

NEET 2024 S3 Zoology Question Paper with Solutions

1. Given below are two statements:

Statement I: In the nephron, the descending limb of the loop of Henle is impermeable to water and permeable to electrolytes.

Statement II: The proximal convoluted tubule is lined by simple columnar brush border epithelium and increases the surface area for reabsorption.

- (1) Statement I is false but Statement II is true
 - (2) Both Statement I and Statement II are true
 - (3) Both Statement I and Statement II are false
 - (4) Statement I is true but Statement II is false
-

2. Given below are two statements: One is labelled as Assertion (A) and the other is labelled as Reason (R):

Assertion A: FSH acts upon ovarian follicles in females and Leydig cells in males.

Reason R: Growing ovarian follicles secrete estrogen in females while interstitial cells secrete androgen in male human beings.

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

3. Which one of the following factors will not affect the Hardy-Weinberg equilibrium?

- (1) Constant gene pool
- (2) Genetic recombination
- (3) Genetic drift

(4) Gene migration

4. Which of the following are Autoimmune disorders?

- A. Myasthenia gravis
- B. Rheumatoid arthritis
- C. Gout
- D. Muscular dystrophy
- E. Systemic Lupus Erythematosus (SLE)

Choose the most appropriate answer from the options given below:

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

5. Given below are some stages of human evolution.

Arrange them in correct sequence. (Past to Recent)

- A. *Homo habilis*
- B. *Homo sapiens*
- C. *Homo neanderthalensis*
- D. *Homo erectus*

Choose the correct sequence of human evolution from the options given below:

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

6. Given below are two statements:

Statement I: The presence or absence of hymen is not a reliable indicator of virginity.

Statement II: The hymen is torn during the first coitus only.

- (1) Statement I is false but Statement II is true
- (2) Both Statement I and Statement II are true
- (3) Both Statement I and Statement II are false
- (4) Statement I is true but Statement II is false

7. Match List I with List II

List I		List II	
A.	Non-medicated IUD	I.	Multiload 375
B.	Copper releasing IUD	II.	Progestogens
C.	Hormone releasing IUD	III.	Lippes loop
D.	Implants	IV.	LNG-20

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

8. Consider the following statements:

- A. Annelids are true coelomates
- B. Poriferans are pseudocoelomates
- C. Aschelminthes are acoelomates
- D. Platyhelminthes are pseudocoelomates

Choose the correct answer from the options given below : (1) D only

- (2) B only
- (3) A only
- (4) C only

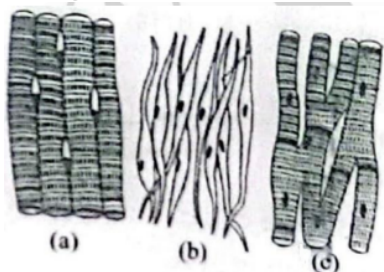
9. Which of the following factors are favourable for the formation of oxyhaemoglobin in alveoli?

- (1) Low $p\text{CO}_2$ and High temperature
- (2) High $p\text{O}_2$ and High $p\text{CO}_2$
- (3) High $p\text{O}_2$ and Lesser H^+ concentration
- (4) Low $p\text{CO}_2$ and High H^+ concentration

10. Match List I with List II:

	List I		List II
A.	Expiratory capacity	I.	Expiratory reserve volume + Tidal volume + Inspiratory reserve volume
B.	Functional residual capacity	II.	Tidal volume + Expiratory reserve volume
C.	Vital capacity	III.	Tidal volume + Inspiratory reserve volume
D.	Inspiratory capacity	IV.	Expiratory reserve volume + Residual volume

11. Three types of muscles are given as a, b, and c. Identify the correct matching pair along with their location in the human body:



Name of muscle/location

- 1. (a) Involuntary - Nose tip
- (b) Skeletal - Bone
- (c) Cardiac - Heart

- 2. (a) Smooth - Toes
- (b) Skeletal - Legs
- (c) Cardiac - Heart

3. (a) Skeletal - Triceps
(b) Smooth - Stomach
(c) Smooth - Heart
4. (a) Skeletal - Biceps
(b) Involuntary - Intestine
(c) Cardiac - Heart

12. The flippers of the Penguins and Dolphins are the example of the

Divergent evolution Adaptive radiation Natural selection Convergent evolution

16. Which of the following statements is incorrect?

Bio-reactors have an agitator system, an oxygen delivery system, and a foam control system. A bio-reactor provides optimal growth conditions for achieving the desired product. Most commonly used bio-reactors are of stirring type. Bio-reactors are used to produce small-scale bacterial cultures.

