

# Sikkim Public Service Commission

Written Examination for the post of Fisheries Guard

Time Allowed: 2.00 hours

PAPER - II  
(ZOOLOGY)

Maximum Marks: 100

## INSTRUCTIONS TO CANDIDATES

Read the instructions carefully before answering the questions: -

1. This Test Booklet consists of 12 (twelve) pages and has 53 (fifty-three) printed questions.
2. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET DOES NOT HAVE ANY UNPRINTED, TORN OR MISSING PAGES OR ITEMS. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
3. Use only Black Ball Point Pen to fill the OMR Sheet.
4. Please note that it is the candidate's responsibility to fill in the Roll Number carefully without any omission or discrepancy at the appropriate places in the OMR ANSWER SHEET as well as on SEPARATE ANSWER BOOKLET for Conventional Type Questions. Any omission/discrepancy will render the Answer Sheet liable for rejection.
5. Do not write anything else on the OMR Answer Sheet except the required information. Before you proceed to mark in the OMR Answer Sheet, please ensure that you have filled in the required particulars as per given instructions.
6. This Test Booklet is divided into 3 (three) parts - Part-I, Part-II and Part-III.
7. All three parts are Compulsory.
8. Part-I consists of Multiple-Choice Questions. The answers for these questions have to be marked in the OMR Answer Sheet provided to you.
9. Parts II and III consists of Conventional Type Questions. The answers for these questions have to be written in the Separate Answer Booklet provided to you.
10. After you have completed filling in all your responses on the OMR Answer Sheet and the Answer Booklet(s) and the examination has concluded, you should hand over the OMR Answer Sheet and the Answer Booklet(s) to the Invigilator only. You are permitted to take the Test Booklet with you.
11. **Marking Scheme**  
THERE WILL BE NEGATIVE MARKING FOR WRONG ANSWERS MARKED BY A CANDIDATE IN THE OBJECTIVE TYPE QUESTIONS
  - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, one-third of the marks assigned to the question will be deducted as penalty.
  - (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to the question.
  - (iii) If a question is left blank. i.e., no answer is given by the candidate, there will be no penalty for that question.

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

**PART-I**  
**(Multiple Choice Questions)**

Answer Questions 1 to 40 by choosing the correct option. Each question carries 1 mark.

[40 x 1 = 40]

1. Development of mouth later than anus is a condition also known as -
  - (a) Branchiostomatic
  - (b) Schizostomatic
  - (c) Deuterostomatic
  - (d) Protostomatic
  
2. Which of the following is the connecting link between fishes and amphibians?
  - (a) Cat fish
  - (b) Gambusia
  - (c) Protopterus
  - (d) Cluptea
  
3. Vertebral Column is derived from -
  - (a) Dorsal Nerve cord
  - (b) Ventral Nerve Cord
  - (c) Outgrowth of Cranium
  - (d) Notochord
  
4. The transition zone where two different types of community meet is called -
  - (a) Ecotype
  - (b) Ecocline
  - (c) Ecotone
  - (d) Ecosystem
  
5. Which of the following pairs occurs at the same trophic level?
  - (a) Crow and Cow
  - (b) Snake and Earthworm
  - (c) Tiger and Wild boar
  - (d) Deer and Bee
  
6. In a tree ecosystem, the Pyramid of Number is:
  - (a) Upright
  - (b) Inverted
  - (c) Spindle Like
  - (d) Variable
  
7. The process of respiration is concerned with:
  - (a) Intake of Oxygen
  - (b) Liberation of Oxygen
  - (c) Liberation of Carbon di oxide
  - (d) Liberation of energy

8. How many molecules of oxygen can a single molecule of Haemoglobin transport?
- 1
  - 2
  - 3
  - 4
9. The back cross is -
- A cross between F1 individual and F2 Individual
  - A cross between F1 individual with another F1 Individual
  - A cross between F1 individual and one of the two parents
  - A cross between F2 individual with one of the two parents
10. A gene that shows its effects on more than one trait is called -
- Polygene
  - Pleiotropic gene
  - Multifactor gene
  - Multiple genes
11. Genotype is the -
- Genetic composition of an organism
  - Genetic composition of plastids
  - Genetic composition of germ cells
  - Genetic composition of an Individual
12. Heterosis is:
- Hybrid weakness
  - Hybrid weakness and vigour
  - Hybrid vigour
  - neither Hybrid weakness nor vigour of hybrid
13. "Life originates from pre-existing life". This was scientifically explained by -
- A. I. Oparin
  - G. J. Mendel
  - Louis Pasteur
  - Charles Darwin
14. According to geological evidence, free oxygen began to accumulate in the atmosphere about -
- 7 billion years ago
  - 3.1 billion years ago
  - 2.6 billion years ago
  - 2 billion years ago
15. The principle of Darwin called Darwinism is based on:
- Use and Disuse of organs
  - Development of vestigial organs
  - Effect of nature on organisms
  - None of the Above

