Roll No. .....

B050701T

M. Sc. (First Semester)
EXAMINATION, 2022-23
(NEP)
ZOOLOGY
(Non-Chordata)

Time : Two Hours] [*Maximum Marks : 75*

Note : This paper consists of three Sections A, B and C. Carefully read the instructions of each Section in solving the question paper. Candidates have to write their answers in the given answer-copy only. No separate answer-copy (B Copy) will be provided.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Answer the following questions as short answer type questions. Each question carries 5 marks.

1. (A) Describe Osmoregulation in Protozoa.

P. T. O.

(B) Give an account of modes of nutrition in Protozoa.

(C) Describe the skeletal composition of Porifera.

(D) Describe the parasitic adaptations in Helminths.

(E) Describe Polymorphism and its significance in coelenterata.

(F) Explain the structure and metamorphosis of Trochophore Larva.

(G) Give an account of Larval forms of Crustacea.

(H) Explain the Torsion in Mollusca.

(I) Describe Water Vascular system in Echinodermata.

Section—B
(Long Answer Type Questions)

Note : This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

2. Give a detailed account of classification of Protista.

Or

3. Describe in detail various forms of Reproduction in Protozoa.

Or

4. Describe in detail the canal system in sponges.

Or

5. Describe the structure of Cnidoblast of Hydra and write a detailed account of Nematocyst.

Section—C

(Long Answer Type Questions)

Note : This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

6. Describe some of the human diseases caused by Nematodes.

Or

7. Describe the respiratory organs of Arthropod and their functioning.

Or

8. Give an account of modifications of Foot in Mollusca.

Or

9. Discuss the affinities of Rotifera.

Roll No. .....

B050702T

M. Sc. (First Semester)

EXAMINATION, 2022-23

(NEP)

ZOOLOGY

(Biosystematics and Evolutionary Biology)

Time : Two Hours] [*Maximum Marks : 75*

Note : This paper consists of three Sections A, B and C. Carefully read the instructions of each Section in solving the question paper. Candidates have to write their answers in the given answer-copy only. No separate answer-copy **(B Copy)** will be provided.

P. T. O.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Answer the following questions as short answer type questions. Each question carries 5 marks.

1. (A) Write a note on Alpha and Gamma taxonomy.

   (B) What is chemotaxonomy ?

   (C) Explain Phenetics in brief.

   (D) What is Indented key ?

   (E) Differentiate Allopatric species and Sympatric species.

   (F) What is Genetic Drift ?

   (G) Write a note on Biogenesis.

   (H) Explain Molecular Clock.

   (I) Write a note on Desert adaptations in camel.

Section—B
(Long Answer Type Questions)

Note : This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

2. Discuss the role of functions of International Code of Zoological Nomenclature (ICZN).

Or

3. Give a detailed account of species concept.

Or

4. Describe in detail about Taxonomic procedure of collection, preservation and identification.

Or

5. Discuss application of systematics.

Section—C
(Long Answer Type Questions)

Note : This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

6. Explain Hardy-Wienberg's law and its application.

Or

7. Describe evolutionary significance of adaptations.

Or

8. What are various molecular tools in phylogeny ?

Or

9. Explain polygenic inheritance in detail along with example.

Roll No. .....

B050703T

M. Sc. (First Semester)

EXAMINATION, 2022-23

(NEP)

ZOOLOGY

(Cell Biology and Genetics)

Time : Two Hours] [*Maximum Marks : 75*

Note : This paper consists of three Sections A, B and C. Carefully read the instructions of each Section in solving the question paper. Candidates have to write their answers in the given answer-copy only. No separate answer-copy **(B Copy)** will be provided.

P. T. O.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Answer the following questions as short answer type questions. Each question carries 5 marks. Support you answer with labelled diagram wherever needed.

1. (A) Jack-Stat pathway
   (B) Cytokinesis
   (C) Oxidative phosphorylation
   (D) Cell-signalling
   (E) Plasmids
   (F) Albinism
   (G) Mitochondrial DNA
   (H) Enhancers and Silencers
   (I) Restriction enzymes

Section—B
(Long Answer Type Questions)

Note : This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

2. Describe in detail about movement of substances across the cell-membrane.

Or

3. Give an overview about the mitosis cell-division. Explain the role of maturation promoting factor, chromosomal movement and its regulation.

Or

4. Discuss the structure and biogenesis of Ribosomes.

Or

5. Explain in detail about the different types of cell-membrane proteins.

Section—C

(Long Answer Type Questions)

Note : This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

6. Discuss Mendel's law in detail and extension of Mendelism.

Or

7. Describe about the DNA damage and repair detail.

Or

8. Explain Gene Mutation and its different types. Also discuss methods for detection of induced mutation.

Or

9. What do you understand by Lac-operon theory ? Explain it with special reference to gene regulation.

Roll No. .....

B050704T

M. Sc. (First Semester)

EXAMINATION, 2022-23

(NEP)

ZOOLOGY

(Quantitative Biology, Research Methodology and Bioinstrumentation)

Time : Two Hours] [*Maximum Marks : 75*

Note : This paper consists of three Sections A, B and C. Carefully read the instructions of each Section in solving the question paper. Candidates have to write their answers in the given answer-copy only. No separate answer-copy **(B Copy)** will be provided.

P. T. O.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Answer the following questions as short answer type questions. Each question carries 5 marks.

1. (A) Explain null and alternate hypothesis using an example.

   (B) Justify the statement, "Chi-square is a non-parametric test."

   (C) How is pie-diagram different from bar diagram ?

   (D) Discuss the principle of spectrophotometry.

   (E) Comment upon fixation and staining techniques of electron microscopy.

   (F) Expand the following :

   (i) ECG

   (ii) CAT

   (iii) ANOVA

(iv) HPLC

(v) PET

(vi) MRI

(G) What is GM counter ?

(H) How can you detect RNA in tissues ?

(I) Explain the ethical aspects of biological research.

Section—B
(Long Answer Type Questions)

Note : This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

2. Describe the measure of central tendency and measure of dispersion. What is their use in biology ?

Or

3. Differentiate between one-way and two-way analysis of variance (ANOVA). Comment on its application in biostatistics.

Or

4. What do you understand by the term "data" ? Discuss various methods of data collection and data presentation.

Or

5. Write short notes on the following :
   (a) Descriptive vs. Analytical type of research
   (b) Analysis of data
   (c) Report writing and publication in biological research

Section—C
(Long Answer Type Questions)

Note : This section contains four questions from which *one* question is to be answered as long question. Each question carries 15 marks.

6. (a) What are quenching ? Briefly explain the principle of fluorescene microscopy and its application.
   (b) Write principle and application of phase contrast microscopy.

Or

7. Write down the principle and application of one-dimensional and two-dimensional electrophoresis.

Or

8. Briefly explain the principle and application of :

   (a) Flow cytometry

   (b) Immunoprecipitation

   (c) Microtomy

Or

9. Briefly explain the principle and application of :

   (a) Nuclear magnetic resonance spectroscopy

   (b) RIA

   (c) Western blotting

Roll No. .....

O. M. R. Serial No. | | | | | | | | |

Question Booklet Number

326727

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

ZOOLOGY

(Chordata)

Paper Code							
B	0	5	0	8	0	1	T

Questions Booklet Series

C

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)

1. The mammals which have both the characters of reptiles and mammals are :

(A) Marsupials

(B) Monotremes

(C) Equus

(D) Oryctolagus

2. Flight muscles of bird are attached to :

(A) clavicle

(B) keel

(C) coracoid

(D) scapula

3. 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

4. Reptiles and birds are differentiated from each other by :

(A) Monocondylic skull

(B) Metanephric kidney

(C) Cleidoic eggs

(D) Thermo-regulatory mechanism

5. 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

6. 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

7. 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

8. 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

9. Ornithorhynchus is called :

(A) A fossil bird

(B) Marsupial mammal

(C) Duckbill platypus

(D) Spiny ant eaters

10. Which one of the following is a poisonous mammal ?

(A) Kangaroo

(B) Echidna

(C) Guinea Pig

(D) Ornithorhynchus

11. The zoological name of lion is :

(A) *Panthera paradus*

(B) *Equus asinus*

(C) *Panthera tigris*

(D) *Panthera leopersica*

12. Echolocation is found in :

(A) Birds

(B) Bat

(C) Rat

(D) Insects

13. 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

14. 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

15. Without teats, mammary glands are found in :

(A) Prototheria

(B) Metatheria

(C) Eutheria

(D) Theria

16. Eutherian mammals are characterized by :

(A) Ovoviviparity

(B) Hairy skin

(C) True placentation

(D) Glandular skin

17. Order Primates contains :

(A) bats and vampire

(B) horses and zebra

(C) monkeys and man

(D) shrew and hedgehog

18. Ruminant stomach has compartment :

(A) Five

(B) Four

(C) Three

(D) Two

19. Microbes ferments feed and produce volatile fatty acids in :

(A) Rumen

(B) Omasum

(C) Abomasum

(D) None of the above

20. The upper end of the body of uterus is connected to :

(A) Fallopian tubes

(B) Ovary

(C) Cervix

(D) Vagina

21. Bicornuate uterus is produced due to impairment in the fusion of :

(A) Mullerian duct

(B) Fallopian tubes

(C) Ovary

(D) None of the above

22. 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

23. 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

24. Adaptive radiation occurs in :

(A) Predator free area

(B) Small and Isolated population

(C) Flightless and Asexually reproducing population

(D) Sexually reproducing population

25. 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

26. Among the following which one is not a true fish ?

(A) Dog fish

(B) Saw fish

(C) Hag fish

(D) Cat fish

27. 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

28. All protochordates are :

(A) terrestrial

(B) marine

(C) freshwater

(D) All of the above

29. Animal have reptilian and mammalian characters :

(A) cynognathus

(B) spiny anteater

(C) kangaroo

(D) None of the above

30. Which of the following is called age of mammals ?

(A) Mesozoic

(B) Coenozoic

(C) Jurassic

(D) None of the above

31. Typical prototherian character is :

(A) 4-chambered heart

(B) tarsul spur in male

(C) segmented sternum

(D) presence of cloaca

32. Beak in sparrows is :

(A) seed eating type

(B) cutting type

(C) fruit eating type

(D) tearing and piercing type

33. The most common mode of flight is :

(A) Flapping

(B) Gliding

(C) Soaring

(D) Hovering

34. In rabbit and other mammals, blastopore forms the :

(A) Mouth

(B) Anus

(C) Nose

(D) Genitalia

35. Humming bird have :

(A) Fish-catching beak

(B) Spatulate beak

(C) Flower-probing beak

(D) Pouched beak

36. 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

37. Claws of flesh-eating birds are called :

(A) talons

(B) toes

(C) palms

(D) All of the above

38. The soft part of the feather of birds on either side is known as :

(A) barb

(B) rachis

(C) quill

(D) calamus

39. 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

40. Birds lose their feathers at certain times. This process is called :

(A) Stridulation

(B) Hibernation

(C) Moulting

(D) Shelling

41. 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

42. In birds the last 3 or 4 tail vertebrae are fused to form :

(A) Synsacrum

(B) Furcula

(C) Pygostyle

(D) Wish bone

43. Skull with two temporal opening on either side separated by the bar of post-orbital and squamosal bones belongs to sub-loss of Reptilia :

(A) Parapsida

(B) Synapsida

(C) Eurapsida

(D) Diapsida

44. Which of the following is a vertebrate organism ?

(A) Cuttle Fish

(B) Cray Fish

(C) Globe Fish

(D) Devil Fish

45. Edible freshwater species of turtles is :

(A) *terrapin*

(B) *spiniferus*

(C) *tectum*

(D) *mrydas*

46. Bat is classified as a mammal because :

(A) It has pinna.

