

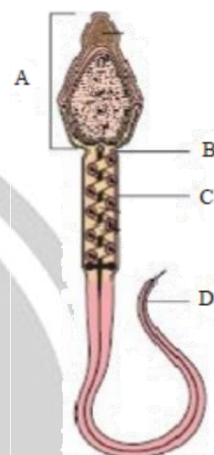
**ZOOLOGY****SECTION-A**

1. Hepatitis B is transmitted through  
(1) Blood transfusion  
(2) Intimate physical contact  
(3) Sexual contact  
(4) All of these
2. Match the column-I with column-II and select the correct option.

Column-I		Column-II	
(A)	Fertilisation	(I)	Mitotic division
(B)	Implantation	(II)	Embryo with 8 to 16 blastomeres
(C)	Cleavage	(III)	Ampullary-isthmic junction
(D)	Morula	(IV)	Structure formed by the continuous division of 8 to 16 blastomeres
(E)	Blastocysts	(V)	Embedding of blastocysts in the endometrium

- (1) A-I; B-II; C-IV; D-V; E-III  
(2) A-III; B-I; C-IV; D-II; E-V  
(3) A-III; B-V; C-I; D-IV; E-II  
(4) A-III; B-V; C-I; D-II; E-IV
3. The exaggerated response of the immune system to certain antigens is called  
(1) primary response  
(2) secondary response  
(3) immune suppression response  
(4) allergy
4. Techniques like radiography (use of X-rays), CT scanning and MRI are very useful to detect  
(1) autoimmune disorders  
(2) disease caused by viral infection  
(3) disease caused by bacterial infection  
(4) disease caused by an uncontrolled division of abnormal cells of internal organs

5. The placenta is formed from the \_\_\_\_\_ of the embryo and the \_\_\_\_\_ of the mother.  
(1) uterus, trophoblast  
(2) chorion, endometrium  
(3) endometrium, chorion  
(4) inner cell mass, endometrium
6. The figure given below shows the structure of sperm. Identify the correct feature corresponding to the marked structures A, B, C and D.



- (1) A - Head: Its anterior portion is covered by a structure filled with enzymes that helps in the fusion of male and female gametes.  
(2) B - Middle piece: It contains a haploid nucleus.  
(3) C - Neck: It possess few ribosomes which produces energy for the process of fertilisation.  
(4) D - Tail: It releases energy source for swimming of sperm.
7. Given below are four methods (A-D) and their mode of action (1 - 4) in achieving contraception. Select their correct matching from the four options that follow:
- |   | Method    |   | Mode of action                       |
|---|-----------|---|--------------------------------------|
| A | The pill  | 1 | Prevents sperms from reaching cervix |
| B | Condom    | 2 | Prevents implantation                |
| C | Vasectomy | 3 | Prevents ovulation                   |
| D | Copper-T  | 4 | Semen contains no sperm              |
- (1) A-3, B-1, C-4, D-2  
(2) A-2, B-3, C-1, D-4  
(3) A-4, B-1, C-2, D-3  
(4) A-3, B-4, C-1, D-2

8. Which of the following statements is not correct about the dendrites?

- (1) These are the short fibres which branch repeatedly and project out of the cell body.
- (2) These contain the granular bodies called Nissl's granules.
- (3) These fibres transmit the impulses towards the cell body.
- (4) These contain neurotransmitters.

9. The inorganic compound like sulphate, phosphate etc., are found in

- (1) Acid-soluble pool
- (2) Acid-insoluble fraction
- (3) Both (1) & (2)
- (4) None of the above

10. Which ones have open circulatory system?

- A. *Ascidia*
- B. Cockroach
- C. Earthworm
- D. Prawn
- E. Silver Fish
- F. Snail

- (1) B, D, F
- (2) A, B, D, F
- (3) C, D, E
- (4) B, D, E, F

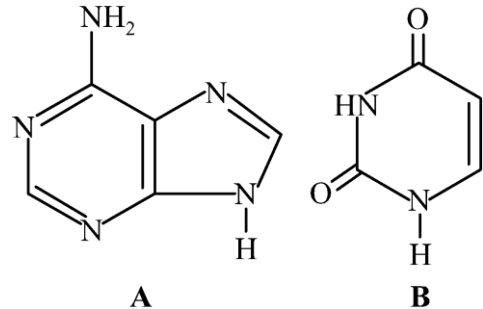
11. Evolutionary convergence is characterized by

- (1) Development of dissimilar characteristics in closely related groups
- (2) Development of common set of characteristics in groups of different ancestry
- (3) Development of characteristics by random mating
- (4) Replacement of common characteristics in different groups

12. Find out the incorrect statement

- (1) Animal husbandry is the agricultural practice of breeding and raising livestock
- (2) More than 70 per cent of the world's livestock population is in India and China
- (3) Dairying is the management of animals for milk and its products for human consumption
- (4) Hisardale is a new breed of sheep developed in Punjab by crossing Bikaneri rams and Marino ewes

