

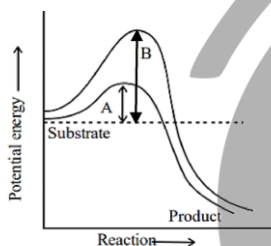
**ZOOLOGY****SECTION-A**

1. **Assertion (A):** In human being, cerebrum is most developed part of brain.

Reason (R): Cerebrum is having small surface area & analysing centre for maintaining body activity.

- (1) Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is a correct explanation of **Assertion (A)**.
 (2) Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not a correct explanation of **Assertion (A)**.
 (3) **Assertion (A)** is true and **Reason (R)** is false.
 (4) **Assertion (A)** is false and **Reason (R)** is true.

2. Which of the following describes the given graph correctly?



- (1) Endothermic reaction with energy A in the presence of enzyme and B in the absence of enzyme.
 (2) Exothermic reaction with energy A in the presence of enzyme and B in the absence of enzyme.
 (3) Endothermic reaction with energy A in the absence of enzyme and B in the presence of enzyme.
 (4) Exothermic reaction with energy A in the absence of enzyme and B in the presence of enzyme.
3. Coelom is a cavity between alimentary canal and bodywall enclosed by:
- (1) Ectoderm and endoderm
 (2) Mesoderm and ectoderm
 (3) Ectoderm on both sides
 (4) Mesoderm on both sides

4. In most simple type of canal system of Porifera, which of the following ways exhibit water flow?

- (1) Ostia → Spongocoel → Osculum → Exterior
 (2) Spongocoel → Ostia → Osculum → Exterior
 (3) Osculum → Spongocoel → Ostia → Exterior
 (4) Osculum → Ostia → Spongocoel → Exterior

5. Match **List-I** with **List-II** to find out the correct option.

List-I		List-II	
(A)	<i>Physalia</i>	(I)	Brain coral
(B)	<i>Adamsia</i>	(II)	Sea fan
(C)	<i>Pennatula</i>	(III)	Sea pen
(D)	<i>Gorgonia</i>	(IV)	Sea anemone
(E)	<i>Meandrina</i>	(V)	Portuguese man-of-war
(F)	<i>Aurelia</i>	(VI)	Jellyfish

- (1) (A) – (V); (B) – (IV); (C) – (II); (D) – (III); (E) – (I); (F) – (VI)
 (2) (A) – (V); (B) – (IV); (C) – (III); (D) – (II); (E) – (I); (F) – (VI)
 (3) (A) – (V); (B) – (IV); (C) – (II); (D) – (I); (E) – (III); (F) – (VI)
 (4) (A) – (V); (B) – (III); (C) – (IV); (D) – (II); (E) – (I); (F) – (VI)

6. Match **List-I** with **List-II** to find out the correct option.

List-I		List-II	
(A)	King crab	(I)	<i>Apis</i>
(B)	Honey bee	(II)	<i>Limulus</i>
(C)	Silkworm	(III)	<i>Bombyx</i>
(D)	Lac insect	(IV)	<i>Laccifer</i>

- (1) (A) – (IV); (B) – (I); (C) – (III); (D) – (IV)
 (2) (A) – (II); (B) – (I); (C) – (IV); (D) – (III)
 (3) (A) – (II); (B) – (I); (C) – (III); (D) – (IV)
 (4) (A) – (IV); (B) – (III); (C) – (I); (D) – (IV)

7. Which of the following is **incorrect** about birds?

- (1) Air sacs connected to lungs help in respiration.
 (2) Hind limbs possess scales and are modified for walking, swimming or clasping.
 (3) Separate sexes, internal fertilisation, oviparous and direct development.
 (4) Endoskeleton consists of feathers, scales, beak and claws.