(B) It has testes.

(C) It can fly.

(D) It has hair.

47. Apart from mammals other group of animals maintaining a high and constant temperature is :

(A) Insects

(B) Fishes

(C) Worms

(D) Birds

48. Which is not an aerial adaptation of birds ?

(A) Gizzard

(B) Single ovary

(C) Pneumatic bone

(D) Keeled sternum

49. Foramen of Panizzae is found in the heart of :

(A) Rabbit

(B) Crocodile

(C) Pigeon

(D) Frog

50. Scoliodon is :

(A) Marine and Carnivorous

(B) Marine and Herbivorous

(C) Freshwater and Omnivorous

(D) Freshwater and Carnivorous

51. In dog fish ampullae of Lorenzini are supplied by :

(A) Buccalis

(B) Palatinus

(C) Ophthalmic superficial

(D) Hypomandibularis

52. Members of the order Myxiniformes are commonly known as :

(A) Lung fishes

(B) Hag fishes

(C) Lampreys

(D) Sharks

53. Larval form of hemichordata is :

(A) Tornaria

(B) Crinoidia

(C) Nauplius

(D) Ephyra

54. 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

55. 'Sea squirts' are the common name of :

(A) Ascidians

(B) Balanoglossus

(C) Branchiostoma

(D) Lamprey

56. In Herdmania Bronchial sac is also known as :

(A) A trial flower

(B) Bronchial basket

(C) Mesenteries

(D) A trial tentacles

57. In Hemichordates fertilization is :

(A) external in freshwater

(B) external in sea water

(C) internal

(D) None of the above

58. Test is the accessory organ of :

(A) urochordates

(B) hemichordates

(C) ostracodermi

(D) cephalochordates

59. Polymorphism and alternation of generation are found in :

(A) molgula

(B) chavellina

(C) dolialum

(D) botryllus

60. Excretory organs of Amphioxus :

(A) Protonephridia

(B) Matschek's nephridium

(C) Renal papillae

(D) All of the above

61. Wheel organ is a part of :

(A) velum

(B) pharynx

(C) oral hood

(D) gill slits

62. The connecting link between reptiles and birds :

(A) Crocodiles

(B) Silurian

(C) Archaeopteryx

(D) Peripatus

63. The term 'vertebrata' is synonymous to :

(A) urochordata

(B) chordata

(C) protochordata

(D) craniata

64. Larva of Petromyzon is known as :

(A) Ammocoetes larva

(B) Nauplius larva

(C) Ephyra larva

(D) Bipinnaria larva

65. Which larva is intermediate between cephalochordates and vertebrates ?

(A) Bipinnaria larva

(B) Ammocoetes larva

(C) Tornaria larva

(D) None of the above

66. 'Retrogressive metamorphosis' is found in :

(A) urochordata

(B) cephalochordata

(C) hemichordata

(D) ostracodermi

67. A common trail between tadpole and fish is :

(A) scale

(B) fins

(C) legs

(D) lateral line

68. Member of order Dipnoi are commonly known as :

(A) lung fishes

(B) cat fishes

(C) pipe fishes

(D) ribbon fishes

69. Which one is not a true fish ?

(A) sea horse

(B) silver carp

(C) gold fish

(D) silver fish

70. This is a migratory fish :

(A) carp

(B) salmon

(C) shark

(D) ribbon fish

71. Placoid scales are found in :

(A) paleontological fishes

(B) lung fishes

(C) bony fishes

(D) cartilaginous fishes

72. Dorsal fin modified into suckers in :

(A) Hippocampus

(B) Echeneis

(C) Torpedo

(D) Labeo

73. The swim bladder of fish is :

(A) water filled sac

(B) air filled sac

(C) gas filled sac

(D) vacuum sac

74. 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

75. Birds and mammals have :

(A) three-chambered heart

(B) four-chambered heart

(C) six-chambered heart

(D) two-chambered heart

76. Electric organs are found in :

(A) Sharks

(B) Porpoises

(C) Gold fish

(D) Torpedo

77. Sea horse is a :

(A) fish

(B) reptile

(C) mammal

(D) bird

78. Which fish gives birth to young ones ?

(A) Scoliodon

(B) Catla

(C) Anabas

(D) Labeo

79. 'Ising glass' is obtained from certain :

(A) fishes

(B) amphibians

(C) corals

(D) reptiles

80. A gymnophion amphibian without limbs and tongue is :

(A) Necturus

(B) Alytes

(C) Ichithyophis

(D) Rhacophorus

81. Retention of larval characters in the adult body is called :

(A) ontogenesis

(B) phylogenesis

(C) neoteny

(D) parthenogenesis

82. Development of gonads in immature or preadult animal is known as :

(A) paedogenesis

(B) parthenogenesis

(C) organogenesis

(D) None of the above

83. Carapace is present in :

(A) toad

(B) bird

(C) frog

(D) tortoise

84. What is the common character amongst fishes, amphibians and reptiles ?

(A) Laying of eggs

(B) Shelled eggs

(C) Gills

(D) Scales

85. Order squamata consists of :

(A) bats

(B) crocodiles

(C) turtles

(D) lizards and snakes

86. Consider the following four conditions (a-d) and select the correct pair of them as adaptation to environment in desert lizards :

(a) Burrowing in soil to escape high temperature

(b) Losing heat rapidly from the body during high temperature

(c) Bask in sun when temperature is low

(d) Insulating body due to thick fatty dermis

Codes :

(A) (b) and (d)

(B) (c) and (d)

(C) (a) and (b)

(D) (a) and (c)

87. Catadromous migration refers to movement of fishes :

(A) from freshwater to freshwater

(B) from freshwater to salt water

(C) from salt water to salt water

(D) from salt water to freshwater

88. Potamodromous fish migrate with in :

(A) freshwater only

(B) salt water only

(C) salt water to freshwater

(D) freshwater to salt water

89. Fish that spawn once and die are biologically termed :

(A) viviparous

(B) semelparous

(C) iteroparous

(D) None of the above

90. Which of the following terms is applicable for swim bladder in fish ?

(A) Vestigeal organ

(B) Homologous organ

(C) Hydrostatic organ

(D) Wheel organ

91. Dicondylic skull along with ten pairs of cranial nerves is found in :

(A) Pisces

(B) Amphibia

(C) Reptilia

(D) Mammalia

92. Adaptive radiation are also called as :

(A) convergent evolution

(B) divergent evolution

(C) parallel evolution

(D) All of the above

93. When members of one habitat migrate to different habitate in different direction are called as :

(A) adaptive radiation

(B) divergent evolution

(C) adaptive divergence

(D) All of the above

94. Animals which belongs to Chelonia are :

(A) lizards

(B) snakes

(C) bats

(D) turtles

95. Jacobson's organ is related to :

(A) sight

(B) smell

(C) taste

(D) touch

96. Tuatara a single living species belongs to the order :

(A) Chelonia

(B) Squamata

(C) Rhynchocephalia

(D) Crocodilia

97. Birds differ from bats in the absence of :

(A) Tracheae

(B) Homoiothermi

(C) Diaphragm

(D) 4-chambered heart

98. 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

99. Branch of biology deals with the study of birds is :

(A) Anthropology

(B) Oncology

(C) Herpetology

(D) Ornithology

100. Hairs found in all mammals, except those of :

(A) Cetacea

(B) Chiroptera

(C) Rodentia

(D) Primates

Roll No. .....

O. M. R. Serial No. | | | | | | | | |

Question Booklet Number
331521

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

ZOOLOGY

(Animal Physiology and Biochemistry)

Paper Code							
B	0	5	0	8	0	2	T

Questions Booklet Series
A

Time : 1:30 Hours]

[*Maximum Marks : 75*

Instructions to the Examinee :

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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)

1. Stimulation of uterine contraction during child birth is brought about by :

(A) Adrenalin

(B) Progesterone

(C) Oxytocin

(D) Prolactin

2. Cells of Islets of Langerhans in pancreas responsible for secretion of glucagon hormone :

(A) Alpha

(B) Beta

(C) Delta

(D) Beta and Delta

3. The movement of RNA polymerase is prevented when repressor is attached to :

(A) Operator

(B) Regular

(C) Inducer

(D) Promoter

4. Gonadotropic hormone is produced in :

(A) Interstitial cells of testis

(B) Adrenal cortex

(C) Adenohypophysis

(D) Posterior part of thyroid

5. Hormones secreted by pituitary gland are :

(A) All steroids

(B) All proteins

(C) Some steroids, some proteins

(D) Complex compounds of proteins and carbohydrates

6. Pigmented layer of eye is called :

(A) Retina

(B) Sclerotic

(C) Choroid

(D) All of the above

7. Organ of Corti is found in :

(A) Kidneys

(B) Heart

(C) Nasal chamber

(D) Internal Ear

8. Eustachian tube contains :

(A) Pharynx with middle ear

(B) Middle ear with external ear

(C) Middle ear with internal ear

(D) External ear with internal ear

9. The entry of light in a photographic camera is controlled by the shutter and iris diaphragm. Comparable structure in human eye are :

(A) Cornea and Iris

(B) Eyelids and Iris

(C) Ciliary muscles and Pupil

(D) Cillary body and Iris

10. The nerve transmitter produced at the synapse and neuromuscular junction is :

(A) GTP

(B) ATP

(C) Acetylcholine

(D) Phosphokinase

11. Cerebrum regulates :

(A) Speech

(B) Vision

(C) Hearing

(D) None of the above

12. Structure that provides balance of the body is located in :

(A) Outer ear

(B) Middle ear

(C) Inner ear

(D) Eustachian tubes

13. Most of the neurons of our body are :

(A) Unipolar

(B) Bipolar

(C) Pseudounipolar

(D) Multipolar

14. Thermoregulatory centre in brain of man is :

(A) Pituitary

(B) Diencephalon

(C) Hypothalamus

(D) None of the above

15. Which one of the following is a purely motor nerve ?

(A) Olfactory

(B) Trigeminal

(C) Vagus

(D) Abducens

16. Autonomic Nervous System includes :

(A) Cranial and spinal nerves

(B) Brain and spinal cord

(C) Sympathetic and parasympathetic nerves

(D) Medullated and Non-medullated nerves

17. Reflex Action is controlled by :

(A) Brain

(B) Autonomic nervous system

(C) Peripheral nervous system

(D) Spinal cord

18. Synapse is found between :

(A) Two nerve fibres

(B) Nerve fibre and neurons

(C) Nerve and muscles

(D) None of the above

19. ADH takes part in :

(A) Water retention in urine

(B) Na^+ reabsorption

(C) Reducing urea formation

(D) Absorption of water from urine

20. Glomerulus is made up of :

(A) Renal portal vein

(B) Hepatic portal system

(C) Renal arteriole

(D) Renal vein

21. Ultrafiltration occurs in :

(A) Blood capillaries

(B) Urinary bladder

(C) Tissue fluid

(D) Glomerulers

22. Respiration is controlled by :

(A) Cerebellum

(B) Hypothalamus

(C) Medulla oblongata

(D) Olfactory lobes

23. Maximum quantity of phosphate bond energy during respiration is produced in :

(A) Breakdown of sugar

(B) Krebs cycle

(C) Glycolysis

(D) Anaerobic respiration

24. RQ means :

(A) Ratio of CO_2 produced and O_2 utilized

(B) Consumption of O_2 per minute

(C) Consumption of CO_2 per minute

(D) Ratio of heat and O_2 consumption

25. In Anaerobic Respiration the pyruvic acid in muscles will form :

(A) Alcohol

(B) Acetyl Co-A

(C) Acetaldehyde

(D) Lactic acid

26. The first enzyme to take part in Krebs cycle is :

(A) Aconitase

(B) Dehydrogenase

(C) Citrate synthetase

(D) Decarboxylase

27. 'Heart of Hearts' is :

(A) AV Node

(B) Purkinje Fibres

(C) Bundle of His

(D) SA Node

28. The First Heart sound is produced when :

(A) Diastole begins

(B) Semilunar valve closes quickly

(C) Interventricular pressure decreases

(D) Tricuspid and Bicuspid valves close quickly

29. At the time of diastole, heart is filled with :

(A) Mixed blood

(B) Venous blood

(C) Deoxygenated blood

(D) Oxygenated blood

30. Which of the following Amino Acids is present in ornithine cycle ?

(A) Valine and cystine

(B) Arginine and citrulline

(C) Glycine and methionine

(D) None of the above

31. Smooth muscles do not contain :

(A) Actin

(B) Myosin

(C) Tropomyocin

(D) Troponin

32. ..... is not a characteristic of smooth muscles.

