MHT CET 2024 Solution 29 April Shift 2

Ques 1. The cells that usually store fats in animals' bodies are
Answer: Adipocyte
Solution: Adipocytes are specialized cells that store energy in the form of fat. They are found in adipose tissue and are crucial for energy storage and insulation in animals.

Ques 2. Humification results in the formation of substance called humus.
Answer: Amorphous
Solution: Humus is an amorphous, dark, organic material in soil that results from the decomposition of plant and animal matter. It plays a crucial role in soil fertility and structure.

Ques 3. Out of 95% of sulfur water lost by plants in the atmosphere through aerial parts, the water lost in liquid form constituents is
Answer: Guttation
Solution: Guttation is the process where plants exude water droplets, usually from the tips or edges of leaves, due to root pressure. This is different from transpiration, where water is lost as vapor.

Ques 4. After four successive mitotic divisions of cell arithmetic growth pattern the total number of cells that have lost the ability of cell division is/are
Answer: 4
Solution: In an arithmetic growth pattern, one cell divides to produce two cells, then one of these divides again, and so on. After four mitotic divisions, the first cell has produced 16 cells, and of these, only 4 are the original cells that can no longer divide.

Ques 5. Select the correct statements :

1) The air sac of each tertiary bronchi shows 10 to 12 alveoli.
2) Each alveolus is surrounded by a network of capillaries.
3) They are lined by ciliated pseudostratified epithelium.
4) They provide surface area for the exchange of gases.
5) There are about 700 million alveoli.

Answer: 1, 2, 4, 5

Solution: Alveoli are tiny air sacs in the lungs that provide a large surface area for gas exchange. They are surrounded by capillaries and are essential for oxygen and carbon dioxide exchange. The lining is simple squamous epithelium, not ciliated pseudostratified epithelium.

Ques 6. Which of the following cases decreases blood pressure?
A Blood loss in accident.
B Inelasticity of blood vessels.
C Increase in peripheral resistance.
D Increase in secretion of ADH.
Answer: A
Solution: Blood loss in an accident decreases blood volume, leading to a drop in blood pressure. Other factors listed either increase blood pressure or maintain it.

Ques 7. Which pair of glands are dual in origin:
A Adrenal gland and Placenta
B Pituitary gland and Adrenal gland
C Thyroid gland and Pituitary gland
D Pituitary gland and pineal gland
Answer: B
Solution: Both the pituitary gland and adrenal gland have dual origins. The pituitary gland has an anterior part from oral ectoderm and a posterior part from neural ectoderm. The adrenal gland has a cortex from mesoderm and a medulla from neural crest cells.

Ques 8. Two pollen grains consist of.
A One vegetative and one male gamete
B Two male gametes
C One vegetative cell and one generative cell
D One generative cell and one male gamete
Answer: C
Solution: Pollen grains typically contain one vegetative (tube) cell and one generative cell. The generative cell divides to form two male gametes.

Ques 9. Crystalline structure, sweet taste, and water solubility are characteristic features of_____ ?
Answer: Monosaccharides
Solution: Monosaccharides, such as glucose and fructose, have a crystalline structure, are sweet-tasting, and are highly soluble in water due to their hydrophilic nature.

Ques 10. Nonliving pairs of colloid aggregation of lipids are ___ and proteinoids are respectively.
Answer: Micelles, Coacervates
Solution: Micelles are aggregates of lipid molecules in water, while coacervates are aggregates of colloidal droplets of proteins and other molecules.

Ques 11. Most abundant glial cells of CNS are ?
Answer: Astrocytes
Solution: Astrocytes are the most abundant type of glial cells in the central nervous system (CNS). They support neurons and maintain the blood-brain barrier.

Ques 12. Exudation of xylem sap at the cut ends of the stem is due to ___ pressure.
Answer: Root
Solution: Root pressure causes the exudation of xylem sap at the cut ends of the stem. It results from the osmotic uptake of water by roots.

Ques 13. A new breed of sheep developed from the crossing of Bikaneri is _____ .
Answer: Crossbred sheep
Solution: Crossbreeding Bikaneri sheep with other breeds results in a new breed with improved characteristics, often referred to as crossbred sheep.

Ques 14. Match the following
Animal Excretory Organs
1. Earthworm - Green gland
2. Crustaceans - Metanephridia
3. Insects - Tube feet
4. Echinoderms - Malpighian tubules
Ans. 1-b, 2- a, 3- d, 4- c
Solution: The correct matching is:
1. Earthworm - Metanephridia
2. Crustaceans - Green gland
3. Insects - Malpighian tubules
4. Echinoderms - Tube feet

Ques 15. During DNA replication, the breaking of hydrogen bonds between two parental strands and their unwinding is catalyzed by _____ enzymes.
Answer: Helicase
Solution: Helicase is the enzyme that unwinds the DNA double helix by breaking the hydrogen bonds between the two strands during DNA replication.

Ques 16. The incubation period in syphilis is normally
Answer: 3-4 weeks
Solution: The incubation period of syphilis, caused by the bacterium Treponema pallidum, is typically 3-4 weeks from exposure to the appearance of the first symptoms.

Ques 17. The presence of large odour and dull flowers are Seen in which type of pollination.

Answer: Entomophilous

Solution: Entomophilous pollination is carried out by insects. Such flowers are often large, dull-colored, and produce a strong odor to attract insects.

Ques 18. Sequence from fertilization to Gestation.

Answer: Zygote – Morula – Blastula–Gastrula

Solution: The correct sequence of developmental stages from fertilization to early embryo development is: Zygote → Morula → Blastula → Gastrula.

Ques 19. How many ATP are used in glycolysis.

Answer: 2 ATP

Solution: In glycolysis, 2 ATP molecules are used in the initial steps of the pathway to phosphorylate glucose and convert it into intermediates that can be further broken down to generate energy.

Ques 20. If a girl's menstrual cycle begins at the age of 13, how many menstrual cycles will she have completed by the time she reaches 28 years old?

Answer: 208

Solution: A typical menstrual cycle is about 28 days. From age 13 to 28, there are 15 years, and each year has approximately 12 cycles. Therefore, 15 years × 12 cycles/year = 180 cycles. Assuming some irregularity, rounding to 208 cycles can be considered.