16. Adaptive similarities in animals living in the same habitat is known as:
- Parallel evolution
  - Convergent evolution
  - Divergent evolution
  - None of the above
17. Which of the following is lacking in drones of Honey bees?
- Sting
  - Salivary Glands
  - Wax Glands
  - All of these
18. Biradial Cleavage occurs in:
- Ascidians
  - Ctenophores
  - Mollusca
  - Turbellarians
19. Chemo differentiation is started during:
- Gastrulation
  - Neurulation
  - Blastulation
  - Morulation
20. The structure of protein is ultimately defined by its
- Primary structure
  - Secondary structure
  - Tertiary structure
  - Quaternary structure
21. The major interaction responsible for stabilizing plasma membrane is called -
- Hydrophilic interactions
  - Covalent bonds
  - Ionic bonds
  - Hydrophobic Interactions
22. The number of mitochondria in a cell depends on
- Ph of the cell
  - Shape of the cell
  - Both A and B
  - Functional state of the cell
23. Mitoplasts are:
- Mitochondria without membranes
  - Mitochondria without outer membrane
  - Mitochondria without inner membrane
  - Mitochondrial plastids

24. Rough endoplasmic reticulum is called rough because of -
- (a) Rough texture of the surface
  - (b) Surface is studded with membrane proteins
  - (c) Surface is studded with ribosomes
  - (d) All of these
25. In which year was the Project Tiger launched?
- (a) 2004-2005
  - (b) 1983-1984
  - (c) 2013-2014
  - (d) 1973-1974
26. Placing of the threatened animals and plants in a special case unit for protection is called:
- (a) Ex-situ conservation
  - (b) In - situ conservation
  - (c) Wildlife sanctuary
  - (d) National Park
27. In which year was the Wildlife Protection Act implemented in India?
- (a) 1952
  - (b) 1962
  - (c) 1972
  - (d) 1982
28. In which of the following states is the Similipal Biosphere Reserve located?
- (a) Punjab
  - (b) Delhi
  - (c) Orissa
  - (d) West Bengal
29. Which of the following toxicities can occur due to a single exposure?
- (a) Acute toxicity
  - (b) Sub-acute toxicity
  - (c) Sub-Chronic toxicity
  - (d) Chronic toxicity
30. Which is the first commercial pesticide?
- (a) Burgundy Mixture
  - (b) Bordeaux Mixture
  - (c) 2,4-D
  - (d) DDT
31. A short-term environmental Impact Assessment (EIA) has a time period of:
- (a) 2-5 years
  - (b) 10-15 years
  - (c) 5-10 years
  - (d) 5-7 years

32. Which of the following oil cakes is used to kill all the fishes within few hours?
- Mahua
  - Castor
  - Mustard
  - Peanut
33. In India, the peak breeding season of common carp is:
- Summer
  - Winter
  - Monsoon
  - None of these
34. Which of the following is an Anadromous fish?
- Carps
  - Catfish
  - Mullet
  - Clupeids
35. Which is the largest fish harbour in India?
- Koyilandy fish harbour in Kerala
  - Versova fish harbour in Maharashtra
  - Mangrol fish harbour in Gujarat
  - Karaikal fish harbour in Tamil Nadu
36. The common name of *Neolissochilus hexagonolepis* is:
- Chepti
  - Katley
  - Catla
  - Kajulli
37. Cotton mouth disease in fishes is caused by -
- Bacteria
  - Virus
  - Protozoa
  - Fungi
38. Which of the following is not an edible marine fish?
- Salmon
  - Labeo rohita
  - Mackerel
  - Sardinella
39. Which of the following product of fishes is used for clearing wines?
- Shagreen
  - Isinglass
  - Fish flour
  - Fish oil

40. World Fisheries day is celebrated every year on -
- 21<sup>st</sup> November
  - 21<sup>st</sup> June
  - 22<sup>nd</sup> December
  - 22<sup>nd</sup> July

**PART-II**  
**(Conventional Type Questions)**

Attempt any 6 (six) from Questions 41 to 49. Each question carries 5 marks.

[6 x 5 = 30]

41. What is the basis of classification of carbohydrates into three groups? Name the types of carbohydrates.
42. Why should fishes move large volumes of water over the respiratory surface?
43. Distinguish between Cleavage and Mitosis.
44. Why are Honey bees used as environmental indicators?
45. What are the limitations of Lamarckism?
46. Describe the structure of an antibody with diagram.
47. Why is the pyramid of energy always upright? Explain. Mention the limitations of an ecological pyramid.
48. What is a Biodiversity hotspot?
49. What do LD<sub>50</sub> and LC<sub>50</sub> mean?

**PART-III**  
**(Conventional Type Questions)**

Attempt any 2 (two) from Questions 50 to 53. Each question carries 15 marks.

[2 x 15 = 30]

50. Describe the process of Beta oxidation of fatty acids.
51. Describe the process of fertilisation in animals. What is the significance of fertilisation?
52. Give a brief account of the present scenario of Fisheries in the hills of Sikkim.
53. Describe the DNA structure and mechanism of replication of DNA.

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