13. Identify the given structural formula and select the correct option



- |              |         |
|--------------|---------|
| (1) Adenine  | Uracil  |
| (2) Guanine  | Thymine |
| (3) Adenine  | Guanine |
| (4) Cytosine | Thymine |

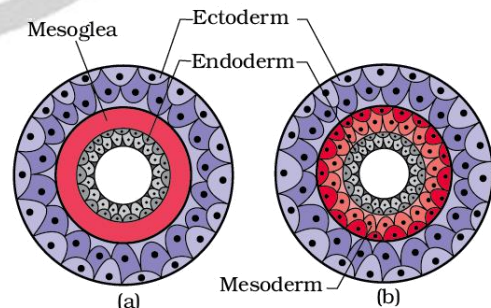
14. Find the correct statement of the given question

**Statement A:** Monosaccharides and disaccharides are crystalline and sweet in taste.

**Statement B:** Polysaccharides are tasteless, amorphous and insoluble in water.

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

15. The animal possessing the following type of germ layers (a and b) are called \_\_\_\_\_ and \_\_\_\_\_ respectively



- (1) Diploblastic, Triploblastic
- (2) Triploblastic, Diploblastic
- (3) Diploblastic, Diploblastic
- (4) Triploblastic, Triploblastic



16. Match the following column I & II and mark the correct option as given below

Column I		Column II	
A	Asymmetrical	I	Annelids
B	Radial symmetry	II	Coelenterates
C	Bilateral	III	Sponge
		IV	Arthropoda
		V	Ctenophores
		VI	Platyhelminthes

- (1) A-I, B-III, II, C-IV, V, VI  
(2) A-III, B-VI, II, C-I, IV, V  
(3) A-III, B-II, V, C-I, IV, VI  
(4) A-III, B-IV, V, II, C-I, VI
17. Choose the correct option regarding the concept of Darwin and Hugo de Vries

	The concept of Darwin	The concept of Hugo de Vries
(1)	Variations are random and directionless	Mutation are minor changes and directional
(2)	Gradual evolution	Saltatory evolution
(3)	Mutational concept	Genetic variation concept
(4)	Large difference arises suddenly in a population	Minor variations are heritable

18. Read the given statements and select the correct option.

**Statement 1:** Transfer of an ovum collected from a donor into the fallopian tube of another female who cannot produce an ovum, is called as GIFT.

**Statement 2:** Transfer of early embryos with upto 8 blastomeres into the fallopian tube of the female, is called ZIFT.

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

19. Consider the following statements each with one of two blanks.

- (A) Lippes loop is a (i) IUD while multiload 375 is a (ii) IUD.  
(B) Surgical methods of contraception are also called as (iii) methods.  
(C) High MMR and IMR play a significant role in (iv) human population.

Which one of the following options, gives the correct fill ups for the respective blank numbers from (i) to (iv) in the above statements?

- (1) (i) copper releasing, (ii) non-medicated (iv) decreasing  
(2) (iii) barrier, (iv) increasing  
(3) (i) non-medicated, (ii) copper releasing. (iv) decreasing  
(4) (i) copper releasing, (ii) non-medicated, (iii) sterilisation

20. Identify the incorrectly matched pair:

- (1) Humulin – First therapeutic rDNA product approved for human use  
(2) RNAi – Silencing of mRNA with the help of dsRNA  
(3) Rosie – Transgenic sheep producing alpha 1 antitrypsin  
(4) Golden rice – Vitamin A enriched rice variety

21. For conversion of prothrombin into thrombin, which of the following is required?

- (1) Fibrinogen  
(2) Vitamin K  
(3) Proconvertin  
(4) Thrombokinas

22. Atrial systole

- (1) Increase the flow of blood into the ventricle by 70 percent.  
(2) Is due to generation of action potential in AVN only  
(3) Increase the flow of blood into ventricle by 30%  
(4) Coincides with ventricular systole



23. Anaerobic work becomes painful due to accumulation of

- (1)  $\text{Ca}^{2+}$  ions (2) Calcium carbonate  
(3) Lactic acid (4) Creatine phosphate

24. Contractile unit of muscles is a part of myofibril between

- (1) Z-line and I band  
(2) Z-line and Z-line  
(3) Z-line and A-band  
(4) A-band and I-band

25. **Statement 1:** Prolactin is lactotroph.

