NEET Sample Paper 2024 for Zoology

1. Assertion (A): In humans, the cerebrum is the most developed part of the brain.
   Reason (R): The cerebrum has a small surface area and serves as the analytical centre for regulating body activities.
   Answer: (3) Assertion (A) is true and Reason (R) is false.
2. Which of the following correctly describes the given graph?
   Answer: (1) Endothermic reaction with energy A in the presence of an enzyme and B in the absence of an enzyme.
3. Coelom is a cavity located between the alimentary canal and body wall, enclosed by:
   Answer: (4) Mesoderm on both sides.
4. In the simplest canal system of Porifera, which sequence exhibits water flow?
   Answer: (1) Ostia → Spongocoel → Osculum → Exterior.
5. Match List-I with List-II to find the correct option:
   | List-I | List-II |
   (A) Physalia | (V) Portuguese man-of-war |
   (B) Adamsia | (IV) Sea anemone |
   (C) Pennatula | (III) Sea pen |
   (D) Gorgonia | (II) Sea fan |
   (E) Meandrina | (I) Brain coral |
   (F) Aurelia | (VI) Jellyfish |

Answer: (2) (A)-(V); (B)-(IV); (C)-(III); (D)-(II); (E)-(I); (F)-(VI).

6. Match List-I with List-II to find the correct option:
   | List-I | List-II |
   (A) King crab| (II) Limulus |
   (B) Honey bee | (I) Apis |
   (C) Silkworm | (III) Bombyx |
   (D) Lac insect| (IV)Laccifer |

Answer: (3) (A)-(II); (B)-(I); (C)-(III); (D)-(IV).

7. Which statement about birds is incorrect?
   Answer: (4) The endoskeleton consists of feathers, scales, beaks, and claws.
8. Which statement about columnar epithelium is false?
   Answer: (2) Only statement e.
9. The epiphysis and diaphysis of a bone refer to:
   Answer: (1) End and shaft of a long bone, respectively.

10. Which statement about female frogs is false?
    Answer: (3) Statements a and d.
11. The correct order of chemical composition of living tissues/cells based on percentage of total cellular mass is:
    Answer: (2) H2O > Proteins > Nucleic acids > Carbohydrates > Lipids > Ions.
12. Which amino acid can stabilize protein structure by forming disulfide bonds?
    Answer: (3) Cysteine.
13. Reducing sugars contains:
    Answer: (3) Free aldehyde or ketone groups.
14. Glycosidic bonds in nucleosides form between:
    Answer: (1) The first carbon of ribose sugar and the ninth member of purine.
15. Assertion(A): Resting membrane potential is -70mV.
    Reason(R): The Na+-K+ pump plays a crucial role in maintaining resting membrane potential.
    Answer: (1) Both Assertion(A) and Reason(R) are true, and Reason(R) is a correct explanation of Assertion(A).
16. Assertion(A): Three types of cofactors can be identified: prosthetic groups, coenzymes, and metal ions.
    Reason(R): A complete, catalytically active enzyme along with its bound prosthetic group is termed an apoenzyme.
    Answer: (2) Both Assertion(A) and Reason(R) are true but Reason(R) is not a correct explanation of Assertion(A).
17. Assertion(A): Human kidneys can produce urine that is nearly twice as concentrated as the initial filtrate formed.
    Reason(R): The counter-current mechanism helps maintain a concentration gradient in the medullary interstitium.
    Answer: (3) Assertion(A) is true but Reason(R) is false.
18. Read these statements:
    - Statement I: Androgens play a major role in spermatogenesis.
    - Statement II: Androgens influence libido.
      Answer: (1) Both Statement I and Statement II are correct.
19. The blood leaving the lungs has fully oxygenated haemoglobin that releases oxygen to tissues because:
    Answer: (2) O_2 concentration in tissues is lower while CO_2 concentration is higher compared to lungs.
20. A cardiac cycle consists of:
    Answer: (3) Auricular systole – joint diastole – ventricular systole.

