



Sample Paper-01

Class 12<sup>th</sup> NEET (2024)

## ZOOLOGY

### ANSWER KEY

1. (3)
2. (2)
3. (1)
4. (2)
5. (2)
6. (3)
7. (2)
8. (4)
9. (2)
10. (2)
11. (2)
12. (3)
13. (4)
14. (4)
15. (3)
16. (1)
17. (4)
18. (2)
19. (4)
20. (3)
21. (4)
22. (1)
23. (1)
24. (1)
25. (3)

26. (4)
27. (3)
28. (4)
29. (1)
30. (3)
31. (2)
32. (3)
33. (1)
34. (4)
35. (3)
36. (3)
37. (2)
38. (3)
39. (3)
40. (4)
41. (3)
42. (2)
43. (1)
44. (4)
45. (4)
46. (3)
47. (3)
48. (2)
49. (3)
50. (4)



## HINTS AND SOLUTION

1. (3)  
The vasa efferentia leaves the testis and opens into the epididymis, located along the posterior surface.
2. (2)  
The secondary oocyte proceeds with meiosis II (second maturation division) but the division gets arrested at metaphase stage. It is in this stage of oocyte that the ovum is shed during ovulation. It passes into oviduct, where the cell cycle resumes only after the entry of sperm. Hence, the second maturation division of the mammalian ovum occurs 'until after the ovum has been penetrated by a sperm'.
3. (1)  
(v) – spermatogenesis; (vi) – spermiogenesis; (i) – spermatozoa; (ii) – testosterone
4. (2)  
In the 28 days human ovarian cycle, the ovulation takes place typically on day 14 of the cycle.
5. (2)  
cleavage; blastomere; trophoblast; embryoblast
6. (3)  
hPL, hCG hormones are produced in females only during the pregnancy.
7. (2)  
(A)– (I); (B) – (V), (VI); (C) – (II), (III), (IV)
8. (4)  
One of the illegal methods of birth control is abortion after determining the sex of the baby.
9. (2)  
(a), (b) and (c)  
IVF-In Vitro Fertilisation
10. (2)  
This image shows vasectomy which prevent the gamete transfer.
11. (2)  
The spark-discharge apparatus to test chemical evolution of life was designed by Miller and Urey.
12. (3)  
The greatest evolutionary change enabling the land vertebrates to be completely free from water, was the development of shelled eggs and internal fertilisation.
13. (4)  
The basic components of the atmosphere of primitive earth were ammonia, methane, hydrogen and water.
14. (4)  
(A) – (IV); (B) – (III); (C) – (II); (D) – (I)
15. (3)  
*Homo erectus* was the ancestor of modern man.
16. (1)  
(A) – (I); (B) – (II); (C) – (III); (D) – (IV)
17. (4)  
In the life cycle of Plasmodium, sexual stages (gametocytes) begin to develop in red blood cells of man.
18. (2)  
Every day our body is exposed to a large number of infectious agents. But all are not capable of causing disease. This is due to the immunity of an individual.
19. (4)  
Ligation of foreign DNA at BamH I site will result in loss of tetracycline resistance of pBR322.
20. (3)  
Macrophages act as HIV factory.
21. (4)
  - Ringworm is caused by the fungus *Trichophyton*.
  - Filariasis is caused by the parasite *Wuchereria bancrofti*.
  - Malaria is caused by the protozoan *Plasmodium* species (including *Plasmodium vivax*).
  - Pneumonia can be caused by a variety of organisms, including the bacterium *Haemophilus influenzae*.



22. (1)  
Numbat, spotted cuscus and flying phalanger are Australian marsupials exhibiting adaptive radiation.
23. (1)  
During isolation of the genetic material, purified DNA ultimately precipitates out after the addition of chilled ethanol.
24. (1)  
First artificial recombinant DNA molecule was created by linking of gene encoding antibiotic resistance with a native plasmid of *Salmonella typhimurium*.
25. (3)  
(a), (b), and (d)
26. (4)  
The enzymes responsible for restricting the growth of bacteriophage in *Escherichia coli* add methyl group to DNA and cut DNA in a particular fashion.
27. (3)  
DNA polymerase  $\rightarrow$  to synthesize DNA from deoxyribonucleotides.
28. (4)  
A bioreactor provides the optimal conditions for achieving the desired product by providing optimum growth conditions like oxygen, vitamins, salts, substrate, temperature and pH.
29. (1)  
RNA interference gene interferes with translation in nematode.
30. (3)  
Genetic engineering has been successfully used for producing transgenic mice for testing safety of polio vaccine before use in humans.
31. (2)  
(d), (c), (b), (a)
32. (3)  
From day 10 to 17 of the menstrual cycle when ovulation could be expected. As the chance of fertilisation are very high during the period.
33. (1)  
(A)– (III); (B) – (I); (C) – (II); (D) – (IV)
34. (4)  
Analogous structures are a result of convergent evolution. Different structures evolving for the same function and hence having dissimilarity.
35. (3)  
Human immuno deficiency virus is known to cause AIDS. It reduces the count of T- helper cells.
36. (3)  
(A)– (V); (B) – (IV); (C) – (II); (D) – (III)
37. (2)  
(b) and (c)
38. (3)  
(a) Rapid decline in death rate.  
(c) Rapid decline in MMR and IMR.  
(d) Increase in number of people in the reproductive age group.
39. (3)  
They are natural ways of avoiding chances of fertilisation.
40. (4)  
All of these
41. (3)  
Thorn of *Bougainvillea* and tendrils of *Cucurbita* represents homology.
42. (2)  
(a) and (b)
43. (1)  
Lymphatic filariasis, also known as elephantiasis, is a human disease caused by parasitic worms known as filarial worms. It is caused by roundworm, *Wuchereria bancrofti* and it is transmitted by *Culex* mosquito.



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| <p>44. (4)<br/>Passive immunity is defined as immunity achieved through the sera of other animals enriched in antibodies.</p> <p>45. (4)<br/>HIV selectively infects and kills T-lymphocytes.</p> <p>46. (3)<br/>Gonorrhoea, syphilis, genital herpes are sexually transmitted diseases. Gonorrhoea is caused by a bacterium <i>Neisseria gonorrhoeae</i>. Syphilis is caused by a bacterium <i>Treponema pallidum</i>. Genital herpes is caused by a virus Type-II-<i>Herpes simplex</i> virus.</p> | <p>47. (3)<br/>(a), (b) and (c)</p> <p>48. (2)<br/>Stirrer in a stirred tank type bioreactor facilitates mixing and aeration.</p> <p>49. (3)<br/>Hugo de Vries gives the concept of saltation. (Saltation means a single step large mutation).</p> <p>50. (4)<br/>From day 10 to 17 of the menstrual cycle is called fertile period. As chances of fertilisation are very high during this period.</p> |
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