



ZOOLOGY

SECTION-A

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

List-I		List-II	
(A)	Saltation	(I)	Darwin
(B)	Formation of life was preceded by Chemical evolution	(II)	Louis pasteur
(C)	Reproductive fitness	(III)	de vries
(D)	Life comes from pre-existing life	(IV)	Oparin and Haldane

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

2. Ligaments connects;

- (1) bone to muscle. (2) bone to bone.
(3) skin to muscle. (4) fat to muscle.

3. Cartilage is surrounded by a firm sheath, called;

- (1) Periosteum (2) Perichondrium
(3) Pericardium (4) Perimetrium

4. Choose the **odd** pair from the following;

- (1) Muscle fibre – Myosin
(2) Areolar – Mast cells
(3) Epithelium – Keratin
(4) Neuron – Melanin

5. Structural polysaccharide among following is;

- (1) Glycogen (2) Starch
(3) Insulin (4) Cellulose

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

List-I		List-II	
(A)	Gene therapy	(I)	Separation of DNA fragments
(B)	RNA interference	(II)	Diagnostic test for AIDS
(C)	ELISA	(III)	Cellular defense
(D)	Gel Electrophoresis	(IV)	Allows correction of a gene defect

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

7. Injury to adrenal cortex is **not** likely to affect the secretion, which one of the following?

- (1) Aldosterone
(2) Both androstenedione and dehydroepiandrosterone
(3) Adrenaline
(4) Cortisol

8. Which of the following arthropods are harmful?

- (a) *Culex*
(b) *Bombyx*
(c) *Apis*
(d) *Locusta*
(1) (a) and (b) (2) (b) and (c)
(3) (b) and (d) (4) (a) and (d)

9. Tasmanian wolf and placental wolf appear similar due to;

- (1) chemical evolution.
(2) divergent evolution.
(3) biochemical evolution.
(4) convergent evolution.

10. If gene migration happens multiple times, it would lead to;

- (1) Mutation
(2) Gene flow
(3) Chemical evolution
(4) Genetic drift

11. Tumor-inducing plasmids (Ti-plasmid) transforms;

- (1) Nematodes (2) Bacteria
(3) Fungi (4) Several dicot plants

12. Cells in continuous culture system are maintained in;

- (1) Stationary phase
(2) Lag phase
(3) Log phase
(4) Either (1) and (3)

13. The technique used to detect the antibodies synthesized by host against the pathogen is;

- (1) MRI (2) ELISA
(3) Southern blot (4) Western blot



14. Select the **correct** statements with respect to cyclostomes.
- They have paired fins.
 - They have circular mouth without Jaws.
 - They bear 6-15 pairs of gills.
 - They migrate to deep sea for spawning.
- Choose the **most** appropriate answer from the options given below;
- (a) and (b) only
 - (b) and (c) only
 - (b) and (d) only
 - (a) and (d) only
15. Which one of the following animals shows bioluminescence?
- Hydra
 - Pleurobrachia*
 - Aurelia*
 - Obelia*
16. During muscle contraction;
- I bands get reduced.
 - A band retain the length.
 - Length of sarcomere decreases.
 - Breakdown of ATP.
 - H-zone remains unchanged.
- Only A, B, C are correct
 - Only A, B, C and D are correct
 - Only A, B, C and E are correct
 - All are correct statements
17. Read the following statement carefully and answer the question given below.
- (A) Cyclic changes occur in endometrium during the menstrual cycle.
- (B) External thin membrane of uterus is perimetrium.
- (C) Strong uterine contraction occurs in myometrium at the time of parturition.
- (D) The uterus opens into narrow cervix through vagina.
- How many of the above statements are **correct**?
- A and B
 - A, B and C
 - A, B and D
 - B and D
18. Fill in the blanks.
- The human male ejaculates about million sperms during a coitus of which, for normal fertility, at least percent sperms must have normal shape and size and at least percent of them must show vigorous motility.
- 400 - 500, 60, 40
 - 100 - 120, 40, 60
 - 200 - 300, 60, 40
 - 200 - 300, 40, 60
19. Choose the **incorrect** statements.
- In embryo transfer technique embryos with more than 8 blastomeres are transferred into the uterus.
 - Artificial insemination technique is used when a female partner in couple is infertile.
 - Amniocentesis is needed to test for presence of sickle cell anaemia in foetus.
 - Amniocentesis is misused to determine the sex of the unborn child.
20. **Assertion (A):** Heroin commonly called "smack" is chemically diacetylmorphine.
Reason (R): Excessive doses of drugs may lead to calmness.
- Both **Assertion (A)** and **Reason (R)** are correct and **Reason (R)** is the correct explanation of **Assertion (A)**.
 - Both **Assertion (A)** and **Reason (R)** are correct but **Reason (R)** is not the correct explanation of **Assertion (A)**.
 - Assertion (A)** is correct but **Reason (R)** is incorrect.
 - Assertion (A)** is incorrect but **Reason (R)** is correct.
21. Primary structure of a protein relates to;
- α -helical folding of a polypeptide.
 - association of two polypeptides.
 - the sequence of amino acids.
 - β -pleated sheet folding of a polypeptide.
22. In water canal system of *Spongilla*, water flows through which one of the following ways?
- Spongocoel \rightarrow ostia \rightarrow osculum \rightarrow exterior
 - Ostia \rightarrow spongocoel \rightarrow osculum \rightarrow exterior
 - Osculum \rightarrow spongocoel \rightarrow ostia \rightarrow exterior
 - Osculum \rightarrow ostia \rightarrow spongocoel \rightarrow exterior