17. The "Ti plasmid" of *Agrobacterium tumefaciens* stands for:

Temperature independent plasmid
Tumour inhibiting plasmid
Tumor independent plasmid
Tumor inducing plasmid

18. Match List I with List II:

List I	List II
A.Common cold	I.Plasmodium
B.Hemozoin	II.Typhoid
C.Widal test	III.Rhinoviruses
D.Allergy	IV.Dust mites

Choose the correct answer from the options given below:

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

19. Following are the stages of cell division:

- A. Gap 2 phase
- B. Cytokinesis
- C. Synthesis phase
- D. Karyokinesis
- E. Gap 1 phase

Choose the correct sequence of stages from the options given below:

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

20. Which of the following is not a natural/traditional contraceptive method?

- (1) Vaults
 - (2) Coitus interruptus
 - (3) Periodic abstinence
 - (4) Lactational amenorrhea
-

21. Match List I with List II:

List I	List II
<i>A. Pleurobrachia</i>	<i>I. Mollusca</i>
<i>B. Radula</i>	<i>II. Ctenophora</i>
<i>C. Stomochord</i>	<i>III. Osteichthyes</i>
<i>D. Air bladder</i>	<i>IV. Hemichordata</i>

Choose the correct answer from the options given below:

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

22. Which one is the correct product of DNA dependent RNA polymerase to the given template?

3' TACATGGCAAATATCCATTCA5'

Choose the correct answer from the options given below:

- (1) 5' ATGACCgttTTAAGT3'
- (2) 5' AUGACCGUUUAGGUG3'
- (3) 5' AUGUAAAGUUUAGGAAGU3'
- (4) 5' AUGUACCGUUUAGGGAAGU3'

23. Match List I with List II:

List I	List II
<i>A. α - I antitrypsin</i>	<i>I. Cotton bollworm</i>
<i>B. Cry IAb</i>	<i>II. ADA deficiency</i>
<i>C. Cry IAc</i>	<i>III. Emphysema</i>
<i>D. Enzyme replacement therapy</i>	<i>IV. Corn borer</i>

Choose the correct answer from the options given below:

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

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

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

24. Match List I with List II:

List I	List II
A.Pterophyllum	I.Hag fish
B.Myxine	II.Saw fish
C.Pristis	III.Angel fish
D.Exocoetus	IV.Flying fish

Choose the correct answer from the options given below:

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

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

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

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

25. Which of the following is not a component of Fallopian tube?

(1) Ampulla

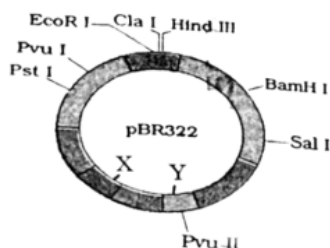
(2) Uterine fundus

(3) Isthmus

(4) Infundibulum

26. The following diagram showing restriction sites in E. coli cloning vector pBR322.

Find the role of 'X' and 'Y' genes:



Choose the correct answer from the options given below:

- (1) Gene 'X' is responsible for recognition sites and 'Y' is responsible for antibiotic resistance.
- (2) The gene 'X' is responsible for resistance to antibiotics and 'Y' for protein involved in the replication of Plasmid.
- (3) The gene 'X' is responsible for controlling the copy number of the linked DNA and 'Y' for protein involved in the replication of Plasmid.
- (4) The gene 'X' is for protein involved in replication of Plasmid and 'Y' for resistance to antibiotics.
-

27. Match List I with List II:

List I	List II
<i>A.</i> Fibrous joints	<i>I.</i> Adjacent vertebrae, limited movement
<i>B.</i> Cartilaginous joints	<i>II.</i> Humerus and Pectoral girdle, rotational movement
<i>C.</i> Hinge joints	<i>III.</i> Skull, don't allow any movement
<i>D.</i> Ball and socket joints	<i>IV.</i> Knee, help in locomotion