(A) Involuntary muscle

(B) Unstriated

(C) Variable dimensions of its cell

(D) Well developed Sarcoplasmic reticulum

33. Muscle fatigue is due to :

(A) Long Latency

(B) Slow contraction of muscles

(C) Low ATPase activity

(D) Inadequate supply of ATP

34. Increase in Intraocular pressure of Aqueous humour results in development of :

(A) Cataract

(B) Glaucoma

(C) Astigmatism

(D) None of the above

35. The Retinal part of photopigment is derivative of :

(A) Vitamin A

(B) Vitamin B_{12}

(C) Vitamin C

(D) Vitamin K

36. What does transduction of light energy mean ?

(A) Conversion of light energy to mechanical energy

(B) Conversion of light energy to chemical energy

(C) Conversion of light energy to electrical energy

(D) Both (B) and (C)

37. Which one of the following sets of ions are necessary in the chemical events of muscle contraction ?

(A) Na^+ and K^+

(B) Ca^{++} and Mg^{++}

(C) Na^+ and Ca^{++}

(D) Na^+ and Mg^{++}

38. If concentration of CO_2 is more, than the curve of oxygen hemoglobin will shift towards :

(A) left

(B) central

(C) right

(D) None of the above

39. If concentration of pH in blood decreases the curve of oxygen haemoglobin shift towards :

(A) Left

(B) Central

(C) Right

(D) None of the above

40. Respiratory pigment in Arthropods is :

(A) Chlorophyll

(B) Haemoglobin

(C) Cytochrome

(D) Haemocyanin

41. End product of Glycolysis is :

(A) Acetyl CoA

(B) Lactic Acid

(C) Pyruvic Acid

(D) Citric Acid

42. Herbivorous animals digest cellulose because :

(A) Alimentary canal in very long

(B) Bacteria found in caecum are helpful

(C) Alimentary canal is very short

(D) Premolar and molar teeth help in grinding

43. Chymotrypsin is :

(A) Proteolytic enzyme

(B) Fat digestive enzyme

(C) Vitamin

(D) Hormones

44. Which enzyme should be added to the test tube containing starch for its digestion ?

(A) Invertase

(B) Amylase

(C) Maltase

(D) Lipase

45. At pH 1.5, which enzyme will digest proteins ?

(A) Trypsin

(B) Lipase

(C) Pepsin

(D) Enterokinase

46. In man, the enzyme responsible for digestion of starch is present :

(A) Saliva and Pancreatic Secretion

(B) Gastric and Pancreatic Secretion

(C) Gastric and Duodenal Secretion

(D) Saliva and Gastric Secretion

47. In which part of gut are proteins ultimately degraded to amino acids ?

(A) Stomach

(B) Caecum

(C) Colon

(D) Small Intestine

48. Trypsin helps in digestion of proteins in :

(A) Stomach in acidic medium

(B) Duodenum in acidic medium

(C) Stomach in alkaline medium

(D) Duodenum in alkaline medium

49. Chief function of biles :

(A) To digest fats of enzyme action

(B) To regulate process of digestion

(C) To emulsify fats for digestion

(D) To eliminate waste

50. Bilirubin and Biliverdin are found in :

(A) Blood

(B) Bile

(C) Pancreatic juice

(D) Saliva

51. Which of these are linked together in long chain to form megamolecules (polymers) or proteins ?

(A) Purines

(B) Pyrimidines

(C) Amino Acids

(D) Sugar

52. Islets of Langerhans are :

(A) Modified lymph glands

(B) Ductless gland in pancreas

(C) Specialized areas in pitutary

(D) Small tubules in Kidney

53. If thyroid gland is removed from tadpole it will :

(A) Develop into adult rapidly

(B) Remain tadpole

(C) Develop in adult slowly

(D) Die

54. Copper containing Respiratory Pigment is :

(A) Hemoglobin

(B) Pinnaglobin

(C) Haemocyanin

(D) Hemerythrin

55. Some animals depend upon the atmospheric heat for maintaining their body temperature are :

(A) Endotherms

(B) Ectotherms

(C) Homeotherms

(D) None of the above

56. To avoid freezing of the body fluids and formation of ice crystals, some animals posses a antifreeze substance which is :

(A) Carbohydrate

(B) Lipids

(C) Proteins

(D) Phospholipids

57. Thermoregulatory centre in mammals is situated in :

(A) Cerebral cortex

(B) Cerebellum

(C) Hypothalamus

(D) Medulla

58. Which one is not the function of Hydrochloric acid ?

(A) Killing of bacteria

(B) Conversion of proteins to peptones

(C) Conversion of pepsinogen into pepsin

(D) Sterilization of food

59. In Mammals' tissues, the removal of nitrogen takes place by two methods–one is oxidative deamination and other is :

(A) Deanination

(B) Transamination

(C) Transmethylation

(D) Aminoacylation

60. Muscle Glycogen cannot be converted into glucose as muscles lack the enzyme :

(A) Hexokinase

(B) Phosphorylase

(C) Glucose-6-phosphate

(D) Aldolases

61. Hamburger phenomenon is also known as :

(A) Bicarbonate shift

(B) Sodium shift

(C) Chloride shift

(D) H^+ shift

62. The volume of air taken in and given not at each normal inspiration and expiration is known as :

(A) Vital capacity

(B) Residual volume

(C) Tidal capacity

(D) Tidal volume

63. The formation of blood clot is blood vessels is called :

(A) Agglutination

(B) Clothing

(C) Co-agulation

(D) Thrombosis

64. Volume of Urine is regulated by :

(A) Aldosterone

(B) Aldosterone and ADH

(C) Aldosterone, ADH and Testosterone

(D) Only ADH

65. Excretion of Uric Acid is :

(A) Ultrafiltration

(B) Secretion

(C) Reabsorption

(D) None of the above

66. Maximum absorption of Na, PO_4 and H_2O occurs in :

(A) Distal convoluted tubule

(B) Proximal convoluted tubule

(C) Loop of Henle

(D) Collecting tubule

67. Kidney stones are formed due to :

(A) Deposition of sand particles

(B) Precipitation of proteins

(C) Crystallization of oxalates

(D) Deposition of fats

68. Sarcomere is a distance between :

(A) Two I-bands

(B) A and I bands

(C) Two Z lines

(D) Z and A bands

69. Cori cycle is associated with :

(A) Oxalic acid

(B) Pyruvic acid

(C) Lactic acid

(D) Citric acid

70. Cross bridges between Actin and Myosin filaments are formed by the complex :

(A) Troponin-actin

(B) Troponin-myosin

(C) Troponin-tropomyocin

(D) Tropomyocin-actin

71. The potential difference between inside and outside of nerve fibre before excitation is :

(A) Action potential

(B) Resting potential

(C) Reaction potential

(D) None of the above

72. The size of pupil deceases due to contraction of :

(A) Circular muscle

(B) Radial muscle

(C) Nictating membrane

(D) None of the above

73. Which part of the internal ear receives sound waves in man ?

(A) Lagena and utriculus

(B) Cochlea

(C) Ampulla and utriculus

(D) None of the above

74. Receptors to touch present in the skin are :

(A) Corpuscles of Reffini

(B) Meissner's corpuscles

(C) Pacinian corpuscles

(D) All of the above

75. Propioreceptors are found in :

(A) Medulla

(B) Sole of feet

(C) Hypothalamus

(D) Adrenal cortex

76. Addison's disease in due to under secretion of :

(A) Adrenalin

(B) Corticoids

(C) ACTH

(D) Insulin

77. Mammalian Thymus is mainly concerned with :

(A) Regulation of body temperature

(B) Regulation of body growth

(C) Immunological function

(D) Secretion of thyrotropin

78. Implantation of fertilized egg or young embryo occurs under the influence of :

(A) FSH

(B) Progesteron

(C) Oxytocin

(D) LH

79. Pituitary gland is known as Master's Gland because it controls :

(A) Thyroid gland and metabolism

(B) Gonads and adrenals

(C) Growth

(D) Thyroid, gonads and adrenals

80. Hormone which brings about the contraction of the gall bladder is :

(A) Oxytocin

(B) Gastrin

(C) Cholecytokinin

(D) Secretin

81. An enzyme which breaks down a substrate without addition of water belongs to the group :

(A) Lyases

(B) Ligases

(C) Hydrolyses

(D) Oxidases

82. Pentoses belongs to the category of :

(A) Disaccharides

(B) Monosaccharides

(C) Trisaccharides

(D) Oligosaccharides

83. α-Helical structure of the protein :

(A) is stabilized by H-bonds

(B) is maintained by H-bonds

(C) has all 20-amino acids

(D) has co-valent bonds

84. RNA polymerase I is located in :

(A) Nucleoplasm

(B) Nucleolus

(C) Mitochondria

(D) Nucleus

85. Two proteins are known to be involved in the regulation of Lactose operon. One is Lac Repressor and other is :

(A) Lac Inducer

(B) Cga Repressor

(C) Cga Protein

(D) None of the above

86. Palmitoleic Acid is :

(A) Fatly Acid

(B) Nucleic Acid

(C) Inorganic Acid

(D) Carboxylic Acid

87. The energy rich fuel molecules produced in the TCA cycles are :

(A) 2 GTP, 2 NADH and 1 $FADH_2$

(B) 1 GTP, 2 NADH and 2 $FADH_2$

(C) 1 GTP, 3 NADH and 1 $FADH_2$

(D) 2 GTP and 3 NAD.

