

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

1. Read the following statements.
- A. The cells of germinal epithelium are cuboidal.
- B. The main function of stratified squamous epithelium is protection.
- C. The ciliated epithelium is found in trachea and fallopian tubes.
- D. The transitional epithelium is found in renal cortex.
- (1) All are correct
- (2) Only A & B are correct
- (3) Only A, B & C are correct
- (4) Only B, C & D are correct

2. Amount of water and protein present in blood plasma is
- (1) 40 - 42% & 7 - 8%
- (2) 60 - 65% & 9 - 10%
- (3) 70 - 80% & 10 - 12%
- (4) 90 - 92% & 6 - 8%

3. Match the following cell structure with its characteristic feature.

	Column-I		Column-II
(A)	Tight junctions	(I)	Cement neighbouring cells together to form sheet
(B)	Adhering	(II)	Transmit information junctions through chemical to another cells
(C)	Gap junctions	(III)	Establish a barrier to prevent leakage of fluid across epithelial cells
(D)	Synaptic junctions	(IV)	Cytoplasmic channels to facilitate communication between adjacent cells

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

4. Consider the following statements.
- I. Fibrinogens are needed for clotting or coagulation of blood.
- II. Albumins are involved in defense mechanisms of the body.
- (1) Statement I is correct but II is incorrect
- (2) Statement I is incorrect but II is correct
- (3) Both statements I & II are correct
- (4) Both statements I & II are incorrect

5. Match column I with column II.

Column I		Column 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

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

6. Match List - I with List - II.

List - I		List - II	
(A)	Cellular barrier	(I)	Interferons
(B)	Cytokine barrier	(II)	Mucus
(C)	Physical barrier	(III)	Neutrophils
(D)	Physiological barrier	(IV)	HCl in gastric juice

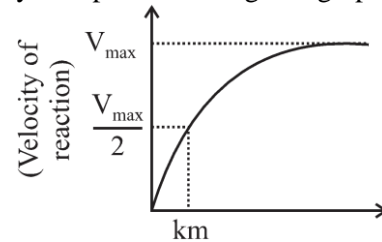
Choose the **correct** answer from the options given below:

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



7. Which of the following statement is **incorrect**?
- (1) ADH helps in water elimination making urine hypotonic.
 - (2) Protein free fluid is filtered from blood plasma into the Bowman's capsule.
 - (3) Glucose is actively reabsorbed in the proximal convoluted tubule.
 - (4) Henle's loop plays an important role in concentrating the urine.
8. Pseudocoelomate phylum is
- (1) Aschelminthes
 - (2) Platyhelminthes
 - (3) Annelida
 - (4) Arthropoda
9. **Assertion (A):** The bulbourethral gland is a male accessory gland.
Reason (R): Its secretion helps in the lubrication of the penis, thereby facilitating reproduction. In the light of the above statements, choose the **correct** answer from the options given below:
- (1) Both **Assertion (A)** and **Reason (R)** are correct and **Reason (R)** is a correct explanation of **Assertion (A)**.
 - (2) Both **Assertion (A)** and **Reason (R)** are correct but **Reason (R)** is not a correct explanation of **Assertion (A)**.
 - (3) **Assertion (A)** is correct and **Reason (R)** is not correct.
 - (4) Both **Assertion (A)** and **Reason (R)** is incorrect.
10. Which of the following is **not** a characteristic of chordates?
- (1) Notochord present
 - (2) A post-anal tail
 - (3) Pharynx perforated by gills slits
 - (4) Heart is dorsal in position
11. Which of the following is limbless Amphibia?
- (1) *Hyla*
 - (2) *Salamandra*
 - (3) *Ichthyophis*
 - (4) *Bufo*

12. Which of the following factors affecting enzyme activity is depicted in the given graph?



- (1) pH
 - (2) Temperature
 - (3) Product concentration
 - (4) Substrate concentration
13. **Assertion (A):** All enzymes are not proteinaceous in nature.
Reason (R): Ribozymes are not proteinaceous in nature.
Choose the appropriate option.
- (1) **Assertion (A)** is correct but **Reason (R)** is not correct.
 - (2) **Assertion (A)** is not correct but **Reason (R)** is correct.
 - (3) Both **Assertion (A)** and **Reason (R)** are correct and **Reason (R)** is the correct explanation of **Assertion (A)**.
 - (4) Both **Assertion (A)** and **Reason (R)** are correct but **Reason (R)** is not the correct explanation of **Assertion (A)**.
14. Nearly all of the essential nutrients and 70-80% of electrolytes and water are reabsorbed in which segment of nephron?
- (1) PCT
 - (2) Ascending limb of loop of Henle
 - (3) Descending limb of loop of Henle
 - (4) DCT
15. When a neuron is not conducting any impulse i.e., resting, the axonal membrane comparatively _____ to potassium ions (K^+) and nearly _____ to sodium (Na^+) ions.
- (1) Less permeable, impermeable respectively
 - (2) More permeable, impermeable respectively
 - (3) Less permeable, more impermeable respectively
 - (4) Impermeable, impermeable respectively



16. Assertion (A): When a particular restriction enzyme cuts strand of DNA, overhanging stretches or sticky ends are formed.