8. Which of the following is **false** about columnar epithelium?
- It is made of tall and slender cells.
 - Free surface may have microvilli.
 - They are found in stomach and intestine and help in secretion and absorption.
 - Ciliated epithelium is mainly present in hollow structure like bronchioles and fallopian tubes/oviducts.
 - They have apical nuclei.
- Only (a)
 - Only (e)
 - Only (b) and (d)
 - Only (b) and (c)
9. Epiphysis and diaphysis of bone are;
- End and shaft of a long bone, respectively
 - Shaft and end of a long bone, respectively
 - Head and neck of a long bone, respectively
 - Sponge bones only
10. For female frog, which of the following is **false**?
- One pair of ovaries is situated near kidneys.
 - Ovary has functional connection with kidney.
 - Convolutd, tubular, ciliated and glandular oviduct arises from ovary and opens into cloaca.
 - Oviduct and ureter open separately into the cloaca.
 - A female frog can lay 2500–3000 ova at a time.
- (a) and (c)
 - (b) and (e)
 - (a) and (d)
 - (d) and (e)
11. The **correct** order of chemical composition of living tissues / cells in place of term of percent of the total cellular mass is:
- Nucleic acid > Proteins > H_2O > Carbohydrate > Ions > Lipid
 - H_2O > Proteins > Nucleic acid > Carbohydrate > Lipid > Ions
 - H_2O > Proteins > Carbohydrate > Nucleic Acid > Lipid > Ions
 - Lipid > Ions > Carbohydrate > H_2O > Proteins > Nucleic acid
12. Which one of the following amino acids can stabilise protein structure by forming disulphide bonds?
- Arginine
 - Lysine
 - Cysteine
 - Alanine
13. Reducing sugars have;
- Free aldehyde.
 - Bound aldehyde.
 - Free aldehyde or ketone.
 - Bound ketone.
14. Glycosidic bond of nucleoside form between;
- 1st carbon of ribose sugar and 9th member of purine.
 - 5th carbon of ribose sugar and 9th member of purine.
 - 1st carbon of ribose sugar and 1st member of purine.
 - 5th carbon of ribose sugar and 1st member of purine.
15. **Assertion (A) :-** Resting membrane potential is -70mV.
Reason (R) :- Na^+ - K^+ pump plays an important role in maintaining resting membrane potential.
- Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is a correct explanation of **Assertion (A)**.
 - Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not a correct explanation of **Assertion (A)**.
 - Assertion (A)** is true but **Reason (R)** is false.
 - Assertion (A)** is false and **Reason (R)** is true.
16. **Assertion (A):** Three kinds of cofactors may be identified: Prosthetic groups, co-enzymes and metal ions.
Reason (R): A complete, catalytically active enzyme together with its bound prosthetic group is called apoenzyme.
- Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
 - Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not a correct explanation of **Assertion (A)**.
 - Assertion (A)** is true but **Reason (R)** is false.
 - Assertion (A)** is false and **Reason (R)** is true.



- 17. Assertion (A):** Human kidneys can produce urine nearly two times concentrated than the initial filtrate formed.
Reason (R): Counter current mechanism doesn't help to maintain a concentration gradient in the medullary interstitium.
- (1) Both **Assertion (A)** and **Reason (R)** are true and **Reason (R)** is the correct explanation of **Assertion (A)**.
 - (2) Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not a correct explanation of **Assertion (A)**.
 - (3) **Assertion (A)** is true but **Reason (R)** is false.
 - (4) **Assertion (A)** is false and **Reason (R)** is true.
- 18.** Read the following statements.
Statement I: Androgen plays a major role in the process of spermatogenesis.
Statement II: Androgen influence the libido.
- (1) Statement I and Statement II both are correct.
 - (2) Statement I is correct but Statement II is incorrect.
 - (3) Statement I is incorrect but Statement II is correct.
 - (4) Statement I and Statement II both are incorrect.
- 19.** The blood leaving the lungs has all its haemoglobin Oxygenated and gives up oxygen to the tissues because;
- (1) The tissue can absorb O_2 from oxyhaemoglobin.
 - (2) O_2 concentration in tissues is lower and CO_2 concentration is higher as compared to lungs.
 - (3) O_2 concentration in tissues is higher and CO_2 concentration is lower as compared to lungs.
 - (4) Oxyhaemoglobin undergoes reduction.
- 20.** A cardiac cycle involves;
- (1) Joint diastole – ventricular systole – auricular systole.
 - (2) Auricular systole – ventricular systole – complete joint diastole.
 - (3) Auricular systole – joint diastole – ventricular systole.
 - (4) Auricular systole – ventricular diastole – joint diastole.
- 21.** What is being represented between the end of the T wave and the next P wave graph?
- (1) End of systole of heart
 - (2) End of systole and starting of a new wave
 - (3) Length of P wave
 - (4) Problem with the excitation of the SA node
- 22.** High blood pressure can potentially harm the vital organs like;
- (a) Heart (b) Brain
 - (c) Kidneys (d) Lungs
- (1) Only (a) and (b)
 - (2) Only (b) and (c)
 - (3) (a), (b) and (c)
 - (4) (a), (b), (c) and (d)
- 23.** Which of the following statements is **wrong**?
- (1) Kidney does not play any significant role in the removal of ammonia.
 - (2) Ureotelic animals excrete most of the nitrogenous waste as urea.
 - (3) Ammonia and urea are the waste products derived from the metabolic breakdown of proteins.
 - (4) None of these
- 24.** **Statement I:** When urine moves through descending limb, it becomes hypertonic and passing through ascending limb, it becomes hypotonic.
Statement II: The descending limb is permeable to sodium ions while ascending limb is impermeable to sodium ions.
- (1) Statement I and Statement II both are correct.
 - (2) Statement I is correct but Statement II is incorrect.
 - (3) Statement I is incorrect but Statement II is correct.
 - (4) Statement I and Statement II both are incorrect.
- 25.** In which of the following, counter current operates?
- (1) In ascending limb of loop of Henle.
 - (2) In descending limb of loop of Henle.
 - (3) In ascending limb or descending limb of vasa recta.
 - (4) Between the two limbs of henle's loop and those of vasa recta