88. The metabolic pathway which takes place in cellular respiration is :

(A) The TCA cycle

(B) The electron transport chain

(C) Glycoysis

(D) Synthesis of Acetyl Co-A from pyruvate

89. The precursor for the synthesis of dramatic Amino acid is :

(A) α-Ketoglutarate

(B) Oxaloacetate

(C) Pyruvate

(D) Phosphoenol pyruvate

90. The end products of Glycolysis include ATP :

(A) CO_2 and H_2O

(B) H_2O and Pyruvate

(C) NADH and Pyruvate

(D) CO_2 and NADH

91. Which process does not occur in Mitochondria ?

(A) Fatty acid biosynthesis

(B) Protein synthesis

(C) Bio oxidation

(D) DNA synthetase

92. In mitochondria, succinyl CoA synthetase produces :

(A) ATP

(B) ADP

(C) GTP

(D) AMP

93. Which statement is correct for Globular protein ?

(A) Always contains α-helix

(B) Always contains β-helix

(C) Contains both α and β-helix

(D) Contains more reverse turns

94. Conversion of pyruvate to oxaloacetate requires which of the following co-factors ?

(A) Biotin

(B) Pyridoxal phosphate

(C) Thiamine pyrophosphate

(D) Vitamin B_{12}

95. Smart genes have Activation Domains that help in :

(A) Transcription

(B) Translation

(C) Gene Expressing

(D) None of the above

96. What is the Actual site of Transcription initiation ?

(A) Operator Gene

(B) Promotor Gene

(C) Repressor Gene

(D) None of the above

97. In Eukaryotes m-RNA the cap on 5'end consists of 7-methly guanosine, its presence is required for :

(A) DNA Synthetase

(B) . RNA Synthetase

(C) Translation

(D) Transcription

98. Sites of gene activity are :

(A) Methylated

(B) Demethylated

(C) Unmethylated

(D) None of the above

99. Which base pair is more common in double helical segment ?

(A) G : C Base pair

(B) A : C base pair

(C) A : V base pair

(D) All of the above

100. Glucose 6-phosphate inhibits which one of the following enzymes ?

(A) Glucokinase

(B) Hexokinase

(C) Phosphorylase kinase

(D) Fructose 1, 6-biphosphate

Roll No. .....

O. M. R. Serial No. | | | | | | | | |

Question Booklet Number
333527

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

ZOOLOGY

(Reproductive and Developmental Biology)

Paper Code							
B	0	5	0	8	0	3	T

Questions Booklet Series
C

Time : 1:30 Hours]

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(Remaining instructions on the last page)

(शेष निर्देश अन्तिम पृष्ठ पर)

1. Sertoli cells are found :

(A) Between the seminiferous tubules of ovary

(B) In the germinal epithelium of ovary

(C) In the upper part of the fallopian tube

(D) In the germinal epithelium of seminiferous tubules

2. When mouth develops from blastopore, the organism is called :

(A) Deuterostomia

(B) Protostomia

(C) Blastostomia

(D) None of the above

3. Umblical cord of mammal is :

(A) Placenta

(B) A group of muscle fibres

(C) Allantoic vein and artery

(D) All of the above

4. What is the purpose of the imaginal discs in the pupal stage of insects ?

(A) They help in respiration

(B) They provide nutrition to the developing organism

(C) They contain the genetic blueprint for the adult structures

(D) They protect the developing organism from predators

5. The phenomenon of apoptosis is essential for :

(A) Tissue repair

(B) Cell proliferation

(C) Empryo implantation

(D) Elimination of excess cells

6. The HOX genes play a critical role in :

(A) Cell proliferation

(B) Cell differentiation

(C) Cell migration

(D) Apoptosis

7. Tunica albuginea is covering around the :

(A) Ovaries

(B) Testes

(C) Epididymis

(D) Scrotal sacs

8. Which of the following is not a characteristic feature of totipotent cells ?

(A) Ability to differentiate into any cell type

(B) Found in inner cell mass of blastocyst

(C) Can form an entire organism

(D) Found in adult tissues

9. Which of the following is true about human reproductive strategy ?

(A) Humans have a high reproductive rate and large number of offsprings.

(B) Humans have a low reproductive rate and small number of offeprings.

(C) Humans reproduce asexually.

(D) Humans reproduce through parthenogenesis.

10. Congenital uterine anomalies can be associated with an increased risk of :

(A) Ectopic pregnancy

(B) Ovarian cancer

(C) Breast cancer

(D) Cervical dysplasia

11. What is the most effective way to reduce the risk of developing reproductive system cancers ?

(A) Avoiding all types of sexual activity

(B) Getting vaccinated against HPV

(C) Eating a high-fat diet

(D) Avoiding all hormonal medications

12. Archenteron is lined with :

(A) Ectoderm

(B) Mesoderm

(C) Endoderm

(D) Mesoderm and Endoderm

13. Vitellogenesis means :

(A) Formation of vitelline membrane

(B) Formation of yolk sac

(C) Formation and storage of yolk

(D) All of the above

14. What is the larval stage in complete metamorphosis called ?

(A) Nymph

(B) Pupa

(C) Calterpillar

(D) Egg

15. Which of the following is not a common type of sexual dysfunction ?

(A) Erectile dysfunction

(B) Premature ejaculation

(C) Hypoactive sexual desire disorder

(D) Schizophrenia

16. What is the term for the process of shedding the old exoskeleton or cuticle during metamorphosis ?

(A) Moulting

(B) Shedding

(C) Ecdysis

(D) Desquamation

17. What triggers the initiation of metamorphosis in amphibians such as frogs ?

(A) Hormonal changes

(B) Seasonal cues

(C) Availability of food

(D) Exposure to water

18. What triggers the completion of meiosis of secondary oocyte ?

(A) Maturation of Graffian follicle

(B) Entry of sperm into egg cell

(C) Release of Estrogen

(D) Coitus

19. Which of the following is the sperm lysin in humans ?

(A) Hyaluronidase

(B) Acrosin

(C) Neuraminidase

(D) All of the above

20. Chronic uterine infection can lead to which of the following symptoms ?

(A) Vaginal bleeding

(B) Pelvic pain

(C) Abnormal vaginal discharge

(D) All of the above

21. What is adenomyosis ?

(A) A disorder of the liver

(B) An autoimmune disease

(C) A condition affecting the uterus

(D) A type of cancer

22. Removal of uterus is called :

(A) Tubectomy

(B) Orchidectomy

(C) Hysterectomy

(D) Parturition

23. Cavity of Graffian follicle is called :

(A) Cervix

(B) Ampulla

(C) Atresia

(D) Antrum

24. What is not a function of male sex hormone testosterone ?

(A) Onset of spermatogenesis

(B) Maintenance of accessory ducts

(C) Release of semen

(D) Maintenance of accessory glands

25. Ovary secretes :

(A) Steroid hormones only

(B) Protein hormones only

(C) Both Steroid and protein hormones

(D) Amino acid derivate hormones

26. Which layer of egg cell prevents the entry of other sperms ?

(A) Corpus luteum

(B) Zona pellucida

(C) Endometrium

(D) Corona radiata

27. Gynaecomastia is :

(A) Surgical removal of testes

(B) Surgical removal of uterus

(C) Development of breast in male

(D) Shrinkage of female breast

28. The principal tail piece of human sperm shows the microtubular arrangement of :

(A) 9 + 2

(B) 7 + 2

(C) 11 + 2

(D) 13 + 2

29. The ability of a cell to differentiate is called :

(A) Potential

(B) Potency

(C) Stemness

(D) Development

30. Oogonium is :

(A) Diploid

(B) Haploid

(C) Triploid

(D) Euploid

31. How many ova and sperms would be produced from 100 secondary oocytes and 50 primary spermatocytes ?

(A) 100 ova and 100 sperms

(B) 100 ova and 200 sperms

(C) 50 ova and 100 sperms

(D) 200 ova and 100 sperms

32. Path of the sperms to the site of fertilization is :

(A) Oviduct – uterus – cervix – vagina

(B) Vagina – cervix – uterus – oviduct

(C) Vagina – uterus – oviduct – cervix

(D) Vagina – oviduct – cervix – uterus

33. A human female has the maximum number of primary oocytes in her ovaries :

(A) at birth

(B) just prior to puberty

(C) early in her fertile years

(D) midway through her fertile years

34. In mammals fertilization occurs in :

(A) Uterus

(B) Vagina

(C) Fallopina tube

(D) Ovary

35. Which of the following process/ conversion occurs during foetal life before the birth of human female ?

(A) Oogonium into primary oocyte

(B) Egg mother cell into secondary oocyte

(C) Primary oocyte into secondary oocyte

(D) Division of polar body

36. The scrotum communicates with abdominal cavity through :

(A) Urethra

(B) Inguinal canal

(C) Vas deferens

(D) Epididymis

37. Which one of the following is transformed directly into a mature or Graffian follicle ?

(A) Primordial follicle

(B) Primary follicle

(C) Secondary follicle

(D) Tertiary follicle

38. Sertoli cells are found in :

(A) Liver

(B) Seminiferous tubules

(C) Heart

(D) Germinal epithelium

39. Which of the following pairs is diploid ?

(A) Primary and secondary spermatocytes

(B) Spermatid and sperm

(C) Spermatid and spermatogonia

(D) Oogonium and spermatogonium

40. During which phase of the menstrual cycle fertilization is possible :

(A) Follicular

(B) Bleeding

(C) Secretory

(D) At any phase

41. What happens during the pupal stage of metamorphosis ?

(A) Rapid growth and development

(B) Formation of wings and adult structures

(C) Reproduction and mating

(D) Hibernation and rest

42. Which of the following chemicals is known to be a developmental carcinogen ?

(A) Asbestos

(B) Alcohol

(C) Lead

(D) All of the above

43. Which carcinogen affects the development of brain and central nervous system during the foetal development ?

(A) Benzene

(B) Mercury

(C) Formaldehyde

(D) Carbon monoxide

44. What are oncogenes ?

(A) Genes that promote cell division and growth

(B) Genes that supress tumour growth

(C) Genes responsible for DNA repair

(D) Genes that regulate cell death

45. Which of the following is a well-known oncogène associated with breast cancer ?

(A) HER 2

(B) BRCA 1

(C) p53

(D) EGFR

46. Which of the following undergoes meiosis-I division ?

(A) Primary spermatocytes

(B) Secondary spermatocytes

(C) Sertoli cells

(D) Leydig cells

47. The reproductive cycle in the female primates such as monkeys, apes and human beings is called :

(A) Menstrual cycle

(B) Oestrus cycle

(C) Circadian cycle

(D) Ovulatory cycle

48. MTP is considered safe during :

(A) First Trimester

(B) Second Trimester

(C) Third Trimester

(D) Mid of gestation

49. Natural methods of birth control include :

(A) Abstinence

(B) Coitus interruptus

(C) Lactational amenorrhea

(D) All of the above

50. Which of the following can contribute to the development of female sexual dysfunction ?

(A) Hormonal imbalance

(B) Excessive exercise

(C) Lack of social support

(D) Vitamin C deficiency

51. How many mature eggs are produced typically by a non-pregnant woman in one year ?

(A) 15

(B) 6

(C) 13

(D) 416

52. When cleavage furrow passes through the centre of animal-vegetal axis, cleavage is :

(A) Meridional

(B) Vertical

(C) Equatorial

(D) Latitudinal

53. Drugs that cause malformation of embryo during pregnancy are called :

(A) Nicotin

(B) Sedatives

(C) Teratogen

(D) Tranquilizer

54. Chorionic villi and uterine tissue fuse to form :

(A) Zona pellucida

(B) Blastula

(C) Placenta

(D) Endometrium

55. Sperms are produced in :

(A) Vas deferens

(B) Vasa efferentia

(C) Rete testis

(D) Seminiferous tubules

56. Which of the following is not a germ layer in early embryonic development ?

(A) Ectoderm

(B) Endoderm

(C) Mesoderm

(D) Exoderm

57. The formation of the neural tube is a crucial step in the development of :

(A) Muscles

(B) Bones

(C) Nervous system

(D) Digestive system

58. The extra embryonic membrane that contributes to the formation of the placenta is :

(A) Amnion

(B) Chorion

(C) Yolk sac

(D) Allantois

59. Non-cancerous growths that develop in or around the uterus are called :

(A) Cysts

(B) Fibroids

(C) Tumour

(D) None of the above

60. PCOS is a condition affecting :

(A) Kidney

(B) Urinary bladder

(C) Ovary

(D) Uterus

61. Pedogenesis can be best described by :

(A) Degeneration of certain advanced characters of the larva, so that the adult is more simple and primitive

