

Roll No.

Question Booklet Number

O. M. R. Serial No.

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**M. Sc. (Second Semester) (NEP)
EXAMINATION, 2022-23
ZOOLOGY
(Chordata)**

Paper Code

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Questions Booklet
Series

A

Time : 1:30 Hours]

[Maximum Marks : 75

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page)

(शेष निर्देश अन्तिम पृष्ठ पर)

(Only for Rough Work)

1. Fundamental chordate characters are :
 - (A) dorsal tubular nerve cord
 - (B) notochord and pharyngeal gill slits
 - (C) Both (A) and (B)
 - (D) presence of mammary gland
2. 'Sea squirts' are the common name of :
 - (A) Ascidians
 - (B) Balanoglossus
 - (C) Branchiostoma
 - (D) Lamprey
3. In Herdmania Bronchial sac is also known as :
 - (A) A trial flower
 - (B) Bronchial basket
 - (C) Mesenteries
 - (D) A trial tentacles
4. In Hemichordates fertilization is :
 - (A) external in freshwater
 - (B) external in sea water
 - (C) internal
 - (D) None of the above
5. Testis is the accessory organ of :
 - (A) urochordates
 - (B) hemichordates
 - (C) ostracodermi
 - (D) cephalochordates
6. Polymorphism and alternation of generation are found in :
 - (A) molgula
 - (B) chavellina
 - (C) dolialum
 - (D) botryllus
7. Excretory organs of Amphioxus :
 - (A) Protonephridia
 - (B) Matschek's nephridium
 - (C) Renal papillae
 - (D) All of the above
8. Wheel organ is a part of :
 - (A) velum
 - (B) pharynx
 - (C) oral hood
 - (D) gill slits

9. The connecting link between reptiles and birds :
- (A) Crocodiles
 - (B) Silurian
 - (C) Archaeopteryx
 - (D) Peripatus
10. The term 'vertebrata' is synonymous to :
- (A) urochordata
 - (B) chordata
 - (C) protochordata
 - (D) craniata
11. Larva of Petromyzon is known as :
- (A) Ammocoetes larva
 - (B) Nauplius larva
 - (C) Ephyra larva
 - (D) Bipinnaria larva
12. Which larva is intermediate between cephalochordates and vertebrates ?
- (A) Bipinnaria larva
 - (B) Ammocoetes larva
 - (C) Tornaria larva
 - (D) None of the above
13. 'Retrogressive metamorphosis' is found in :
- (A) urochordata
 - (B) cephalochordata
 - (C) hemichordata
 - (D) ostracodermi
14. A common trait between tadpole and fish is :
- (A) scale
 - (B) fins
 - (C) legs
 - (D) lateral line
15. Member of order Dipnoi are commonly known as :
- (A) lung fishes
 - (B) cat fishes
 - (C) pipe fishes
 - (D) ribbon fishes
16. Which one is not a true fish ?
- (A) sea horse
 - (B) silver carp
 - (C) gold fish
 - (D) silver fish

17. This is a migratory fish :
- (A) carp
 - (B) salmon
 - (C) shark
 - (D) ribbon fish
18. Placoid scales are found in :
- (A) paleontological fishes
 - (B) lung fishes
 - (C) bony fishes
 - (D) cartilaginous fishes
19. Dorsal fin modified into suckers in :
- (A) Hippocampus
 - (B) Echeneis
 - (C) Torpedo
 - (D) Labeo
20. The swim bladder of fish is :
- (A) water filled sac
 - (B) air filled sac
 - (C) gas filled sac
 - (D) vacuum sac
21. Brood pouches are developed in Hippocampus :
- (A) on the belly of female
 - (B) on the belly of male
 - (C) on the back of female
 - (D) on the back of male
22. Birds and mammals have :
- (A) three-chambered heart
 - (B) four-chambered heart
 - (C) six-chambered heart
 - (D) two-chambered heart
23. Electric organs are found in :
- (A) Sharks
 - (B) Porpoises
 - (C) Gold fish
 - (D) Torpedo
24. Sea horse is a :
- (A) fish
 - (B) reptile
 - (C) mammal
 - (D) bird

