

MHT CET 2026 Biology Answer Key PDF

Biology

1. **Option (c) Seminiferous tubules**

Explanation:

Sperm production, or spermatogenesis, occurs within the highly coiled seminiferous tubules located inside the testes. This specialized environment is supported by Sertoli and Leydig cells to regulate development.

2. **Option (c) Relaxin**

Explanation:

Relaxin is a hormone secreted primarily by the corpus luteum and placenta. During childbirth, it targets the pubic symphysis and pelvic ligaments, causing them to relax and widen the birth canal for delivery.

3. **Option (c) Amensalism**

Explanation:

Amensalism is an ecological interaction where one participating species is actively harmed, suppressed, or killed, while the other species is neither benefited nor affected by the presence of the first.

4. **Option (d) Residual Volume**

Explanation:

Residual Volume (RV) is the volume of air remaining in the lungs after a maximal, forceful exhalation. Because this air cannot be expelled from the lungs, it cannot be measured using simple spirometry.

5. **Option (b) Female Culex mosquito**

Explanation:

Lymphatic filariasis, caused by the parasitic roundworm *Wuchereria bancrofti*, is transmitted to humans through the bite of its primary vector, the female *Culex* mosquito.

6. **Option (b) Hypothalamus**

Explanation:

The hypothalamus is a vital region of the forebrain that regulates various homeostatic processes. It functions as the primary control center for body temperature, hunger, thirst, and circadian rhythms.

7. **Option (a) 2 ATP**

Explanation:

During glycolysis, a total of 4 ATP molecules are produced, while 2 ATP molecules are consumed in the preparatory phase. This results in a net gain of 2 ATP molecules per molecule of glucose.

Chemistry

8. **Option (b) +5**

Explanation:

In orthophosphoric acid (H_3PO_4), hydrogen has an oxidation state of +1 and oxygen has -2. Solving the neutral charge equation $3(+1) + x + 4(-2) = 0$ yields the oxidation state of phosphorus as +5.

9. **Option (a) Pd–BaSO₄****Explanation:**

The Rosenmund reduction converts acyl chlorides into aldehydes. This reaction uses a palladium catalyst supported on barium sulfate (Pd–BaSO₄), which is partially poisoned to prevent over-reduction to alcohols.

10. **Option (b) 36****Explanation:**

In [Fe(CN)₆]^{4–}, iron is in the +2 oxidation state ($Z = 26$, so Fe²⁺ has 24 electrons). Six dative ligands donate $6 \times 2 = 12$ electrons, giving an Effective Atomic Number (EAN) of $24 + 12 = 36$.

11. **Option (b) Adipic acid and Hexamethylenediamine****Explanation:**

Nylon-6,6 is a synthetic polyamide copolymer. It is produced through the condensation polymerization of equal ratios of adipic acid and hexamethylenediamine, each containing six carbon atoms.

Physics

12. **Option (b) $\sqrt{2gR}$** **Explanation:**

The minimum speed required for a body to escape a planet's gravitational field is given by $v_e = \sqrt{2GM/R}$. Substituting the acceleration due to gravity $g = GM/R^2$ yields the relation $v_e = \sqrt{2gR}$.

13. **Option (c) $R = 4h$** **Explanation:**

At a projection angle of 45°, the maximum height is $h = \frac{u^2}{4g}$ and the horizontal range is $R = \frac{u^2}{g}$. Dividing these two equations establishes the geometric relation $R = 4h$.

14. **Option (b) Candela****Explanation:**

Luminous intensity is a fundamental physical quantity representing the wavelength-weighted power emitted by a light source per unit solid angle. Its SI base unit is the candela (cd).

15. **Option (b) $\lambda/4$** **Explanation:**

In a stationary wave pattern, the distance between two consecutive nodes or two consecutive antinodes is $\lambda/2$. Consequently, the distance between a node and its adjacent antinode is half of that value, or $\lambda/4$.