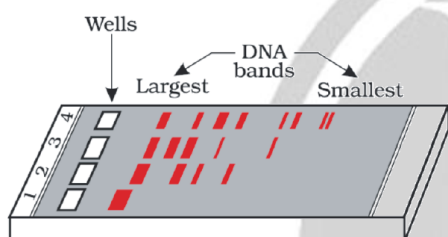


23. Match the **List-I** and **List-II** about the embryonic development of human.

List-I		List-II	
(A)	End of one month	(I)	Most of the major organ systems
(B)	End of second month	(II)	Appearance of hair on the head
(C)	End of third month	(III)	Heart formation
(D)	During fifth month	(IV)	Eye-lids separated
(E)	End of sixth month	(V)	Limbs and digits formation

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

24. In following figure of agarose gel electrophoresis, which lane shows undigested DNA?



- (1) 1 (2) 4
 (3) 3 (4) 2

25. The central part of thick filament, not overlapped by thin filament when a muscle is in relaxed state is called;

- (1) A - zone (2) I - zone
 (3) H - zone (4) Z - zone

26. The posterior pituitary gland is **not** a true endocrine gland because;

- (1) it is provided with duct.
 (2) it only stores and release hormone.
 (3) it is under the regulation of hypothalamus.
 (4) it secretes enzyme.

27. The hormone produced during emotional stress is;

- (1) Melatonin (2) Thyroxine
 (3) Calcitonin (4) Adrenaline

28. Axon is surrounded by a sheath formed by neuroglial cells called;

- (1) Schwann cells (2) Sarcolemma
 (3) Dendritic cells (4) Cyton

29. Segmentation is seen in;

- (1) Annelida (2) Arthropoda
 (3) Chordata (4) All of these

30. The volume of air involved in breathing movements can be estimated by spirometer, **except**;

- (1) Tidal volume
 (2) IRV
 (3) Residual volume
 (4) Vital capacity

31. Which of the following is **not** a pollution related disorder?

- (1) Silicosis (2) Asbestosis
 (3) Fluorosis (4) Leprosy

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

List-I		List-II	
(A)	P-wave	(I)	Depolarisation of ventricle
(B)	QRS complex	(II)	Repolarisation of ventricle
(C)	T-wave	(III)	Coronary ischemia
(D)	Reduction in the size of T-wave	(IV)	Depolarisation of atria
		(V)	Repolarisation of atria

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

33. Choose the **correct** sequence with respect to number of formed element in blood (in increasing order);

- (1) Platelet, WBC, RBC
 (2) Erythrocyte, Platelet, WBC
 (3) Leucocyte, RBC, Platelet
 (4) WBC, Platelets, RBC

34. Even under the influence of ADH, maximum reabsorption of water occurs in which of the following segments of a nephron?

- (1) DCT (2) Collecting duct
 (3) Loop of Henle (4) PCT



35. All of the following are related to human kidney **except**;
- (1) Retroperitoneal position in the body
 - (2) Situated close to the ventral wall of abdominal cavity
 - (3) Right kidney is slightly lower than the left kidney
 - (4) Present outside coelom

SECTION - B

36. Restriction endonucleases are enzymes that;
- P. cleave the 5' terminal nucleotides from duplex DNA molecules.
- Q. make sequence-specific cuts in both strands of duplex DNA molecules.
- R. promote circularisation of the duplex DNA molecule by removal of the 5' terminal nucleotides.
- S. generate 3' hydroxyl and 5' phosphate ends in the cut DNA strands.

Choose the **most** appropriate option from the options given below.

