



Sample Paper-03

Dropper NEET (2024)

ZOOLOGY

ANSWER KEY

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|---------|---------|
| 1. (3)  | 26. (2) |
| 2. (3)  | 27. (2) |
| 3. (2)  | 28. (2) |
| 4. (4)  | 29. (4) |
| 5. (3)  | 30. (2) |
| 6. (3)  | 31. (2) |
| 7. (4)  | 32. (2) |
| 8. (3)  | 33. (3) |
| 9. (1)  | 34. (1) |
| 10. (1) | 35. (1) |
| 11. (3) | 36. (3) |
| 12. (2) | 37. (4) |
| 13. (2) | 38. (4) |
| 14. (4) | 39. (3) |
| 15. (2) | 40. (2) |
| 16. (2) | 41. (3) |
| 17. (1) | 42. (1) |
| 18. (2) | 43. (2) |
| 19. (3) | 44. (1) |
| 20. (2) | 45. (4) |
| 21. (2) | 46. (1) |
| 22. (2) | 47. (4) |
| 23. (3) | 48. (2) |
| 24. (1) | 49. (2) |
| 25. (2) | 50. (2) |



## HINTS AND SOLUTION

1. (3)  
Labia majora is homologous to scrotum. Clitoris is homologous to male penis. Testis are homologous to ovary.
2. (3)  
Placenta begins to secrete sufficient progesterone after 3 months. It acts to maintain pregnancy by supporting the lining of the uterus.
3. (2)  
The entry of the sperm into the cytoplasm of the ovum through the zona pellucida and the plasma membrane induces the completion of the meiotic division of the secondary oocyte.
4. (4)  
Contraceptive pills are very effective with lesser side effects used by females. They work by inhibiting ovulation, inhibiting implantation and they alter the quality of cervical mucous to prevent/retard the entry of sperm.
5. (3)  
A widely used diagnostic test for AIDS is ELISA. AZT (Azidothymidine) was first and still continues to be the drug of choice for the treatment of AIDS.
6. (3)  
Antigen binding site in an antibody is formed by one heavy and one light chain.
7. (4)  
Common cold is most infections disease.
8. (3)  
Pure DNA precipitated by addition of chilled ethanol can be removed from solution by spooling.
9. (1)  
Retrovirus is uses as a vector for cloning genes into higher organisms.
10. (1)  
Midgut cell lysis and swelling by Bt toxin known to kill the target insects in protection of cotton plants.
11. (3)  
A crop expressing a cry gene is usually resistant to a group of insects. Cry protein produced from *Bacillus thuringiensis* is toxic to larva of certain insect.
12. (2)  
The nerve centres which control the body temperature and the urge for eating are containing in hypothalamus.
13. (2)  
When restriction enzymes cut the strand of DNA a little away from the centre of the palindrome sites but between the same two bases on the opposite strands, then single stranded portions are left at the ends. These overhanging stretches on each strand are called sticky ends.
14. (4)  
*Pheretima* has closed circulatory system and respire through skin.
15. (2)  
Amphibian, cyclostomata and tunicata are chordate that shows metamorphosis in their life cycle.
16. (2)  
Swim bladder allows fishes to control their depth in an aquatic environments.
17. (1)  
Bone matrix is hard and non-pliable and bone cells are known as osteocytes. Some cartilage of embryos is replaced by bone in adults.
18. (2)  
The cell junctions called tight, adhering and gap junctions are mostly found in epithelial tissue.
19. (3)  
Urinary bladder is not lined by squamous epithelium but by transitional epithelium which is a stretchable compound epithelium. It has a single layer of cuboidal cells at the base, 2-3 middle layers of large polygonal cells and a superficial layer of large, broad rectangular cells. Stretching considerably flattens and broadens the cells of superficial and middle layers, hence causing expansion of the urinary bladder.



20. (2)  
Gene gun or biolistics is a direct gene transfer method suitable for plant cell.
- Gene therapy involves replacement of a faulty gene by a normal healthy gene.
  - Gene cloning is done to make identical copies of a particular DNA molecule.
  - Genome is the total DNA in the cells of an organism.
21. (2)  
Image based question
22. (2)  
Text based question
23. (3)  
Hardy Weinberg equation:  
 $p^2 + 2pq + q^2 = 1$   
where,  $p^2$  = Frequency of AA (homozygous dominant) individuals.  
 $q^2$  = Frequency of aa (homozygous recessive) individuals.  
 $2pq$  = Frequency of Aa (heterozygous) individuals.
24. (1)  
The number of RBCs in human females is 4-4.5 millions/mm<sup>3</sup>. RBCs are the most abundant cells of blood. Human RBCs are biconcave and non-nucleated.
25. (2)  
In amphibians ventricle pumps out mixed blood.
26. (2)  
130/90 is prehypertension.
27. (2)  
Cholera is caused by bacterium *Vibrio cholerae*, tetanus is caused by bacterium *Clostridium tetani*.
28. (2)  
(2) A-(iv), B-(i), C-(iii), D-(ii)
29. (4)  
(4) A-(ii), B-(iv), C-(iii), D-(i)
30. (2)  
(2) A-(iv), B-(ii), C-(iii), D-(i)
31. (2)  
GIFT- Gamete intra fallopian transfer : Transfer of ovum collected from donor into fallopian tube.
32. (2)  
Competitive inhibition is seen when the substrate and the inhibitor compete for the active site on the enzyme.
33. (3)  
Lactational amenorrhea is a period of intense lactation during which ovulation does not occur. Pills and emergency contraceptives contain hormones.
34. (1)  
The secondary structure of a protein is stabilised by hydrogen bonding.
35. (1)  
3% of oxygen is carried through dissolved state in plasma.
36. (3)  
*Agrobacterium tumefaciens*, a crown gall bacterium, is called as 'natural genetic engineer' of plants.
37. (4)  
Micro-injection is used to inject recombinant DNA into the nucleus of an animal cell.
38. (4)  
Diagram based question.
39. (3)  
Cartilage have solid and pliable ground substance.
40. (2)  
A-Protein hormone; B-Receptor; C-Cyclic AMP
41. (3)  
Prosthetic groups are organic compounds which are tightly bound to the apoenzyme.
42. (1)  
Secondary oocyte – Haploid and Primary spermatocyte - diploid.



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| <p><b>43. (2)</b><br/>The inner parts of cerebral hemispheres and a group of associated deep structures like amygdala, hippocampus etc. form a complex structure called the limbic system.</p> <p><b>44. (1)</b><br/>In mammary gland the alveoli open into mammary tubules. The tubules of each lobe join to form a mammary duct. Several mammary ducts join to form a wider mammary ampulla, which is connected to lactiferous duct through which milk is sucked out.</p> <p><b>45. (4)</b><br/>Saheli inhibits ovulation and implantation as well as alter the quality of cervical mucus to prevent entry of sperms.</p> | <p><b>46. (1)</b><br/>All vertebrates are chordates but all chordates are not vertebrates because notochord is replaced by vertebral column in the adult vertebrates.</p> <p><b>47. (4)</b><br/>Pneumonia is a disorder of respiratory system.</p> <p><b>48. (2)</b><br/>Q-wave represents early ventricular depolarisation.</p> <p><b>49. (2)</b><br/>Gene pool is the sum of different genes of all individuals of a species found in an area.</p> <p><b>50. (2)</b><br/>Saliva in mouth is the example of physiological barriers.</p> |
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