25. Which fish gives birth to young ones ?
- (A) Scoliodon
 - (B) Catla
 - (C) Anabas
 - (D) Labeo
26. 'Ising glass' is obtained from certain :
- (A) fishes
 - (B) amphibians
 - (C) corals
 - (D) reptiles
27. A gymnophion amphibian without limbs and tongue is :
- (A) Necturus
 - (B) Alytes
 - (C) Ichthyophis
 - (D) Rhacophorus
28. Retention of larval characters in the adult body is called :
- (A) ontogenesis
 - (B) phylogenesis
 - (C) neoteny
 - (D) parthenogenesis
29. Development of gonads in immature or preadult animal is known as :
- (A) paedogenesis
 - (B) parthenogenesis
 - (C) organogenesis
 - (D) None of the above
30. Carapace is present in :
- (A) toad
 - (B) bird
 - (C) frog
 - (D) tortoise
31. What is the common character amongst fishes, amphibians and reptiles ?
- (A) Laying of eggs
 - (B) Shelled eggs
 - (C) Gills
 - (D) Scales
32. Order squamata consists of :
- (A) bats
 - (B) crocodiles
 - (C) turtles
 - (D) lizards and snakes

33. Consider the following four conditions (a-d) and select the correct pair of them as adaptation to environment in desert lizards :
- Burrowing in soil to escape high temperature
 - Losing heat rapidly from the body during high temperature
 - Bask in sun when temperature is low
 - Insulating body due to thick fatty dermis
- Codes :**
- (b) and (d)
 - (c) and (d)
 - (a) and (b)
 - (a) and (c)
34. Catadromous migration refers to movement of fishes :
- from freshwater to freshwater
 - from freshwater to salt water
 - from salt water to salt water
 - from salt water to freshwater
35. Potamodromous fish migrate with in :
- freshwater only
 - salt water only
 - salt water to freshwater
 - freshwater to salt water
36. Fish that spawn once and die are biologically termed :
- viviparous
 - semelparous
 - iteroparous
 - None of the above
37. Which of the following terms is applicable for swim bladder in fish ?
- Vestigial organ
 - Homologous organ
 - Hydrostatic organ
 - Wheel organ
38. Dicondylic skull along with ten pairs of cranial nerves is found in :
- Pisces
 - Amphibia
 - Reptilia
 - Mammalia
39. Adaptive radiation are also called as :
- convergent evolution
 - divergent evolution
 - parallel evolution
 - All of the above

40. When members of one habitat migrate to different habitats in different directions are called as :
- (A) adaptive radiation
 - (B) divergent evolution
 - (C) adaptive divergence
 - (D) All of the above
41. Animals which belong to Chelonia are :
- (A) lizards
 - (B) snakes
 - (C) bats
 - (D) turtles
42. Jacobson's organ is related to :
- (A) sight
 - (B) smell
 - (C) taste
 - (D) touch
43. Tuatara, a single living species, belongs to the order :
- (A) Chelonia
 - (B) Squamata
 - (C) Rhynchocephalia
 - (D) Crocodylia
44. Birds differ from bats in the absence of :
- (A) Tracheae
 - (B) Homoiothermi
 - (C) Diaphragm
 - (D) 4-chambered heart
45. Archaeopteryx is called a connecting link as it carried the characters of :
- (A) Reptile and bird
 - (B) Reptile and mammal
 - (C) Fish and amphibian
 - (D) Amphibian and reptile
46. Branch of biology that deals with the study of birds is :
- (A) Anthropology
 - (B) Oncology
 - (C) Herpetology
 - (D) Ornithology
47. Hairs are found in all mammals, except those of :
- (A) Cetacea
 - (B) Chiroptera
 - (C) Rodentia
 - (D) Primates