(B) Simple larval organization changes to more complex organization

(C) Larva attains adulthood by developing gonads and producing its own kind

(D) None of the above

62. Juvenile hormone in insects is released from :

(A) Protocerebrum

(B) Corpora cardiaca

(C) Corpora allata

(D) Thoracic gland

63. Dyes used in the vital staining marking method :

(A) Nile Blue Sulphate

(B) Neutral Red

(C) Bismarck Brown

(D) All of the above

64. Endometritis is generally caused by :

(A) Fungal infection

(B) Viral infection

(C) Sexually Transmitted Infection (STI), tuberculosis and mixture of normal vaginal bacteria

(D) All of the above

65. Failure of testis to descend into scrotum is called :

(A) Menospause

(B) Parturition

(C) Micturition

(D) Cryptorchidism

66. The pH of semen is :

(A) More than 6

(B) More than 7

(C) More than 8

(D) Approximately 7

67. Which reproductive system cancer can be detected a pap smear test ?

(A) Ovarian cancer

(B) Endometrial cancer

(C) Cervical cancer

(D) Vulvar cancer

68. Endometriosis most commonly affects women in their :

(A) Reproductive years (25-35 years)

(B) Before puberty

(C) After menopause

(D) None of the above

69. Non-steroidal oral contraceptive birth control pill is :

(A) Mala-A

(B) Mala-D

(C) Saheli

(D) Friend

70. Amniocentesis is a process to :

(A) Determine the disease of heart

(B) Determine the genetic and metabolic defects in the embryo

(C) Know about the disease of brain

(D) Excrete amino acids

71. Which of the following diseases are not completely curable ?

(A) Genital Herpes

(B) HIV

(C) Hepatitis B

(D) All of the above

72. Copper T/Loop prevents :

(A) Ovulation

(B) Fertilization

(C) Cleavage

(D) Zygote formation

73. What is the full form of GIFT ?

(A) Genetical introduction of fertilized zygote in a well planned test tube

(B) Genetically improved fallopian tube

(C) Game intra-fallopian transfer

(D) Gamete incorporation within a female tube

74. Spermatogenesis starts at puberty due to significant increase in secretion of :

(A) GnRH

(B) Prolactin

(C) Testosterone

(D) Oestrogen

75. Menstrual flow occurs due to lack of :

(A) FSH

(B) Progesterone

(C) Oxytocin

(D) Vasopressin

76. What is infected in pregnant females to induce labour pains ?

(A) Estrogen

(B) Oxytocin

(C) Progesterone

(D) Relaxin

77. Which compound cannot pass placental barrier ?

(A) Haemoglobin

(B) Amino acids

(C) Glucose

(D) Water

78. An outer envelope of cells in the Blastocyst is called :

(A) Trophoblast

(B) Embryoblast

(C) Animal pole

(D) An embryonic pole

79. The number of spermatozoa, a single primary spermatocyte finally produces in spermatogenesis is :

(A) 2

(B) 4

(C) 6

(D) 8

80. Tubectomy, method of population control is performed on :

(A) Intersexes

(B) Only pregnant females

(C) Females only

(D) Both males and females

81. Fertilizin is a chemical substance produced from :

(A) Middle piece of sperm

(B) Mature egg

(C) Polar bodies

(D) Acrosome

82. *In-vitro* fertilization is a technique that involves transfer of which one of the following into the uterus ?

(A) Either zygote or early embryo upto 8 cell stage

(B) Embryo of more than 8 cell stage

(C) Zygote only

(D) Embryo only, upto 8 cell stage

83. Study of fate map is done by :

(A) Natural marking

(B) Vital staining method

(C) Radioactive labelling method

(D) All of the above

84. Unpaired gland is :

(A) Cowper's gland

(B) Prostate gland

(C) Uterus masculinus

(D) Bartholin's gland

85. Spermiogenesis or spermateleosis is a process of formation of sperms from :

(A) Primordial germ cell

(B) Spermatogonium

(C) Spermatid

(D) Primary spermatocyte

86. Cessation of menstrual cycle is called :

(A) Ovulation

(B) Menopause

(C) Parturition

(D) Menarche

87. Antibodies in colostrum provide newborn with :

(A) Immunity

(B) Long life

(C) Death

(D) Tall height

88. The process by which an embryonic tissue influences other tissues to differentiate is called :

(A) Transplantation

(B) Grafting

(C) Induction

(D) Activation

89. In many mammals, testes remain outside body cavity in scrotal sacs because :

(A) It helps in coitus

(B) It helps in ejection of sperms

(C) Sperms produced in it are more active

(D) Spermatogenesis occurs at a temperature lower than that of body

90. Contraceptive pills generally contain :

(A) Estrogen

(B) FSH

(C) GnRH

(D) Progesterone

91. Zona pellucida is composed of which glycoproteins :

(A) ZP10

(B) ZP11

(C) ZP3

(D) ZP4

92. Gastrulation comprises :

(A) Morphogenetic movements

(B) Differentiation of archenteron

(C) Differentiation of three germ layers

(D) All of the above

93. What is correct about test tube baby ?

(A) Fertilization inside female genital tract and growth in test tube

(B) Rearing of prematurely born baby in incubator

(C) Fertilization outside and gestation inside the uterus of mother

(D) Both fertilization and development outside the female genital tract

94. The acrosome of sperm is formed from :

(A) Mitochondria of spermatid

(B) Golgi complex of spermatid

(C) Nucleus of spermatid

(D) Centrosome of spermatid

95. Mesoderm given rise to all the structures, except :

(A) Gonads

(B) Circulatory system

(C) Nervous system

(D) Muscular system

96. Follicular phase is also called :

(A) Menstrual phase

(B) Luteal phase

(C) Proliferative phase

(D) Secretory phase

97. Contraction of mammary glands and ducts during the milk ejection reflex is stimulated by :

(A) Prolactin

(B) Oxytocin

(C) Estrogen

(D) Progesterone

98. All of the following are techniques to improve reproductive capabilities, except :

(A) GIFT

(B) ZIFT

(C) ET

(D) IUCD/IUD

99. If after ovulation, pregnancy does not result, the corpus luteum:

(A) Degenerates after a short time

(B) Remains alive till next menstrual cycle

(C) Remains active and starts to secrete FSH

(D) Produces progesterone till new pregnancy

100. Reproductive health includes :

(A) Healthy reproductive organs with normal function

(B) Emotional aspects of reproduction

(C) Social aspects of reproduction

(D) All of the above

Roll No. .....

O. M. R. Serial No. | | | | | | | | |

Question Booklet Number
337866

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

ZOOLOGY

(Apiculture) (Elective)

Paper Code							
B	0	5	0	8	0	4	T

Questions Booklet Series
B

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.

(Remaining instructions on the last page)

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।

(शेष निर्देश अन्तिम पृष्ठ पर)

1. Nature of Honey is :

(A) Alkaline

(B) Acidic

(C) Neutral

(D) Uncertain

2. The sting apparatus is absent in :

(A) Drone

(B) Worker

(C) Queen

(D) None of the above

3. 30% sugar syrup solution are provided to bee during which season ?

(A) Onset of spring

(B) Autumn

(C) Summer

(D) Monsoon

4. Which of the following is a wax moth ?

(A) *Vespa orientalis*

(B) *Dorylus labiatus*

(C) *Acarapis woodi*

(D) *Galleria mellonella*

5. Which of the following species construct hive on tall building ?

(A) *Apis florea*

(B) *Apis indica*

(C) *Apis dorsata*

(D) *Apis mellifera*

6. Life span of queen is :

(A) One year

(B) Three to five years

(C) 12 to 16 weeks

(D) Two weeks

7. Which gland helps in softening of wax ?

(A) Mandibular gland

(B) Wax gland

(C) Prostate gland

(D) None of the above

8. *Streptococcus plulon* causes which disease ?

(A) American foul brood disease

(B) European foul brood disease

(C) Thai sac brood disease

(D) Colony collapse disease

9. In which order honey bee belongs ?

(A) Ophidea

(B) Insecta

(C) Hydrozoa

(D) Hymenoptera

10. Nosemosis is :

(A) Bacterial-borne disease

(B) Fungal-borne disease

(C) Viral-borne disease

(D) None of the above

11. Which of the following Bee product is used to cure Arthritis ?

(A) Royal jelly

(B) Honey

(C) Propolis

(D) Bee venom

12. When condition in the hive optimum, the bees perform which dance ?

(A) Alarm dance

(B) Circular dance

(C) Wriggle dance

(D) D.V.A.V.

13. Ocloo's method is used for :

(A) Extraction of Honey

(B) Extraction of Wax

(C) Both (A) and (B)

(D) Controling the queen

14. What is a Decoy hive ?

(A) Hive placed to attract swarms

(B) Hive used to extract honey

(C) Hive used to extract wax

(D) All of the above

15. Spermatheca is present in :

(A) Worker

(B) Drone

(C) Queen

(D) All of the above

16. The drones mates with female :

(A) Once in lifetime

(B) Many times in lifetime

(C) Drone newer mates

(D) Drone dies before mating

17. In workers egg laying apparatus is modified into which organ ?

(A) Wax gland

(B) Ovipositor

(C) Sting

(D) All of the above

18. When the colony is in danger, worker bee performs which type of dance ?

(A) D.V.A.V.

