

MHT CET 2024 Biology Answer Key PDF

Answer Key**Question 1** Correct Answer – (A) AUG

Explanation: The codon AUG has a dual function as it initiates translation (start codon) and also codes for the amino acid methionine. code Code

Question 2 Correct Answer – (B) Liver

Explanation: Angiotensinogen is a precursor α -2-globulin protein that is synthesized and continuously released into the bloodstream mainly by the liver.

Question 3 Correct Answer – (B) Columnae carnae

Explanation: The inner muscular walls of the ventricles are characterized by irregular muscular ridges and columns known as the columnae carnae.

Question 4 Correct Answer – (C) Leaves

Explanation: The perception of the photoperiodic stimulus is localized in the leaves, which then transmit the hormonal signal (florigen) to the shoot apex to induce flowering.

Question 5 Correct Answer – (C) Transpiration cohesion theory

Explanation: The cohesion-tension-transpiration pull theory, proposed by Dixon and Jolly, is the most widely accepted scientific explanation for the upward transport of sap in tall trees.

Question 6 Correct Answer – (B) Kangaroo rat

Explanation: The kangaroo rat is highly adapted to arid desert conditions, conserving water by producing extremely concentrated urine and dry feces, and relying on metabolic water.

Question 7 Correct Answer – (B) Gibberellin

Explanation: Gibberellins (specifically GA_3) are commercially used on grapes to promote pedicel elongation, increase fruit size, and prevent compact clusters.

Question 8 Correct Answer – (A) Leydig cells for testosterone production

Explanation: Interstitial Cell Stimulating Hormone (ICSH), another name for Luteinizing Hormone (LH) in males, acts on the Leydig cells of the testes to stimulate testosterone synthesis.

Question 9 Correct Answer – (D) All of the above

Explanation: Key themes in human physiology include the integration of cardiovascular transport, neural coordination, and hormonal pathways to maintain homeostasis.

Question 10 Correct Answer – (D) All of the above

Explanation: Cellular replication and reproduction involve mitotic division, meiotic division during gametogenesis, and the direct replication of genetic material (DNA replication).

Question 11 Correct Answer – (D) Depends on the species

Explanation: Excretory products differ across the animal kingdom depending on habitat and water availability, with species being ammonotelic, ureotelic, or uricotelic.

Question 12 Correct Answer – (D) All of the above

Explanation: Plant growth is highly regulated by a dynamic combination of endogenous hormones, including auxins, gibberellins, and cytokinins.

Question 13 Correct Answer – (D) 2-Methylprop-1-ene

Explanation: Reductive ozonolysis of 2-methylprop-1-ene yields propanone and formaldehyde. In the exam's typo where "ethanal" or "methanol" was likely substituted as "ethanol," this remains the most appropriate option.

Question 14 Correct Answer – (A) 5.0×10^{-16}

Explanation: A pH of 9 implies $\text{pOH} = 5$, hence $[\text{OH}^-] = 10^{-5}$ M. Stoichiometrically, $[\text{Ca}^{2+}] = 0.5 \times 10^{-5}$ M. Thus, $K_{sp} = [\text{Ca}^{2+}][\text{OH}^-]^2 = 5.0 \times 10^{-16}$.

Question 15 Correct Answer – (C) 100.80°C

Explanation: Since $\Delta T_b = K_b \cdot m$, an elevation of 0.16°C for a 0.1 m solution means $K_b = 1.6$. For 0.5 m, the elevation is $1.6 \times 0.5 = 0.80^\circ\text{C}$, yielding a boiling point of 100.80°C .

Question 16 Correct Answer – (A) $[\text{Ar}]3d^{10}4s^1$

Explanation: Copper (atomic number 29) exhibits an anomalous electronic configuration where an electron is promoted from 4s to 3d to obtain a stable, fully-filled d-subshell.

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