48. The mammals which have both the characters of reptiles and mammals are :
- (A) Marsupials
 - (B) Monotremes
 - (C) Equus
 - (D) Oryctolagus
49. Flight muscles of bird are attached to :
- (A) clavicle
 - (B) keel
 - (C) coracoid
 - (D) scapula
50. Urinary bladder in birds is absent because :
- (A) urine is absent
 - (B) solid excretory product
 - (C) it disturbs equilibrium of birds
 - (D) All of the above
51. Reptiles and birds are differentiated from each other by :
- (A) Monocondylic skull
 - (B) Metanephric kidney
 - (C) Cleidoic eggs
 - (D) Thermo-regulatory mechanism
52. Which of the following in birds, indicates their reptilian ancestry ?
- (A) Eggs with a calcareous shell
 - (B) Scales on their hind limb
 - (C) Four-chambered heart
 - (D) Gizzard in their digestive tract
53. Chief distinguishing features of the mammals are :
- (A) Hairy skin and oviparity
 - (B) Hairy skin and mammary gland
 - (C) Pinna and teeth
 - (D) Mammary gland and teeth
54. Which pair of the animal groups, has oxygenated and deoxygenated blood in the heart separately ?
- (A) Amphibian and Reptiles
 - (B) Birds and Mammals
 - (C) Reptiles and Birds
 - (D) Reptiles and Mammals
55. When embryo develops in the body of female but it does not obtain nutrients from the mother ?
- (A) Ovo-viviparous
 - (B) Viviparous
 - (C) Oviparous
 - (D) All of the above

56. Ornithorhynchus is called :
- (A) A fossil bird
 - (B) Marsupial mammal
 - (C) Duckbill platypus
 - (D) Spiny ant eaters
57. Which one of the following is a poisonous mammal ?
- (A) Kangaroo
 - (B) Echidna
 - (C) Guinea Pig
 - (D) Ornithorhynchus
58. The zoological name of lion is :
- (A) *Panthera pardus*
 - (B) *Equus asinus*
 - (C) *Panthera tigris*
 - (D) *Panthera leopersica*
59. Echolocation is found in :
- (A) Birds
 - (B) Bat
 - (C) Rat
 - (D) Insects
60. Whale is included among mammals because it has ?
- (A) Pair of lungs
 - (B) Pair of nostril
 - (C) Four-chambered heart
 - (D) Diaphragm between thorax and abdomen
61. A living connecting links which provides evidence for organic evolution is :
- (A) Sphenodon between reptile and birds
 - (B) Lung fishes between pisces and reptiles
 - (C) Archaeopteryx between reptiles and birds
 - (D) Duckbill platypus between reptiles and mammals
62. Without teats, mammary glands are found in :
- (A) Prototheria
 - (B) Metatheria
 - (C) Eutheria
 - (D) Theria

63. Eutherian mammals are characterized by :
- (A) Ovoviviparity
 - (B) Hairy skin
 - (C) True placentation
 - (D) Glandular skin
64. Order Primates contains :
- (A) bats and vampire
 - (B) horses and zebra
 - (C) monkeys and man
 - (D) shrew and hedgehog
65. Ruminant stomach has compartment :
- (A) Five
 - (B) Four
 - (C) Three
 - (D) Two
66. Microbes ferments feed and produce volatile fatty acids in :
- (A) Rumen
 - (B) Omasum
 - (C) Abomasum
 - (D) None of the above
67. The upper end of the body of uterus is connected to :
- (A) Fallopian tubes
 - (B) Ovary
 - (C) Cervix
 - (D) Vagina
68. Bicornuate uterus is produced due to impairment in the fusion of :
- (A) Mullerian duct
 - (B) Fallopian tubes
 - (C) Ovary
 - (D) None of the above
69. Evolution from a single ancestral species to a variety of forms which occupy different habitates is called :
- (A) divergent evolution
 - (B) convergence evolution
 - (C) Both (A) and (B)
 - (D) None of the above
70. Marsupials and Placental mammals have evolved to share many similar characteristics. This type of evolution may be referred to as :
- (A) Adaptive Radiation
 - (B) Divergent Evolution
 - (C) Cyclical Evolution
 - (D) Convergent Evolution

71. Adaptive radiation occurs in :
- (A) Predator free area
 - (B) Small and Isolated population
 - (C) Flightless and Asexually reproducing population
 - (D) Sexually reproducing population
72. Which among there is the correct combination of aquatic mammals ?
- (A) Seals, Dolphins, Sharks
 - (B) Trygon, Sharks, Whales
 - (C) Dolphins, Trygon, Seals
 - (D) Whales, Seals, Dolphins
73. Among the following which one is not a true fish ?
- (A) Dog fish
 - (B) Saw fish
 - (C) Hag fish
 - (D) Cat fish
74. Diapsid skull is found in which of the following of the following organisms ?
- (A) Crocodile, Seymouria, Turtle
 - (B) Draco, Matrix, Turtle
 - (C) Cobra, Calotes, Varanosaurus
 - (D) Crocodile, Sphenodon, Viper
75. All protochordates are :
- (A) terrestrial
 - (B) marine
 - (C) freshwater
 - (D) All of the above
76. Animal have reptilian and mammalian characters :
- (A) cynognathus
 - (B) spiny anteater
 - (C) kangaroo
 - (D) None of the above
77. Which of the following is called age of mammals ?
- (A) Mesozoic
 - (B) Coenozoic
 - (C) Jurassic
 - (D) None of the above
78. Typical prototherian character is :
- (A) 4-chambered heart
 - (B) tarsul spur in male
 - (C) segmented sternum
 - (D) presence of cloaca