(B) Alarm dance

(C) Circular dance

(D) Wriggle dance

19. Reproductive organ is grealty reduced in :

(A) Queen

(B) Worker

(C) Drone

(D) Both (A) and (C)

20. Which vitamin is rich in Royal Jelly ?

(A) A

(B) B

(C) C

(D) D

21. The American Foul Brood disease is caused by :

(A) *Nosema apis*

(B) *Rosema apis*

(C) *Paenibacillus larvae*

(D) *Pericystis apis*

22. From 18th to 20th day a worker performs :

(A) Cleaner duty

(B) Guard duty

(C) Signaling duty

(D) Carrier duty

23. Varroa are usually found in :

(A) Cells of workers

(B) Cells of queen

(C) Cells of developing drones

(D) All of the above

24. Reducing hive entrance is a seasonal management for :

(A) Autumn

(B) Winter

(C) Summer

(D) Monsoon

25. All India Co-ordinated Project on Honey Bee Research and Training was launched in 1980-81 by :

(A) ICMR

(B) ICAR

(C) CSA

(D) NBRI

26. In which phyllum honey bee belongs ?

(A) Arthropoda

(B) Protozoa

(C) Mammals

(D) Annelida

27. In which cell unfertilized egg is laid ?

(A) Queen cell

(B) Drone cell

(C) Worker cell

(D) Honey cell

28. Central Bee Research and Training Institure is located at :

(A) Kanpur

(B) Jhansi

(C) Pune

(D) Mumbai

29. The migration of complete colony from one place to another is called as :

(A) Supersedure

(B) Swarming

(C) Wiggle

(D) Absconding

30. Mouthparts of workers are modified for :

(A) Biting and Chewing

(B) Grasping

(C) Biting

(D) Sucking and lapping

31. Isle of Wight disease is caused by :

(A) *Aspersillus flavous*

(B) *Nosema apis*

(C) *Rosema apis*

(D) *Acarapis woodi*

32. Head of Honeybee bears a pair of :

(A) Filliform antennae

(B) Geniculate antennae

(C) Thoracic antennae

(D) None of the above

33. Chalk brood diseases are caused by :

(A) *Nosema apis*

(B) *Rosema apis*

(C) *Aspersillus flavus*

(D) *Pericystis apis*

34. How much ocelli are present on head ?

(A) 1

(B) 2

(C) 3

(D) 4

35. If the source of food is 100 metre apart, bees perform which dance ?

(A) Round

(B) Wag tail

(C) Alarm

(D) All of the above

36. During larval stape the no. of abdomenal segments is :

(A) 3

(B) 4

(C) 6

(D) 10

37. Due to its ferocious nature which species is not domesticated ?

(A) *Apis florae*

(B) *Apis indica*

(C) *Apis mellifera*

(D) *Apis dorsata*

38. Which of the species construct hive in bushes ?

(A) *Apis florea*

(B) *Apis mellifera*

(C) *Apis dorsata*

(D) *Apis indica*

39. Prothoracic legs serve as :

(A) Antenna cleaner

(B) Digging

(C) Brushes for cleaning

(D) Wax collection

40. The colony of Honeybee is :

(A) Monomorphic

(B) Dimorphic

(C) Polymorphic

(D) Uncertain

41. Which engyme converts sucrose into glucose in honey ?

(A) Hexokinase

(B) Glucokinase

(C) Lipase

(D) Invertase

42. The shape of queen cell is :

(A) Hexagonal

(B) Octagonal

(C) Pentagonal

(D) Dome

43. Nurse bee is :

(A) Queen

(B) Drone

(C) Worker

(D) None of the above

44. According to Langstroth the space between combs should be :

(A) 1 inch

(B) 1/2 inch

(C) 3/8 inch

(D) None of the above

45. Leading producer of Honey is :

(A) India

(B) China

(C) Greece

(D) Italy

46. Reproductive organs are greatly developed in :

(A) Drone

(B) Worker

(C) Queen

(D) Both (A) and (C)

47. The pollen basket is present on which leg ?

(A) Prothoracic

(B) Mesothoracic

(C) Metathoracic

(D) None of the above

48. Father of Modern Bee Keeping is :

(A) Newton

(B) Langstroth

(C) M. S. Swaminathan

(D) Dalton

49. The modern hive has been designed on the basis of principle of bee space by :

(A) ISI

(B) Newton

(C) Karl Von Frisch

(D) Langstroth

50. Which of these in ectoparasite that feed on bee brood ?

(A) Mites

(B) Wasps

(C) Sparrow

(D) Calotes

51. The number of flowers visited per minute is called as :

(A) Langstroth rate

(B) Wiggle rate

(C) Foraging rate

(D) Flowering rate

52. What is used to calm down the bees while opening the hive ?

(A) Hive tool

(B) Bee veil

(C) Uncaping knife

(D) Smoker

53. A dead larvae swells to size of cell and covered with whitish material, subsequently it mummyfy, the possible disease is :

(A) American foul brood disease

(B) Chalk brood disease

(C) Varroasis

(D) All of the above

54. In bee hive mite control can be done by :

(A) Malathion

(B) DDT

(C) Formic acid

(D) None of the above

55. Queen goes out of the colony for mating with drones and these flight is called :

(A) Mating flight

(B) Nuptial flight

(C) Marriage flight

(D) All of the above

56. Total lifespan of a worker bee is :

(A) 4 weeks

(B) 6 weeks

(C) 8 weeks

(D) 10 weeks

57. Little bee is :

(A) *Apis dorsata*

(B) *Apis mellifera*

(C) *Apis florea*

(D) *Apis indica*

58. Noble Prize for bee communication work was given to Karl Von Frisch in the year :

(A) 1947

(B) 1973

(C) 1937

(D) 1983

59. During overcast weather without sunshine bees uses to oriented itself :

(A) Antennae

(B) Legs

(C) Simple eye

(D) Compound eye

60. Which of these catches the bees at the hive entrance and kill them ?

(A) Mites

(B) Louse

(C) Sparrow

(D) Wasps

61. Brood chamber in hive is used for :

(A) Eggs

(B) Larvae

(C) Both (A) and (B)

(D) None of the above

62. Pollen ingestion and wax moulding is done by :

(A) Labium

(B) Labrum

(C) Maxillae

(D) Mandibles

63. Which of the following is an exotic bee ?

(A) *Apis indica*

(B) *Apis dorsata*

(C) *Apis florea*

(D) *Apis mellifera*

64. *Apis dorsata* is also known as :

(A) Little bee

(B) Giant bee

(C) Ferocious bee

(D) None of the above

65. In Honey bee abdomen bears :

(A) Sting

(B) Wax gland

(C) Both (A) and (B)

(D) None of the above

66. Bees are deaf.

(A) True

(B) False

(C) Drone can hear

(D) None of the above

67. Which of the following is used to present bee stings on face and neck ?

(A) Smoker

(B) Hive tool

(C) Bee veil

(D) All of the above

68. Hive tool is :

(A) iron strip for opening of hive

(B) used to prevent drone

(C) used to prevent queen

(D) None of the above

69. What is varroa ?

(A) Bacteria

(B) Fungus

(C) Virus

(D) Mite

70. Queen cell protector is :

(A) An iron strip

(B) A knife

(C) A spring like structure

(D) Smoker

71. Worker is a :

(A) Female

(B) Sterile male

(C) Fertile male

(D) None of the above

72. Which one is resinous material collected from tree ?

(A) Bee venom

(B) Honey

(C) Wax

(D) Propolis

73. All India Beekeeper's Association (AIBA) was established in :

(A) 1880

(B) 1934

(C) 1974

(D) 1938-39

74. Newton devised a movable hive suitable of which Asiatic bee ?

(A) *Apis indica*

(B) *Apis dorsata*

(C) *Apis cerana*

(D) *Apis mellifera*

75. Central Bee Research Institute (CBRI) is presently designated as :

(A) ICAR

(B) CBRTI

(C) IBRD

(D) IBRB

76. National Bee Board is located at :

(A) Prayagraj

(B) Jhansi

(C) Kanpur

(D) Delhi

77. The part of mouth of bee which is useful to lick nectar :

(A) Glossa

(B) Paraglossa

(C) Galea

(D) None of the above

78. The segment 4th to 7th in worker consists of 4 pairs of :

(A) Acid gland

(B) Prostate gland

(C) Wax gland

(D) All of the above

79. Thorax of honey bee in divided into how many regions ?

(A) 1

(B) 2

(C) 3

(D) 4

80. Which of the following is known as European bee ?

(A) *Apis indica*

(B) *Apis dorsata*

(C) *Apis mellifera*

(D) *Apis florea*

81. Adverse environmental condition causes which disease ?

(A) Stone brood disease

(B) Foul brood disease

(C) Colony collapse disease

(D) None of the above

82. When the food source is nearby, the bees perform which dance ?

(A) DVAV

(B) Alarm

(C) Round

(D) None of the above

83. Which of the following hormones is secreted by queen of the honey bees ?

(A) Trail pheromone

(B) Copulin

(C) Bombykol

(D) Antiqueen pheromone

84. Which of the following does not attack honey bees ?

(A) *Vespa orientalis*

(B) *Musca domestica*

(C) *Dorylus labiatus*

(D) All of the above

85. The Langstroth bee hive is a :

(A) Vertical bee hive

(B) Horizontal bee hive

(C) Mixed bee hive

(D) None of the above

86. The B.S. National hive is a type of :

(A) Top bar hive

(B) Warre hive

(C) Langstroth hive

(D) None of the above

87. Stone brood disease is caused by :

(A) *Rosema apis*

(B) *Nosema apis*

(C) *Aspergillus flavus*

(D) All of the above

88. The shape of Waggle dance is :

(A) O

(B) Z

(C) 8

(D) S

89. Lifespan of a drone is :

(A) 10 years

(B) 4 years

(C) Twelve to sixteen weeks

(D) One week only

90. The process of leaving off the colony by queen with some wokers to establish new colony is called :

(A) Swarming

(B) Absconding

(C) Supersedure

(D) None of the above

91. In which chamber the bees store surplus honey ?

(A) Brood chamer

(B) Queen chamber

(C) Super chamber

(D) Lower chamber

92. Which of the following is a frameless bee hive ?

(A) Top bar

(B) Langsfroth

(C) Warre

(D) All of the above

93. Thai sac brood diseases is a :

(A) Bacterial-borne disease

(B) Fungal-borne disease

(C) Viral-borne disease

(D) None of the above

94. Each drone is fed by :

(A) 3-4 workers bees

(B) Queen

(C) Drone himself feds

(D) None of the above

95. The royal jelly is secreted from :

(A) Wax gland

(B) Crop gland

(C) Salivary gland

(D) Pharyngeal

96. The antenna cleaner is presented on which leg ?

(A) Prothoracic

(B) Mesothoracic

(C) Metathoracic

(D) All of the above

97. If a bee stamps her feet and shakes her body, this is which dance ?

(A) Joy dance

(B) Massage dance

(C) Cleaning dance

(D) Alarm dance

98. If the bee vibrates vigorously and runs in zig-zag spiral motion, the dance is :

(A) Joy dance

(B) Massage dance

(C) Alarm dance

(D) Cleaning dance

99. Honey from which species are of medicinal importance ?

(A) *Apis cerana indica*

(B) *Apis mellifera*

(C) *Apis dorsata*

(D) *Apis tigrina*

100. Which one is known as Giant bee ?

(A) *Apis indica*

(B) *Apis mellifera*

(C) *Apis dorsata*

(D) *Apis florea*

Roll No. .....

O. M. R. Serial No. | | | | | | | | |

Question Booklet Number

339825

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

ZOOLOGY

(Sericulture) (Elective)

Paper Code							
B	0	5	0	8	0	5	T

Questions Booklet Series

A

Time : 1:30 Hours]

[*Maximum Marks : 75*

Instructions to the Examinee :

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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)

1. Top state in Sericulture :

(A) Karnataka

(B) Punjab

(C) U. P.