Reason (R): Some restriction enzymes cut the strand of DNA a little away from the centre of palindromic site.

In the light of the above statements, choose the **correct** answer from the options given below:

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

17. Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): All vertebrates are chordates but all chordates are not vertebrates.

Reason (R): Notochord is replaced by vertebral column in the adult vertebrates.

In the light of the above statements, choose the **most** appropriate answer from the option given below:

- (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 not correct
- (4) **Assertion (A)** is not correct but **Reason (R)** is correct

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

- I. Thyrocalcitonin regulates blood glucose levels.
 - II. Oxytocin stimulates contractions of uterine muscles during birth.
 - III. Grave's disease is caused by malfunctioning of the thyroid gland.
 - IV. ADH stimulates the absorption of water and increased urine production.
- (1) I and III are true; II and IV are false
 - (2) I and II are true; III and IV are false
 - (3) I and IV are false; II and III are true
 - (4) I, II and III are true; IV only false

19. _____ stimulates the synthesis and secretion of steroid hormones from the _____.

- (1) CRH, Adrenal Medulla
- (2) Gonadotropins, Gonads
- (3) CRH, Adrenal Cortex
- (4) ACTH, Adrenal medulla

20. Assertion (A): Solubility of gases affect the rate of diffusion.

Reason (R): A gas having high solubility, diffuses at a faster rate than the gas having lower solubility.

Choose the appropriate option:

- (1) (A) is correct but (R) is not correct
- (2) (A) is not correct but (R) is correct
- (3) Both (A) and (R) are correct and (R) is the correct explanation of (A)
- (4) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

21. What will be the pO_2 and pCO_2 in the atmospheric air as compared to those in alveolar air?

- (1) pO_2 higher, pCO_2 lesser
- (2) pO_2 lesser, pCO_2 higher
- (3) pO_2 higher, pCO_2 higher
- (4) pO_2 lesser, pCO_2 lesser

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

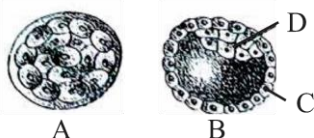
- (1) A- zone
- (2) I- zone
- (3) H- zone
- (4) O- zone

23. **Statement I:** Menstrual flow lasts for 3-4 days.
Statement II: Menstruation usually occurs about 20 days after ovulation.

Choose the **correct** option.

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

24. Identify the stage A and B and what are the correct labellings of C and D?



Choose the **correct** option.

	A	B	C	D
(1)	Morula	Blastocyst	Follicular cells	Inner cell mass
(2)	Morula	Blastocyst	Embryo	Trophoblast
(3)	Morula	Blastocyst	Trophoblast	Inner cell mass
(4)	Blastocyst	Morula	Trophoblast	Inner cell mass

25. Sertoli cells are found in
- (1) Pancreas and secrete cholecystokinin
 - (2) Ovaries and secrete progesterone
 - (3) Adrenal cortex and secrete adrenaline
 - (4) Seminiferous tubules and provide nutrition to germ cells

26. Which of the following is the most effective method of birth control which prevents ovulation?
- (1) CuT
 - (2) Oral contraceptives
 - (3) MTP
 - (4) Use of condoms

27. Which of the following is **not true** for an ideal contraceptive?
- (1) User friendly
 - (2) Negligible failure rate
 - (3) Irreversible
 - (4) None or least side effects

28. Lamarck's theory was based on the hypothesis of
- (1) Use and disuse of organs
 - (2) Inheritance of acquired characters
 - (3) Both (1) and (2)
 - (4) None of these

29. Due to discovery of which of the following in 1980s, the evolution was termed as RNA world?
- (1) m-RNA, t-RNA, r-RNA synthesis proteins
 - (2) In some viruses, RNA is genetic material
 - (3) RNA has enzymatic property
 - (4) RNA is not found in all cells

30. **Assertion (A):** Restriction digestion is a process of cutting DNA by restriction enzyme
Reason (R): DNA ligase joins two DNAs.
 Choose the appropriate option:

- (1) Both (A) and (R) are true and reasons is the correct explanation of (A)
- (2) Both (A) and (R) are true but (R) is not the correct explanation of (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

31. Method involving entry of high velocity gold microparticles coated with DNA into plant cells
- (1) Protoplast function
 - (2) Transfection
 - (3) Biolistic
 - (4) Magic bullet action

32. **Statement I:** *Brassica napus* seeds accumulate animal protein hirudin.
Statement II: In mature insulin 'C' chain is present.