Choose the correct answer from the options given below:

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

28. Which of the following is not a steroid hormone?

- (1) Glucagon
- (2) Cortisol
- (3) Testosterone
- (4) Progesterone
-

29. Match List I with List II:

List I	List II
<i>A.</i> Axoneme	<i>I.</i> Centrioles
<i>B.</i> Cartwheel pattern	<i>II.</i> Cilia and flagella
<i>C.</i> Crista	<i>III.</i> Chromosome
<i>D.</i> Satellite	<i>IV.</i> Mitochondria

Choose the correct answer from the options given below:

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

30. Match List I with List II:

List I	List II
<i>A.</i> Cocaine	<i>I.</i> Effective sedative in surgery
<i>B.</i> Heroin	<i>II.</i> Cannabis sativa
<i>C.</i> Morphine	<i>III.</i> Erythroxylum
<i>D.</i> Marijuana	<i>IV.</i> Papaver somniferum

Choose the correct answer from the options given below:

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

31. In both sexes of cockroach, a pair of jointed filamentous structures called anal cerci are present on

- (1) 11th segment
- (2) 5th segment
- (3) 10th segment
- (4) 8th and 9th segment

32. Match List I with List II:

List I (Sub Phases of Prophase I)	List II (Specific Characters)
A. Diakinesis	I. Synaptonemal complex formation
B. Pachytene	II. Completion of terminalisation of chiasmata
C. Zygotene	III. Chromosomes look like thin threads
D. Leptotene	IV. Appearance of recombination nodules

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

33. Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: Breast-feeding during initial period of infant growth is recommended by doctors for bringing a healthy baby.

Reason R: Colostrum contains several antibodies absolutely essential to develop resistance for the new born baby.

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

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

34. Match List I with List II:

List I	List II
A. Down's syndrome	I. 11th chromosome
B. α -Thalassemia	II. 'X' chromosome
C. β -Thalassemia	III. 21st chromosome
D. Klinefelter's syndrome	IV. 16th chromosome

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

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

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

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

35. Match List I with List II:

List I	List II
A. Pons	I. Provides additional space for Neurons, regulates posture and balance.
B. Hypothalamus	II. Controls respiration and gastric secretions.
C. Medulla	III. Connects different regions of the brain.
D. Cerebellum	IV. Neurosecretory cells

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

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

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

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

36. As per ABO blood grouping system, the blood group of father is B₊, mother is A₊ and child is O₊. Their respective genotype can be:

(A) $|B^i|/|A^i|$

(B) $|B^i|/|A^i|/ii$

(C) $|A^B|/ii|A^B|$

(D) $|A^i|/|B^i|/A^i$

(E) $|ii|/|A^i|/B^i$

37. Match List I with List II:

List I	List II
A. Unicellular glandular epithelium	I. Salivary glands
B. Compound epithelium	II. Pancreas
C. Multicellular glandular epithelium	III. Goblet cells of alimentary canal
D. Endocrine glandular epithelium	IV. Moist surface of buccal cavity

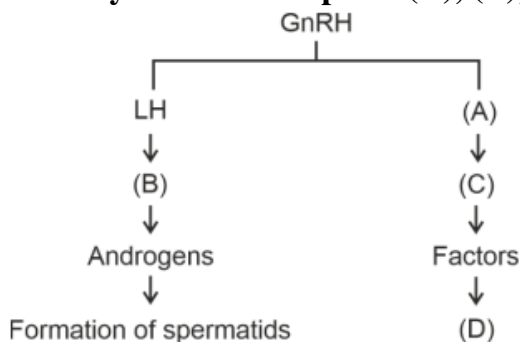
(1) A-II, B-I, C-IV, D-III

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

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

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

38. Identify the correct option (A), (B), (C), (D) with respect to spermatogenesis.



(1) ICSH, Leydig cells, Sertoli cells, spermatogenesis

(2) FSH, Leydig cells, Sertoli cells, spermiogenesis

(3) ICSH, Interstitial cells, Leydig cells, spermiogenesis

(4) FSH, Sertoli cells, Leydig cells, spermatogenesis

39. Given below are two statements:

Statement I: Gause's competitive exclusion principle states that two closely related species competing for different resources cannot exist indefinitely.