79. Beak in sparrows is :
- (A) seed eating type
 - (B) cutting type
 - (C) fruit eating type
 - (D) tearing and piercing type
80. The most common mode of flight is :
- (A) Flapping
 - (B) Gliding
 - (C) Soaring
 - (D) Hovering
81. In rabbit and other mammals, blastopore forms the :
- (A) Mouth
 - (B) Anus
 - (C) Nose
 - (D) Genitalia
82. Humming bird have :
- (A) Fish-catching beak
 - (B) Spatulate beak
 - (C) Flower-probing beak
 - (D) Pouched beak
83. Migration of birds takes place because :
- (A) they like to travel
 - (B) to find abundant food
 - (C) to meet other birds
 - (D) None of the above
84. Claws of flesh-eating birds are called :
- (A) talons
 - (B) toes
 - (C) palms
 - (D) All of the above
85. The soft part of the feather of birds on either side is known as :
- (A) barb
 - (B) rachis
 - (C) quill
 - (D) calamus
86. Which type of birds beak is used to tear and eat meat ?
- (A) Cone shaped beak
 - (B) Straight and thin beak
 - (C) Hooked beak
 - (D) Long thin needle like beak

87. Birds lose their feathers at certain times.
This process is called :
- (A) Stridulation
(B) Hibernation
(C) Moulting
(D) Shelling
88. The birds pass the summer in the mountainous region, but return to the low-land in winter is called :
- (A) Latitudinal migration
(B) Longitudinal migration
(C) Altitudinal migration
(D) Partial migration
89. In birds the last 3 or 4 tail vertebrae are fused to form :
- (A) Synsacrum
(B) Furcula
(C) Pygostyle
(D) Wish bone
90. Skull with two temporal opening on either side separated by the bar of post-orbital and squamosal bones belongs to sub-class of Reptilia :
- (A) Parapsida
(B) Synapsida
(C) Eurapsida
(D) Diapsida
91. Which of the following is a vertebrate organism ?
- (A) Cuttle Fish
(B) Cray Fish
(C) Globe Fish
(D) Devil Fish
92. Edible freshwater species of turtles is :
- (A) *terrapin*
(B) *spiniferus*
(C) *tectum*
(D) *mrydas*

93. Bat is classified as a mammal because :
- (A) It has pinna.
 - (B) It has testes.
 - (C) It can fly.
 - (D) It has hair.
94. Apart from mammals other group of animals maintaining a high and constant temperature is :
- (A) Insects
 - (B) Fishes
 - (C) Worms
 - (D) Birds
95. Which is not an aerial adaptation of birds ?
- (A) Gizzard
 - (B) Single ovary
 - (C) Pneumatic bone
 - (D) Keeled sternum
96. Foramen of Panizzae is found in the heart of :
- (A) Rabbit
 - (B) Crocodile
 - (C) Pigeon
 - (D) Frog
97. Scoliodon is :
- (A) Marine and Carnivorous
 - (B) Marine and Herbivorous
 - (C) Freshwater and Omnivorous
 - (D) Freshwater and Carnivorous
98. In dog fish ampullae of Lorenzini are supplied by :
- (A) Buccalis
 - (B) Palatinus
 - (C) Ophthalmic superficial
 - (D) Hypomandibularis
99. Members of the order Myxiniiformes are commonly known as :
- (A) Lung fishes
 - (B) Hag fishes
 - (C) Lampreys
 - (D) Sharks
100. Larval form of hemichordata is :
- (A) Tornaria
 - (B) Crinoidia
 - (C) Nauplius
 - (D) Ephyra

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

Q. 1 (A) ● (C) (D)

Q. 2 (A) (B) ● (D)

Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर—A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)

प्रश्न 2 (A) (B) ● (D)

प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।