**Statement 2:** FSH is gonadotroph.

Choose the correct statement

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

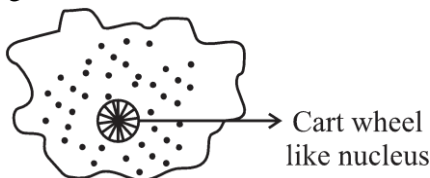
26. If over secretion of growth hormone occurs after puberty, then individual suffers from :

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

27. The development of *Periplaneta americana* is

- (1) Holometabolous  
(2) Paurometabolous  
(3) Hemimetabolous  
(4) Ametabolous

28. The given structure is of



- (1) Mast cell (2) Adipocyte  
(3) Lymphocyte (4) Plasma cells

29. Epimysium is the covering of

- (1) Heart  
(2) Bone  
(3) Cartilage  
(4) Muscle

30. Match the following columns and select the correct option

Column-I		Column-II	
a	Bt cotton	(i)	Gene therapy
b	ADA	(ii)	Cellular defence
c	RNAi	(iii)	Detection of HIV infection
d	PCR	(iv)	<i>Bacillus thuringiensis</i>

- (a) (b) (c) (d)  
(1) (iii) (ii) (i) (iv)  
(2) (iv) (iii) (ii) (i)  
(3) (i) (ii) (iii) (iv)  
(4) (iv) (i) (ii) (iii)

31. Match the following diseases with the causative organisms and select the correct option

	Column I		Column II
A.	Typhoid	(i)	<i>Wuchereria</i>
B.	Pneumonia	(ii)	<i>Plasmodium</i>
C.	Filariasis	(iii)	<i>Salmonella</i>
D.	Malaria	(iv)	<i>Haemophilus</i>

- (1) A – (i), B – (ii), C – (iii), D – (iv)  
(2) A – (iii), B – (iv), C – (i), D – (ii)  
(3) A – (ii), B – (i), C – (iii), D – (iv)  
(4) A – (iv), B – (i), C – (ii), D – (iii)

32. Lungs are enclosed by

- (1) Plasma membrane  
(2) Pleural membrane  
(3) Perichondrium  
(4) Periosteum

33. In humans, thoracic chamber is formed dorsally by the \_\_\_A\_\_\_ and ventrally by the \_\_\_B\_\_\_.

Choose the option which fills the blanks correctly.

- (1) Ribs, Diaphragm  
(2) Vertebral column, Sternum  
(3) Ribs, Sternum  
(4) Diaphragm, Ribs

34. Cortical portion of kidney projecting between the medullary pyramids in human kidney are called

- (1) Vasa recta  
(2) Juxtaglomerular apparatus  
(3) Columns of Bellini  
(4) Column of Bertini

35. Joint between carpal and metacarpal of human thumb is

- (1) Ball and socket joint  
(2) Hinge joint  
(3) Saddle joint  
(4) Gliding joint



### SECTION-B

36. Which of the following organisms are thought to be evolved into first amphibians?

- (1) *Petromyzon*
- (2) *Lamphery*
- (3) *Coelacanth*
- (4) *Ascidia*

37. Biotechnology reveals use of

- (1) Microorganisms in industrial process
- (2) rDNA
- (3) Engineered bacteria for production of antibiotics and antibodies
- (4) All of these

38. Which of the following is the most important factor that would leads to increased milk yield in cattle ?

- (1) Selection of good breeds
- (2) Resistance to diseases
- (3) Stringent cleanliness and hygiene
- (4) Provision of ideal environmental conditions to cattle

39. Crystalline protein synthesised by *Bacillus thuringiensis* is activated by

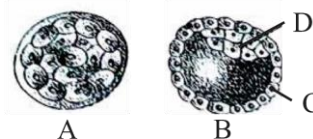
- (1) Acidic condition of bacterial food vacuole
- (2) Alkaline pH of bacterial food vacuole
- (3) Alkaline pH in insect foregut
- (4) Alkaline pH in insect mid-gut

40. **Statement-I:** Marasmus is produced by protein deficiency unaccompanied by calorie deficiency.

**Statement II:** Extensive oedema and swelling of body parts are seen in Marasmus.

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

41. 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

42. 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

43. In which of the following animals is the notochord replaced by bony vertebral columns in adult?

- (1) *Ascidia*
- (2) *Branchiostoma*
- (3) *Petromyzon*
- (4) *Labeo*

44. Collagen is

- (1) Hormone
- (2) Enzyme
- (3) Transporter
- (4) Intercellular ground substance

45. **Assertion (A):** All enzymes are proteinaceous in nature.

**Reason (R):** Ribozymes are not proteinaceous in nature.

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)





46. The maximum volume of air a person can breathe in after a forced expiration

- (1) Vital capacity      (2)  $ERV + TV + IRV$   
(3)  $TLC - RV$       (4) All of these

47. **Assertion:** The enlarged part of penis is called glans penis.

**Reason:** The glans penis is covered by a loose fold of skin called foreskin.

- (1) Both assertion and reason are true and reason is the correct explanation of assertion.  
(2) Both assertion and reason are true, but reason is not the correct explanation of assertion.  
(3) Assertion is true, but reason is false.  
(4) Both assertion and reason are false.

48. Example of physiological barriers are

- (1) PMNL  
(2) Saliva in mouth  
(3) Interferons  
(4) Skin

49. **Assertion:** The scrotum helps in maintaining the low temperature of the testes.

**Reason:** The low temperature of the testes is necessary for spermatogenesis.

- (1) Both assertion and reason are true and reason is the correct explanation of assertion.  
(2) Both assertion and reason are true, but reason is not the correct explanation of assertion.  
(3) Assertion is true, but reason is false.  
(4) Both assertion and reason are false.

50. 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



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