Statement II: According to Gause's principle, during competition, the inferior will be eliminated. This may be true if resources are limiting.

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

- (1) Statement I is false but Statement II is true.
 (2) Both Statement I and Statement II are true.
 (3) Both Statement I and Statement II are false.
 (4) Statement I is true but Statement II is false.

40. Match List I with List II related to digestive system of cockroach.

	List I		List II
A.	The structures used for storing of food	I.	Gizzard
B.	Ring of 6-8 blind tubules at junction of foregut and midgut.	II.	Gastric Caeca
C.	Ring of 100-150 yellow coloured thin filaments at junction of midgut and hindgut.	III.	Malpighian tubules
D.	The structures used for grinding the food.	IV.	Crop

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

41. Match List I with List II:

List I	List II
A. Mesozoic Era	I. Lower invertebrates
B. Proterozoic Era	II. Fish & Amphibia
C. Cenozoic Era	III. Birds & Reptiles
D. Paleozoic Era	IV. Mammals

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

42. Match List I with List II:

List I	List II
A. P wave	I. Heart muscles are electrically silent
B. QRS complex	II. Depolarisation of ventricles
C. T wave	III. Depolarisation of atria
D. T-P gap	IV. Repolarisation of ventricles

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

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

(3) A-III, B-I, C-IV, D-I

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

43. The following are the statements about non-chordates:

A. Pharynx is perforated by gill slits.

B. Notochord is absent.

C. Central nervous system is dorsal.

D. Heart is dorsal if present.

E. Post anal tail is absent.

Choose the most appropriate answer from the options given below:

(1) B, C & D only

(2) A & C only

(3) A, B & D only

(4) B, D & E only

44. Regarding catalytic cycle of an enzyme action, select the correct sequential steps:

A. Substrate enzyme complex formation.

B. Free enzyme ready to bind with another substrate.

C. Release of products.

D. Chemical bonds of the substrate broken.

E. Substrate binding to active site.

Choose the correct answer from the options given below:

(1) E, D, C, B, A

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

45. Given below are two statements:

Statement I: Bone marrow is the main lymphoid organ where all blood cells including lymphocytes are produced.

Statement II: Both bone marrow and thymus provide microenvironments for the development and maturation of T-lymphocytes.

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

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

46. Match List I with List II:

List I	List II
A. RNA polymerase III	I. snRNPs
B. Termination of transcription	II. Promotor
C. Splicing of Exons	III. Rho factor
D. TATA box	IV. SnRNAs, tRNA

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

47. Match List I with List II:

List I	List II
A. Exophthalmic goiter	I. Excess secretion of cortisol, moon face & hyperglycemia.
B. Acromegaly	II. Hypo-secretion of thyroid hormone and stunted growth.
C. Cushing's syndrome	III. Hyper secretion of thyroid hormone & protruding eye balls.
D. Cretinism	IV. Excessive secretion of growth hormone.

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

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

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

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

48. Choose the correct statement given below regarding juxta medullary nephron.

(1) Juxta medullary nephrons outnumber the cortical nephrons.

(2) Juxta medullary nephrons are located in the columns of Bertini.

(3) Renal corpuscle of juxta medullary nephron lies in the outer portion of the renal medulla.

(4) Loop of Henle of juxta medullary nephron runs deep into medulla.

49. Given below are two statements:

Statement I: The cerebral hemispheres are connected by nerve tract known as corpus callosum.

Statement II: The brain stem consists of the medulla oblongata, pons, and cerebrum.

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

(1) Statement I is incorrect but Statement II is correct.

(2) Both Statement I and Statement II are correct.

(3) Both Statement I and Statement II are incorrect.

(4) Statement I is correct but Statement II is incorrect.

50. Given below are two statements:

Statement I: Mitochondria and chloroplasts both are double membrane-bound organelles.

Statement II: Inner membrane of mitochondria is relatively less permeable, as compared to chloroplast.

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

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