26. Chemical ions responsible for muscles contraction are;

- (1) Ca^{2+} and K^+ (2) Na^+ and K^+
(3) Na^+ and Ca^{2+} (4) Ca^{2+} and Mg^{2+}

27. Choose the **correct** statements.

- (1) Axial skeleton contains 80 bones.
(2) Skull, vertebral column, sternum and ribs constitute axial skeleton.
(3) Skull has total of 22 bones.
(4) All of these

28. Match **List-I** with **List-II** to find out the **correct** option.

	List-I		List-II
(A)	Tarsal	(I)	14
(B)	Phalanges	(II)	1
(C)	Metatarsal	(III)	7
(D)	Femur	(IV)	5

- (1) (A) – (III); (B) – (I); (C) – (IV); (D) – (II)
(2) (A) – (I); (B) – (II); (C) – (III); (D) – (IV)
(3) (A) – (II); (B) – (III); (C) – (IV); (D) – (I)
(4) (A) – (IV); (B) – (I); (C) – (III); (D) – (II)

29. Match **List-I** with **List-II** to find out the **correct** option.

List-I	List-II
(A) Unipolar	(I) Cell body with one axon only, found usually in the embryonic stage
(B) Bipolar	(II) Cell body with one axon and two or more dendrites, found in cerebral cortex
(C) Multipolar	(III) Cell body with one axon and one dendrite, found in retina of eye

- (1) (A) – (I); (B) – (III); (C) – (II)
(2) (A) – (II); (B) – (I); (C) – (III)
(3) (A) – (III); (B) – (II); (C) – (I)
(4) (A) – (I); (B) – (II); (C) – (III)

30. **Statement I:** Fibrins are produced by the conversion of inactive fibrinogens in the plasma, in the presence of enzyme thrombin.

Statement II: Plasma without fibrinogen and blood corpuscles is called serum.

- (1) Statement I and Statement II both are correct.
(2) Statement I is correct but Statement II is incorrect.
(3) Statement I is incorrect but Statement II is correct.
(4) Statement I and Statement II both are incorrect.

31. **Statement I:** The clotting process can occur in the absence of all cellular elements except platelets.

Statement II: Activated platelets release vitamin K.

- (1) Statement I and Statement II both are correct.
(2) Statement I is correct but Statement II is incorrect.
(3) Statement I is incorrect but Statement II is correct.
(4) Statement I and Statement II both are incorrect.

32. MSH is secreted in man by which part of the pituitary?

- (1) Anterior pituitary
(2) Middle lobe of pituitary
(3) Posterior lobe of pituitary
(4) None of these

33. All are the functions of PTH except one. Identify it.

- (1) PTH stimulates bone reabsorption/dilution/demineralisation.
(2) PTH retards osteoclastic action.
(3) PTH increases Ca^{2+} absorption from the digestive tube.
(4) PTH stimulates reabsorption of Ca^{2+} by the renal tubules.



34. **Statement I:** Persons suffering from haemophilia fail to produce blood clotting factor VIII.

Statement II: Prothrombin producing platelets in such persons are found in very low concentration.

- (1) Statement I and Statement II both are correct.
- (2) Statement I is correct but Statement II is incorrect.
- (3) Statement I is incorrect but Statement II is correct.
- (4) Statement I and Statement II both are incorrect.

35. Find out the **correct** statements from the following.

- (a) Hormones interact with membrane bound receptors and normally do not enter the target cells.
 - (b) Iodothyroxines have membrane bound receptors.
 - (c) Hormones which interact with intracellular receptors mostly regulate gene expression.
 - (d) Steroid hormones generate second messengers.
- (1) Only (a) and (b) (2) Only (b) and (c)
(3) Only (a) and (c) (4) Only (b) and (d)

SECTION-B

36. **Assertion (A):** A chemosensitive area is situated adjacent to the rhythm centre which is highly sensitive to O_2 and hydrogen ions.

Reason (R): The role of oxygen in the regulation of respiratory rhythm is quite significant.

- (1) Both **Assertion (A)** and **Reason (R)** are true, and **Reason (R)** is a correct explanation of **Assertion (A)**.
- (2) Both **Assertion (A)** and **Reason (R)** are true but **Reason (R)** is not a correct explanation of **Assertion (A)**.
- (3) **Assertion (A)** is true and **Reason (R)** is false.
- (4) **Assertion (A)** is false and **Reason (R)** is true.