(D) Chhattisgarh

2. Ministry of Silk Board comes under :

(A) Ministry of Education

(B) Ministry of Textiles

(C) Ministry of Health

(D) None of the above

3. Father of Sericulture in India is :

(A) Tippu Sultan

(B) Hyder Ali

(C) Akbar

(D) Babur

4. The proteins present in silk are :

(A) Fibroin (75%) and Sericin (25%)

(B) Fibroin (50%) and Sericin (50%)

(C) Fibroin (90%) and Sericin (10%)

(D) Fibroin (25%) and Sericin (75%)

5. Uzi flies at the site of rearing repelled by :

(A) Mustard oil

(B) Sunflower oil

(C) Turpentine oil

(D) Peanut oil

6. Central Sericultural Research Station is located at :

(A) Ranchi

(B) Mysore

(C) Bangalore

(D) Berhampur, Orissa

7. Rearing of young larvae of silkworm (I, II and III instar) is called :

(A) Sorting

(B) Stocking

(C) Chawki rearing

(D) None of the above

8. Silk city of India of :

(A) Ramanangar

(B) Bhagalpur

(C) Varanasi

(D) None of the above

9. Largest market of silk cocoons in Asia is :

(A) Ramanangar

(B) Bhagalpur

(C) Varanasi

(D) Lucknow

10. Which silk is produced in Uttar Pradesh ?

(A) Eri Silk

(B) Mulberry Silk

(C) Tasar Silk

(D) Muga Silk

11. Fibroin is used for :

(A) Health products and wound healing

(B) Heart trouble

(C) Kidney trouble

(D) Eye disorder

12. Uzi fly is a :

(A) Regular pest

(B) Pupa

(C) Both (A) and (B)

(D) None of the above

13. CSR-2 is a popular :

(A) Bivoltine breed

(B) Poshan breed

(C) Median breed

(D) None of the above

14. Biofertilizer that fixes nitrogen in mulberry :

(A) Azatobacter

(B) Nitrosomonas

(C) Both (A) and (B)

(D) None of the above

15. The extent of fibroin in cocoon is :

(A) 75—80%

(B) 60—65%

(C) 40—45%

(D) 50—55%

16. Katia is a kind of silk extracted out of :

(A) Ring and peduncle of Mulberry

(B) Ring and peduncle of Tasar

(C) Ring and peduncle of Eri

(D) None of the above

17. Production of cocoonase enzyme is absent in :

(A) Mulberry silkmoth

(B) Eri silkmoth

(C) Tasar silkmoth

(D) None of the above

18. Autosorter is the machine used to measure :

(A) Size of silk

(B) Shape of cocoon

(C) Length of cocoon

(D) Quality of silk

19. The scientific cultivation of non-mulberry plants is called as :

(A) Mariculture

(B) Moriculture

(C) Arboriculture

(D) Aquaculture

20. Peduncle bearing cocoon present in silk-worm species named :

(A) *Anthreaea assama*

(B) *Anthreaea mylitta*

(C) *Philosomia ricini*

(D) *Bombyx mori*

21. The golden yellow colour silk in produced by :

(A) *Antheraea assama*

(B) *Antheraea mylitta*

(C) *Philosomia ricini*

(D) *Bombyx mori*

22. The newly hatched silkworms are known as :

(A) Kegs

(B) Chawki

(C) Ants

(D) All of the above

23. The common treatment dose to silkworm eggs to overcome hibernation is :

(A) Hot water

(B) Hot HCl

(C) High temperature

(D) None of the above

24. The stage of silkworm when it is synthesizing silk :

(A) IIIrd Instars

(B) IVth Instars

(C) Vth Instars

(D) Both (B) and (C)

25. Mother moth examination is done for silkworms to examine the disease :

(A) Flacherie

(B) Pebrine

(C) Septicemia

(D) Grasserie

26. Silk glands are _____ in origin.

(A) Endodermal

(B) Ectodermal

(C) Mesodermal

(D) Epidermal

27. Danier is usually referred to weight of single filament of :

(A) 9000 m

(B) 7000 m

(C) 8000 m

(D) 6000 m

28. Sericulture is a :

(A) Greek word

(B) French word

(C) Latin word

(D) None of the above

29. Pure silk is obtained from :

(A) *Bombyx mori*

(B) *Antheraea assamensis*

(C) Both (A) and (B)

(D) None of the above

30. Largest producer of silk in the world is :

(A) India

(B) China

(C) Japan

(D) None of the above

31. Largest consumer of silk in the world is :

(A) India

(B) China

(C) Japan

(D) None of the above

32. Natural enemies of tasar silkworm are :

(A) Parasitoid

(B) Sycanus

(C) Mantis

(D) All of the above

33. India's rank in silk production in all over world is :

(A) First

(B) Second

(C) Third

(D) Fourth

34. NBAIR is located at :

(A) Mysore

(B) New Delhi

(C) Bangalore

(D) Ranchi

35. Bacterial disease of silkworm is :

(A) Pebrine

(B) Flacherie

(C) Grasserie

(D) Both (B) and (C)

36. The silkworms which belongs to family Saturriidae :

(A) Eri silkworm

(B) Tasar silkworm

(C) Muga silkworm

(D) All of the above

37. Semi-domesticated natured species of silkworm is :

(A) Eri silkworm

(B) Tasar silkworm

(C) Muga silkworm

(D) Mulberry silkworm

38. The brown coloured silk is produced by :

(A) Eri silkworm

(B) Tasar silkworm

(C) Muga silkworm

(D) Mulberry silkworm

39. Muga silkworm belongs to native place of :

(A) Karnataka

(B) Jharkhand

(C) Assam

(D) Orissa

40. The host of silkworm is :

(A) Ber

(B) Oak

(C) Shisav

(D) All of the above

41. Name the species of silkworm that is monopoly to India :

(A) *Anthreaea assama*

(B) *Anthreaea mylitta*

(C) *Philosomia ricini*

(D) *Bombyx mori*

42. Name the species of silworm where the cocoon cannot be reeled as that mulberry cocoons :

(A) Eri silkworm

(B) Tasar silkworm

(C) Muga silkworm

(D) None of the above

43. Central Silk Board (CSB) is in :

(A) Bangalore

(B) Chennai

(C) Mysore

(D) New Delhi

44. Central Sericulture Research and Training Institute (CSRTI) is located at :

(A) Bangalore

(B) Ooty

(C) Mysore

(D) Chennai

45. The stage of Mulberry silkworm that undergoes diapauses is :

(A) Egg

(B) Larva

(C) Pupa

(D) Adult

46. The stage of Tasar silkworm that undergoes diapause is :

(A) Egg

(B) Larva

(C) Pupa

(D) Adult

47. Number of pairs of abdominal legs in *Bombyx mori* is :

(A) 4 pairs

(B) 5 pairs

(C) 6 pairs

(D) 8 pairs

48. Number of ovarioles in *Bombyx mori* adult is :

(A) 5

(B) 6

(C) 7

(D) 8

49. Pupa of *Bombyx mori* is :

(A) Obtect

(B) Syrine

(C) Both (A) and (B)

(D) None of the above

50. In silkworm rearing microclimate is monitored by using :

(A) Thermohygrometer

(B) Sphygmomanometer

(C) Both (A) and (B)

(D) None of the above

51. Double cross hybrids have :

(A) 2 parents

(B) 4 parents

(C) Both (A) and (B)

(D) None of the above

52. Orientation of silkworm rearing house should be :

(A) South-East

(B) East-West

(C) North-South

(D) None of the above

53. In silkworm seed production, basic seed means :

(A) Parental seed

(B) Maternal seed

(C) Both (A) and (B)

(D) None of the above

54. Headquarters of National Silkworm Seed Organization is at :

(A) Hyderabad

(B) Bangalore

(C) Mysore

(D) Ranchi

55. CSR hybrids are developed under the technical guidance of :

(A) China

(B) JICA-Japan

(C) Thailand

(D) None of the above .

56. Grasserie disease in silkworm is caused by :

(A) Bug

(B) Borrelina

(C) Both (A) and (B)

(D) None of the above

57. Flaccid condition in silkworms is due to combined inflection of :

(A) Bacteria and Virus

(B) Fungi and Algae

(C) Bacteria and Fungi

(D) None of the above

58. ARM stands for :

(A) Automatic Reeling Machine

(B) Automatic Resonance Machine

(C) Both (A) and (B)

(D) None of the above

59. Silk filament is technically known as :

(A) Bave

(B) Crape

(C) Both (A) and (B)

(D) None of the above

60. The standard pH of the boiling water during reeling is :

(A) 7.5

(B) 8

(C) 8.6

(D) 7.2

61. Gummy component of cocoon shell is :

(A) Sericin

(B) Bave

(C) Both (A) and (B)

(D) None of the above

62. Dupion silk is obtained from :

(A) Single cocoon

(B) Double cocoons

(C) Triple cocoons

(D) None of the above

63. Silk waste percent from cocoon reeling is :

(A) 20

(B) 40

(C) 30

(D) 50

64. SCTH stands for :

(A) Silk Conditioning and Testing House

(B) Silk Control Test House

(C) Both (A) and (B)

(D) None of the above

65. Costliest silk is :

(A) Eri silk

(B) Mulberry silk

(C) Muga silk

(D) None of the above

66. Major Vanya silk produced in India is :

(A) Mulberry

(B) Eri

(C) Muga

(D) Tasar

67. Primary host plant of tropical Tasar is :

(A) Terminalia

(B) Turbinella

(C) Both (A) and (B)

(D) None of the above

68. Central Tasar Research and Training Institute of CSB is located at :

(A) Ranchi

(B) Bangalore

(C) Mysore

(D) Kerala

69. Mulberry tea is preferred for regulating :

(A) Diabetes

(B) Cardiac disease

(C) Kidney disease

(D) Liver disease

70. Mulberry fruit is rich in :

(A) Vitamin B

(B) Vitamin C

(C) Vitamin D

(D) Vitamin A

71. Gicha silk is produced using :

(A) Mud pot

(B) Clay pot

(C) Both (A) and (B)

(D) None of the above

72. Spun silk mills are concentrated in :

(A) West Bengal and Orissa

(B) West Bengal and Assam

(C) West Bengal and Madhya Pradesh

(D) West Bengal and Maharashtra

73. By-product of spun silk is :

(A) Fibroin

(B) Noil yarn

(C) Both (A) and (B)

(D) None of the above

74. In India Eri pupa is relished as protein rich food in :

(A) Assam

(B) Orissa

(C) West Bengal

(D) Bihar

75. Sericin is extracted by :

(A) High pressure and Low temperature

(B) High temperature and High pressure

(C) Low temperature and Low pressure

(D) None of the above

76. Cocoon of muga silk is :

(A) Jali

(B) Moth

(C) Both (A) and (B)

(D) None of the above

77. The common method of Mulberry cultivation is :

(A) Stem cuttings

(B) Rearing

(C) Riddling

(D) None of the above

78. Mulberry silk contributes :

(A) 70% of silk produced in India

(B) 90% of silk produced in India

(C) 50% of silk produced in India

(D) None of the above

79. Leading producer of mulberry silk in India is :

(A) Tamil Nadu

(B) Karnataka

(C) Telangana

(D) None of the above

80. Cultivation of Mulberry is termed as :

(A) Moriculture

(B) Maricultrue

(C) Both (A) and (B)

(D) None of the above

81. APSSRDI a pioneer Sericulture Institute of Andhra Pradesh is in :

(A) Bangalore

(B) Hindpur

(C) Ranchi

(D) Mysore

82. Commercially grown silks of Andhra Pradesh are :

(A) Mulberry and Tasar

(B) Eri and Tasar

(C) Mulberry and Eri

(D) None of the above

83. Employment potential of Indian silk industry is :

(A) 60 lakh

(B) 70 lakh

(C) 85 lakh

(D) 90 lakh

84. Mulberry inflorescence is called :

(A) Catkin

(B) Morin

(C) Sahana

(D) None of the above

85. Basically mulberry is a :

(A) Shrub

(B) Tree

(C) Plant

(D) Creeper

86. Most suitable soil type for mulberry is :

(A) Sandy soil

(B) Black soil

(C) Red loamy soil

(D) None of the above

87. Insect responsible for causing Tukra disease is :

(A) Beetle

(B) Wasp

(C) Mealy Bug

(D) All of the above

88. Root rot disease in mulberry is caused by :

(A) Fungi

(B) Algae

(C) Protozoa

(D) Bacteria

89. Giant silkworm is :

(A) *Bombyx mori*

(B) *Attacus atlas*

(C) *Antheraea mylitta*

(D) *Samia cynthia*

90. The silkworm larvae undergo :

(A) 4-5 moults

(B) 2-2 moults

(C) 8-10 moults

(D) None of the above

91. To spin 15 cm of silken thread silkworm larvae take :

(A) 4 hr.

