary to become a fruit is called auxin. Auxin is a plant hormone that plays a critical role in many aspects of plant growth and development, including the formation of fruits. After fertilization, the developing embryo produces auxin, which is transported to the ovary. The auxin then stimulates the ovary to develop into a fruit, a process known as fruit set. The auxin hormone promotes cell division and enlargement in the ovary, causing it to grow and develop into a mature fruit.

Other hormones such as cytokinins, gibberellins, and abscisic acid also play important roles in fruit development and maturation, but auxin is primarily responsible for initiating fruit development after fertilization.

Question 4. The term genome was introduced by?

Answer. Dr. Hans Winkler in 1920.
Solution. The term "genome" was introduced by Dr. Hans Winkler in 1920. Winkler was a German botanist who was studying the chromosome number of the plant species Hieracium, commonly known as hawkweed. In his research, Winkler observed that different species of hawkweed had different chromosome numbers, which led him to propose the concept of a "genome" as the complete set of genetic information contained within an organism's chromosomes.

The term "genome" is now commonly used to refer to the complete set of DNA sequences that make up an organism's genetic material, including all of its genes, regulatory sequences, and non-coding regions. The study of genomes has become an important area of research in biology and genetics, and has led to many advances in our understanding of the

structure and function of genes, as well as the evolution and diversity of life on Earth.

Question 5. Which part of the brain does not have its own source of ventricle?

Answer. Cerebral cortex
Solution. The cerebral cortex is the part of the brain that does not have its own source of ventricles. The ventricles are a network of interconnected, fluid-filled spaces within the brain that help to cushion and protect the brain from injury. There are four ventricles in the brain: the two lateral ventricles, the third ventricle, and the fourth ventricle.

While the cerebral cortex is a highly convoluted and folded outer layer of the brain that plays an important role in perception, consciousness, and voluntary movement, it does not contain any ventricles of its own. Instead, the ventricles are located deeper within the brain, surrounded by other structures such as the thalamus, hypothalamus, and brainstem. The cerebral cortex is supplied with cerebrospinal fluid (CSF) that is produced in the ventricles and flows around and through the brain and spinal cord, helping to provide nutrients and remove waste products.

Question 6. Which stone secretes amino acids?

Answer. Cystine stone

Question 7. Which is used as a source of ATP during Kreb cycle?

Answer. NADH

Question 8. Which nitrogen base is not present in RNA?

Answer. Thymine

Solution. Thymine (T) is not present in RNA. Instead, RNA contains the nitrogenous base uracil (U), which is similar in structure to thymine but lacks a methyl group. Both thymine and uracil are pyrimidine bases, but thymine is found only in DNA, while uracil is found only in RNA.

In RNA, uracil pairs with adenine (A) in the complementary strand, while in DNA, thymine pairs with adenine. This base pairing allows for the formation of the double-stranded structures in both DNA and RNA.

Question 9. How many ATP molecules are formed during substrate level phosphorylation?

Answer. 6

Question 10. Due to protein deficiency, which disorder is seen in infants?

Answer. Marasmus