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

33. The site where lymphocytes interact with antigens and proliferate to become effector cells are
- (1) Spleen and lymph nodes
 - (2) Bone marrow and thymus
 - (3) Peyer's patches and tonsils
 - (4) Both (1) and (3)



34. Read the following statements carefully.
- (I) Cancer causing viruses have genes called viral oncogenes.
 - (II) Malignant tumors remain confined to their original location.
 - (III) Cancer cells do not exhibit contact inhibition.
 - (IV) X-rays and UV rays are not potent carcinogens.
 - (V) Cancer detection is based on biopsy.
- Which of the above statements are **not correct** regarding cancer?
- (1) (III) and (V)
 - (2) (II) and (IV)
 - (3) (I), (III) and (V)
 - (4) (II), (IV) and (V)

35. Match the parts given in Column-I to their characteristic features in Column-II and choose the **correct** option from the codes given below.

Column-I		Column-II	
(A)	Penis	(I)	Loose fold of skin
(B)	Glans penis	(II)	Male external genitalia
(C)	Foreskin	(III)	External opening urethra
(D)	Urethral meatus	(IV)	Enlarged end of penis

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

SECTION B

36. Match the items given in column I with those in column II and select the **correct** option given below.

Column I		Column II	
I.	Glycosuria	A.	Accumulation of uric acid in joints
II.	Gout	B.	Mass of crystallised salts within the kidney
III.	Renalcalculi	C.	Inflammation of glomeruli
IV.	Glomerular nephritis	D.	Presence of glucose in urine

I II III IV

- (1) C B D A
- (2) A B C D
- (3) D A B C
- (4) B C A D

37. **Statement A:** The neural system is composed of highly specialised cells called neurons that can detect stimuli.

Statement B: The neural system is composed of highly specialised cells called neurons that can transmit stimuli.

- (1) Statement A is correct
- (2) Statement B is correct
- (3) Statement A and B are correct
- (4) Statement A and B are incorrect

38. Blood carries the CO₂ in three forms. The **correct** percentages of CO₂ in these forms are:

	As carbamino-hemoglobin RBC	As bicarbonates	Dissolved form in plasma
(1)	20–25%	70%	7%
(2)	70%	20-25%	7%
(3)	20-25%	7%	70%
(4)	7%	20-25%	70%

39. If over secretion of growth hormone occurs after puberty, then individual suffers from

- (1) Gigantism
- (2) Acromegaly
- (3) Pitutary dwarfism
- (4) All of these

40. **Statement I:** First mammals on earth were like shrews.

Statement II: *Dryopithecus* were more ape-like and *Ramapithecus* were more man-like primate.

Choose the **correct** option.

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

41. Autoimmunity is caused due to the

- (A) ability of immune cells to discriminate between self-cells from non-self-cells.
- (B) inability of immune cells in damaging self-cells representing foreign antigens.
- (C) inability of immune cells in distinguishing self-cells from non-self-cells.
- (D) ability of immune cells to damage self-cells.

- (1) (A) and (B) only
- (2) (B) and (C) only
- (3) (C) and (D) only
- (4) (A) and (D) only



42. Primary structure of a protein relates to
- (1) α -helical folding of a polypeptide
 - (2) Association of two polypeptides
 - (3) The sequence of amino acids
 - (4) β -pleated sheet folding of a polypeptide

43. Labia majora in human is homologous to
- (1) Clitoris
 - (2) Hymen
 - (3) Scrotum
 - (4) Testis

44. Diagrams of some animals are given below. Identify the common character in them.



- (1) Presence of cnidoblasts
 - (2) Presence of ciliary comb plates
 - (3) Extracellular and intracellular digestion
 - (4) Bioluminescence
45. Which of the following arthropods are harmful?
- | | |
|------------------|--------------------|
| (A) <i>Culex</i> | (B) <i>Bombyx</i> |
| (C) <i>Apis</i> | (D) <i>Locusta</i> |
- (1) A and B
 - (2) B and C
 - (3) B and D
 - (4) A and D
46. Restriction endonuclease cuts
- (1) dsDNA
 - (2) ssDNA
 - (3) Single strands of dsDNA
 - (4) Both (1) and (2)

47. Which of the following is used as a bioweapon?
- (1) *Bacillus subtilis*
 - (2) *Bacillus licheniformis*
 - (3) *Bacillus thuringiensis*
 - (4) *Bacillus anthracis*

48. Which of the following groups of contraceptives are included under barrier methods?
- (1) Condom, vaults, IUDs, cervical caps
 - (2) IUDs, diaphragm, periodic abstinence, injections
 - (3) Condom, diaphragm, cervical caps, vaults
 - (4) Surgical methods, oral contraceptives, cervical caps, vaults

49. Striations in the striated muscles are due to
- (1) Absence of myofilaments
 - (2) Presence of myofilaments
 - (3) Specialised arrangement of myofilaments
 - (4) Projections of myosin

50. First polar body is formed during the formation of _____ and completion of _____ meiotic division.
- (1) Primary oocyte, second
 - (2) Secondary oocyte, first
 - (3) Secondary spermatocyte, second
 - (4) Primary spermatocyte, first