- (1) P, Q
 - (2) P, R
 - (3) Q, S
 - (4) P, Q, R, S
37. Which gene isolated from *Bacillus thuringiensis* has been known to control the insect population of corn borer?
- (1) *HLA* - gene
 - (2) *CryIAb* - gene
 - (3) *CryIAc* - gene
 - (4) *CryIIAb* - gene

38. An ___ A ___ in the pulmonary volume ___ B ___ the intra pulmonary pressure to less than the atmospheric pressure which forces the air from ___ C ___ to move into the lungs, i.e. ___ D ___
- Choose the **correct** options for the blanks A, B, C and D to complete the above statement.
- (1) A – increase, B – decrease, C – outside, D – expiration
 - (2) A – decrease, B – increase, C – outside, D – expiration
 - (3) A – decrease, B – increase, C – inside, D – inspiration
 - (4) A – increase, B – decrease, C – outside, D – inspiration

39. Fill in the blanks by option for the **correct** combination of A to E.

- I Endocrine glands secrete ___ A _____.
II. The columnar epithelium is composed of a single layer of ___ B _____ and ___ C _____ cells.
III. ___ D _____ covers dry surfaces of the skin.
IV. ___ E _____ performs cementing to keep neighboring cells together
- (1) A-Mucus, B-Cuboidal, C-Flattened, D-Compound epithelium, E-Tight junction
 - (2) A-Hormones, B-Tall, C-Slender, D-Compound epithelium, E-Adhering junction
 - (3) A-Oil and sweat, B-Oval, C-Round D-Squamous epithelium, E-Gap junction
 - (4) A-Saliva, B-Rounded, C-Tall, D-Cuboidal epithelium, E-Mucus

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

List I (Type of Joint)		List II (Found between)	
(A)	Cartilaginous Joint	(I)	Between flat skull bones
(B)	Ball and Socket Joint	(II)	Between adjacent vertebrae in vertebral column
(C)	Fibrous Joint	(III)	Between carpal and metacarpal of thumb
(D)	Saddle joint	(IV)	Between Humerus and Pectoral girdle

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

41. **Statement I:** Mesoglea is present in between ectoderm and endoderm in *Obelia*.

Statement II: *Taenia* is a diploblastic animal.

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



42. Read the **Assertion (A)** and **Reason (R)** carefully to mark the **correct** option out of the options given below.

Assertion (A): Ciliary movement occurs in most of our internal tubular organs which are lined by ciliated epithelium.

Reason (R): Passage of ova through the female reproductive tract is also facilitated by the ciliary movement.

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

43. Given below are three statements (A-C) each with one or two blanks. Select the option which **correctly** fills up the blanks in any two statements.

A. Diseases or infections which are transmitted through sexual intercourse are collectively called (i) diseases.

B. Genital wart is (ii) disease.

C. Sterilisation in males is (iii) while in females is (iv).

- (1) A-(i) venereal; B-(ii) incurable
- (2) A-(i) venereal; B-(ii) curable
- (3) A-(i) non-communicable; C-(iii) tubectomy, (iv) vasectomy
- (4) B-(ii) bacterial; C-(iii) tubectomy, (iv) vasectomy

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

List-I		List-II	
(A)	Cleavage	(I)	Fertilisation
(B)	Morula	(II)	Mitotic divisions
(C)	Sperm + ovum	(III)	Uterus
(D)	Implantation	(IV)	Little mulberry

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

45. A phosphoglyceride is always made up of;
- (1) a saturated or unsaturated fatty acid esterified to glycerol molecules to which a phosphate group is also attached.
 - (2) a saturated or unsaturated fatty acid esterified to a phosphate group which is also attached to a glycerol molecule.
 - (3) only a saturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached.
 - (4) only an unsaturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached.

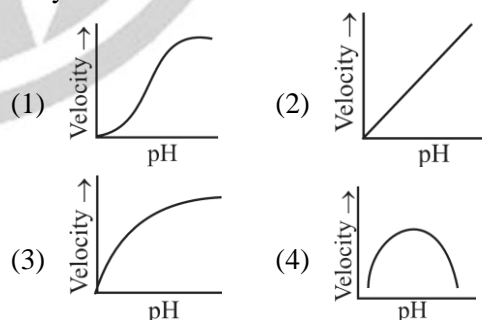
46. Which one of the following organisms bears hollow and pneumatic long bones?

- (1) *Ornithorhynchus*
- (2) *Neophron*
- (3) *Hemidactylus*
- (4) *Macropus*

47. Graves disease is caused due to;

- (1) hyposecretion of thyroid gland.
- (2) hypersecretion of thyroid gland.
- (3) hyposecretion of adrenal gland.
- (4) hypersecretion of adrenal gland.

48. Which of the following graph represents **correctly** the effect of pH on the velocity of a typical enzymatic reaction?



49. Dialysing fluid have the same composition as that of;

- (1) Plasma - nitrogenous wastes
- (2) Serum - urea
- (3) Lymph - proteins
- (4) Plasma + electrolytes + heparin



50. Assertion (A): SAN is called the pacemaker of heart.

Reason (R): The SAN can generate the maximum number of action potentials and is responsible for initiating and maintaining the rhythmic contractile activity of the heart.

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



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