21. What does the interval between the end of the T wave and the next P wave represent on a graph?
    Answer: (2) End of systole marking a new wave's start.
22. High blood pressure can potentially damage vital organs such as:
    Answer: (4) Heart, Brain, Kidneys, Lungs.
23. Which statement about kidney function regarding ammonia removal is incorrect?
    Answer: (1) Kidney does not play any significant role in removing ammonia.
24. Evaluate these statements:
    - Statement I: When urine moves through the descending limb, it becomes hypertonic; passing through the ascending limb, it becomes hypotonic.
    - Statement II: The descending limb allows sodium ion permeability while the ascending limb does not.
      Answer: (1) Both statements I & II are correct.
25. In which location does counter-current exchange occur?
    Answer: (4) Between both limbs of Henle's loop and those of vasa recta.
26. The chemical ions responsible for muscle contraction include:
    Answer: (1) Ca^{2+} and K^{+}.
27. Select all accurate statements regarding axial skeletons:
    Answer: (4) All statements are accurate.
28. Match List-I with List-II to find out the correct options:
    | List-I | List-II
    A) Tarsal | I) 14
    B) Phalanges | II) 1
    C) Metatarsal | III) 7
    D) Femur | IV) 5 |

Answer: (1)(A)-(III);(B)-(I);(C)-(IV);(D)-(II).

1. Match List-I with List-II for neuron types:
   | List-I | List-II |

A) Unipolar | I Cell body with one axon is only found usually during embryonic stage

B) Bipolar | II Cell body with one axon & two or more dendrites found in cerebral cortex |
C) Multipolar | III Cell body with one axon & one dendrite found in retina |

Answer:(1)(A)-(I);(B)-(III);(C)-(II).

30. Evaluate these statements regarding fibrin production:
    - Statement I states that fibrins arise from converting inactive fibrinogens within plasma when thrombin acts upon them while Statement II states that plasma devoid of fibrinogen alongside blood corpuscles refers to serum.

Answer: (1) Statement I and Statement II both are correct.

35. Assertion(A): A chemosensitive area adjacent to rhythm centers responds strongly to O_2 levels alongside hydrogen ions while Reason R indicates oxygen's role significantly influences respiratory rhythm regulation.

Answer: (1) Both Assertion(A), Reason(R), are true; Reason(R), explains Assertion(A).

36. Statement I: The clotting process can occur in the absence of all cellular elements except platelets.
Statement II: Activated platelets release vitamin K.
Answer: (2) Statement I is correct but Statement II is incorrect.
37. MSH is secreted in humans by which part of the pituitary gland?
Answer: (1) Anterior pituitary.
38. Which of the following is NOT a function of PTH?
Answer: (2) PTH retards osteoclastic action.
39. Statement I: Individuals with haemophilia do not produce blood clotting factor VIII.
Statement II: Prothrombin-producing platelets in these individuals are found in very low concentrations.
Answer: (1) Statement I and Statement II both are correct.
40. Identify the correct statements from the following:

- (a) Hormones interact with membrane-bound receptors and typically do not enter target cells.
- (b) Iodothyroxines possess membrane-bound receptors.
- (c) Hormones interacting with intracellular receptors mainly regulate gene expression.
- (d) Steroid hormones generate second messengers.

Answer: (3) Only (a) and (c).

36. Assertion (A): A chemosensitive area is located adjacent to the rhythm centre and is highly sensitive to O_2 and hydrogen ions.
Reason (R): The role of oxygen in regulating respiratory rhythm is significant.
Answer: (1) Both Assertion (A) and Reason (R) are true, and Reason (R) correctly explains Assertion (A).
37. Amphibians share all of the following characteristics with reptiles except:
Answer: (2) External fertilization and indirect development.
38. Select the total number of correct statements from the following:

- (a) Coelenterates have tentacles and bear cnidoblasts.
- (b) Ctenophores are marine animals with comb plates.

- (c) Annelids are metamerically segmented animals with a true coelom.
- (d) Echinoderms possess a mesodermal skeleton composed of calcareous plates or ossicles.
- (e) Hemichordates are a small group of worm-like marine animals characterized by a cylindrical body with proboscis, collar, and trunk.

Answer: (4) All of these.

39. Select the correct statement regarding the node of Ranvier:
    Answer: (3) Myelin sheath is discontinuous.
40. A prosthetic group is a part of a holoenzyme, which is defined as:
    Answer: (2) An accessory non-protein substance attached firmly.
41. The hormone that regulates basal metabolism in our body is secreted from:
    Answer: (4) Thyroid.
42. The partial pressures (in mm Hg) of O_2 in atmospheric air, alveoli, deoxygenated blood, oxygenated blood, and tissues are respectively:
    Answer: (3) 159, 104, 40, 95, and 40.