37. Amphibians share with reptiles all of the following characters except;

- (1) Tympanum represents the ear
- (2) External fertilisation and indirect development
- (3) Dioecious and oviparous
- (4) Cold blooded or poikilotherms

38. Select the total number of **correct** statements from the following.

- (a) Coelentrates have tentacles and bear cnidoblasts.
 - (b) Ctenophores are marine animals with comb plates.
 - (c) Annelids are metamerically segmented animals with a true coelom.
 - (d) The echinoderm possess mesodermal skeleton composed of calcareous plates or ossicles.
 - (e) Hemichordates are a small group of worm like marine animals characterized by cylindrical body with proboscis, collar and trunk.
- (1) Two
(2) Three
(3) Four
(4) All of these

39. Select the **correct** statement for node of Ranvier.

- (1) Covered by myelin sheath.
- (2) Neurilemma is discontinuous.
- (3) Myelin sheath is discontinuous.
- (4) Both myelin sheath and neurilemma are continuous.

40. Prosthetic group is a part of holoenzyme. It is;

- (1) Loosely attached inorganic part.
- (2) Accessory non-protein substance attached firmly.
- (3) Loosely attached organic part.
- (4) None of these

41. The hormone which regulates the basal metabolism in our body is secreted from;

- (1) Adrenal cortex
- (2) Pancreas
- (3) Pituitary
- (4) Thyroid

42. Partial pressures (in mm Hg) of O_2 in atmospheric air, alveoli deoxygenated blood, oxygenated blood and tissues are respectively;

- (1) 40, 95, 40, 104 and 159.
- (2) 104, 40, 40, 95 and 159.
- (3) 159, 104, 40, 95 and 40.
- (4) 195, 104, 95, 40 and 40.



43. Exchange of bicarbonates and chloride ions between RBC and plasma is called;

- (1) chloride shift
- (2) Bohr's effect
- (3) Haldane's effect
- (4) intracellular respiration

44. Select the **incorrect** statement from the following.

- (1) Simple organisms like sponges and coelenterates circulate water from their surroundings through their body cavities to facilitate the cells to exchange substances.
- (2) Different groups of animals have evolved the same method for transport.
- (3) Blood is the most commonly used body fluid by most of higher organisms for transport.
- (4) Lymph also helps in transport of certain substances in human.

45. Osmoreceptors in the body are activated by changes in;

- (1) Blood volume but not body fluid volume.
- (2) Body fluid volume but not blood volume.
- (3) Blood volume and body fluid volume.
- (4) Blood volume, body fluid volume and ionic concentration.

46. Match **List-I** with **List-II** to find out the **correct** option.

	List-I		List-II
(A)	Ribs are attached to the sternum ventrally and to the vertebrae dorsally	(I)	True ribs
(B)	Ribs are attached to sternum through costal cartilage (hyaline) of 7th rib.	(II)	False ribs
(C)	Ribs are not attached to sternum.	(III)	Floating ribs

- (1) (A) – (I); (B) – (II); (C) – (III)
- (2) (A) – (I); (B) – (III); (C) – (II)
- (3) (A) – (II); (B) – (I); (C) – (III)
- (4) (A) – (III); (B) – (II); (C) – (I)

47. The protein which maintains the muscular storage of oxygen is;

- (1) Myoglobin
- (2) Actomyosin
- (3) Myosin
- (4) Haemoglobin

48. Which of the following is a **correct** match of a phylum with its three examples?

- (1) Platyhelminthes – *Planaria*, *Schistosoma*, *Enterobius*
- (2) Mollusca – *Loligo*, *Sepia*, *Octopus*
- (3) Porifera – *Spongilla*, *Euplectella*, *Pennatula*
- (4) Cnidaria – *Bonellia*, *Physalia*, *Aurelia*

49. Various hormones are used for the medicinal purposes. Which of the following is mismatched with respect to the name of disease and the hormone used in their treatment?

	Disorder	Hormone used
(1)	Diabetes mellitus	Insulin
(2)	Arthritis	Cortisol
(3)	Asthma	Histamine
(4)	Myxoedema	Thyroxine

50. Which of the following statements are **false/true**?

- (a) Calcitonin regulates the metabolism of calcium;
 - (b) Oxytocin stimulates contraction of uterine muscle during birth;
 - (c) Grave's disease is caused by malfunctioning of adrenal gland;
 - (d) ADH stimulates absorption of water and increase the urine production;
- (1) (a) and (c) are true; (b) and (d) are false
 - (2) (a) and (b) are true; (c) and (d) are false
 - (3) (a) and (d) are true; (b) and (c) are false
 - (4) (a), (b) and (c) are true; (d) only false