(B) 3 hr.

(C) 2 hr.

(D) 1 hr.

92. The process of killing of pupae inside the cocoon is called as :

(A) Twisting

(B) Mounting

(C) Stifling

(D) None of the above

93. The process of immersion of cocoon in boiling water is called as :

(A) Mounting

(B) Steaming

(C) Cocoon boiling

(D) All of the above

94. Unit of measurement of fineness of the silk yarn :

(A) Pascal

(B) Gauge

(C) Denier

(D) None of the above

95. Larval period ranges from :

(A) 10-20 days

(B) 28-30 days

(C) Both (A) and (B)

(D) None of the above

96. Silk protein fibroin is made up of :

(A) Alanine, glycine and tyrosine

(B) Histamine, glycine and histine

(C) Both (A) and (B)

(D) None of the above

97. Quantity of cocoons required to produce 1 kg of silk is :

(A) 4-5 kg

(B) 2-3 kg

(C) 7-8 kg

(D) 9-10 kg

98. Silk producing gland in silkworm is :

(A) Labial gland

(B) Lingual gland

(C) Lacrymal gland

(D) Oil gland

99. The process of sorting of cocoon is called as :

(A) Rearing

(B) Stocking

(C) Riddling

(D) None of the above

100. Silk obtained from Eri silk is also called as :

(A) Poor man's silk

(B) Pure silk

(C) Both (A) and (B)

(D) None of the above

Roll No. .....

O. M. R. Serial No. | | | | | | | | |

Question Booklet Number
342841

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

ZOOLOGY

(Lac-Culture) (Elective)

Paper Code							
B	0	5	0	8	0	6	T

Questions Booklet Series
A

Time : 1:30 Hours]

[*Maximum Marks : 75*

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(शेष निर्देश अन्तिम पृष्ठ पर)

1. What is Lac culture ?

(A) A type of bacteria

(B) A form of music

(C) A traditional handicraft technique

(D) A type of food

2. What is the economic significance of Lac in traditional handicraft ?

(A) Income diversification

(B) Cultural preservation

(C) Global trade promotion

(D) Technological innovation

3. Which is the class of Lack Insects ?

(A) Diplopoda

(B) Arachnida

(C) Crustacea

(D) Insecta

4. Which state in India is known for being the largest producer of Lac ?

(A) Rajasthan

(B) Maharashtra

(C) Punjab

(D) Kerala

5. Where are Lack Insects typically found ?

(A) South Asia

(B) South America

(C) Europe

(D) Africa

6. What is the importance of Lac culture ?

(A) Medicinal Properties

(B) Economic Significance

(C) Decorative Purpose

(D) All of the above

7. Which Phylum do Lac insects belong to ?

(A) Mollusca

(B) Arthropoda

(C) Chordata

(D) Annelida

8. What is the primary target of termite infestation in Lac culture ?

(A) Wax coatings

(B) Lac Insects

(C) Host Plants

(D) Resin Production

9. Which country is currently the largest producer of Lac in the world ?

(A) India

(B) Thailand

(C) China

(D) Vietnam

10. What is size of an Adult female Lac insect ?

(A) 6-7 mm

(B) 4-5 mm

(C) 2-3 mm

(D) 8-9 mm

11. What is the colour of the body of female Lac insect ?

(A) Red

(B) Brown

(C) Black

(D) Green

12. Where is Lac mainly harvested from ?

(A) Shrubs

(B) Trees

(C) Flowers

(D) Grasses

13. What is the melting point of Lac ?

(A) 45-50°C

(B) 100-150°C

(C) 200-250°C

(D) 300-350°C

14. Which part of the Lac Insect is used for the production of Lac ?

(A) Legs

(B) Antenna

(C) Body

(D) Wings

15. What is the life span of adult female Lac insects ?

(A) 1-2 weeks

(B) 1 year

(C) 2-3 days

(D) 3-4 months

16. Which of the following is not a benefit of Lac cultivation ?

(A) Helps in pest control

(B) Causes soil erosion

(C) Provides Income for farmers

(D) Improves soil

17. Lac is secreted by which Insects ?

(A) Male

(B) Female

(C) Both (A) and (B)

(D) None of the above

18. When is the best time to harvest Lac ?

(A) During the monsoon season

(B) During the summer season

(C) During the winter season

(D) Any time of the year

19. What is the function of the male lac insect in Lac production ?

(A) To mate with the female

(B) To protect the eggs

(C) To secrete Lac resin

(D) None of the above

20. What is the primary use of Lac resin in India ?

(A) Jewellery marking

(B) Wood finishing

(C) Food coloring

(D) Medicinal purposes

21. Which order does Tacharidia lacca belong to ?

(A) Lepidoptera

(B) Diptera

(C) Hemiptera

(D) Coleoptera

22. What is the duration of the egg stage in the life cycle of Lac Insects ?

(A) Few weeks

(B) Few days

(C) Few years

(D) Few months

23. How does the swarming behavior of Lac Insects benefit their reproduction ?

(A) Enables efficient migration to new habits

(B) Provides protection against predators

(C) Increases the chances of successful mating

(D) Ensures optimal nutrition for larvae

24. Which stage of the life cycle involves the transformation of Larva into an adult ?

(A) Pupal stage

(B) Nymph stage

(C) Egg stage

(D) Imago stage

25. Which country is a major exporter of Lac and its products ?

(A) China

(B) Brazil

(C) India

(D) United States

26. Which of the following pests is known for its ability to create tunnels and galleries within the wooden structures used in Lac cultivation ?

(A) Termite

(B) Scale Insect

(C) Aphid

(D) Mealybug

27. What is the name of the traditional Lac art from the involves creating miniature paintings of objects ?

(A) Madhubani

(B) Jali

(C) Pattachitra

(D) Meenakari

28. What is the primary production obtained from Tachardia lacca ?

(A) Lac resin

(B) Lac shell

(C) Lac dye

(D) Lac wax

29. Which stage of the life cycle do Lac insects lay eggs ?

(A) Pupal stage

(B) Larval stage

(C) Adult stage

(D) Nymph stage

30. What environmental cues trigger the swarming behaviour of Lac Insects ?

(A) Seasonal fluctuations in day light

(B) Temperature changes

(C) Presence of Pheromones from other Insects

(D) Availability of food sources

31. When do Lac Insects typically exhibit swarming behavior ?

(A) During the night

(B) During the rainy reason

(C) During the day

(D) Throughout the year

32. What is the name of species of Lac Insect that is native to India and south-east Asia ?

(A) Laccifer lacca

(B) Cryptotaemus montrouzieri

(C) Tachardia lacca

(D) Kerria lacca

33. Which of the following is not a product of Lac ?

(A) Lac resin

(B) Lac dye

(C) Lac wax

(D) Lac oil

34. Which of the following is the main use of Lac dye ?

(A) Wood coloring

(B) Textile dyeing

(C) Food coloring

(D) Hair dyeing

35. Lac is produced commercially by :

(A) Attacus ricini

(B) Bombyx mori

(C) Tachardia lacca

(D) Apis mellifera

36. What is the economic importance of Lac culture in India ?

(A) It helps in the conservation of forests

(B) It is an important export commodity

(C) If provides a source of income for rural communities

(D) All of the above

37. The Lac Insect rearing for the commercial production of the Lac is known as :

(A) Prawn culture

(B) Apiculture

(C) Lac culture

(D) Cell culture

38. Which method is used to separate impurities from raw Lac ?

(A) Boiling

(B) Centrifugation

(C) Filtering

(D) Distillation

39. Lac Insect has which type of mouth-part ?

(A) Rasping type of mouthpart

(B) Chewing type of mouthpart

(C) Sucking type of mouthpart

(D) Siphoning type of mouthpart

40. The Lac Insect moults how many times before reaching maturity ?

(A) Thrice

(B) Once

(C) Twice

(D) None of the above

41. What is the main material used in Lac culture ?

(A) Bamboo

(B) Wood

(C) Clay

(D) Resin

42. Shellac is secreted by :

(A) Juvenile Lac Insect

(B) Female Lac Insect

(C) Male Lac Insect

(D) All of the above

43. Which sex of the Lac Insect secrete Lac resin ?

(A) Female

(B) Male

(C) Both (A) and (B)

(D) Neither male nor female

44. What is the economic significance of Lac cultivation for rural communities ?

(A) Technology advancement

(B) Urbanization promotion

(C) Employment generation

(D) Tourism development

45. Which stage immediately follows the egg stage in the life cycle of Lac Insects ?

(A) Larval stage

(B) Adult stage

(C) Pupal stage

(D) Nymph stage

46. Which process involves the purification of shellac through repeated filtration ?

(A) Bleaching

(B) Dewaxing

(C) Refining

(D) Solidification

47. Tacharida lacca can be classified as :

(A) Scale Insect

(B) Social Insect

(C) Plant Lice

(D) Insect Vector

48. What is the name of the organ in the female Lac Insect that produces the Lac resin ?

(A) Malpighian tubules

(B) Salivary gland

(C) Ovary

(D) None of the above

49. What is the primary component of Lac resin ?

(A) Cellulose

(B) Keratin

(C) Wax

(D) Lignin

50. What is the primary difference between male and female Lac Insects ?

(A) Wing span

(B) Colour

(C) Body size

(D) Presence of a reproductive system

51. Which sector benefits from the use of Lac based varnishes ?

(A) Agriculture sector

(B) Construction sector

(C) Energy sector

(D) Information technology sector

52. What is the primary food source for the Lac Insect ?

(A) Leaves of the Host tree

(B) Sap of the Host tree

(C) Other Insects

(D) None of the above

53. Which of the following is not a Lac producing state in India ?

(A) Odisha

(B) Jharkhand

(C) Tamil Nadu

(D) Kerala

54. What is the process of creating designs on Lac objects called ?

(A) Carving

(B) Embroidery

(C) Painting

(D) Inlay work

55. Which order do Lac Insects belong to ?

(A) Hemiptera

(B) Coleoptera

(C) Diptera

(D) Lepidoptera

56. What is the common name of Tachardia lacca ?

(A) Lac weevil

(B) Lac beetle

(C) Lac tick

(D) Lac mite

57. Which kingdom does Tachardia lacca belong to ?

(A) Animalia

(B) Fungi

(C) Plantae

(D) Protista

58. Identify the larva which is a characteristic of Gastropoda and Scaphopoda :

(A) Trochophore larva

(B) Muller's larva

(C) Veliger larva

(D) Bipinnaria larva

59. Which ancient Indian ruler patronized Lac cultivation and even minted coins with Lac imprints ?

(A) Ashoka

(B) Chandragupta Maurya

(C) Akbar

(D) Harsha

60. Which tree is commonly used for Lac cultivation of India ?

(A) Teak tree

(B) Peepal tree

(C) Mango tree

(D) None of the above

61. What is the traditional method of harvesting Lac ?

(A) Collecting the resin that oozes from the bark of the tree

(B) Cutting the tree and extracting the resin

(C) Using a special machine to extract the resin

(D) None of the above

62. What is the primary reason for the swarming behaviour of Lac Insects ?

(A) Environmental cues

(B) Resource availability

(C) Predation avoidance

(D) Mating

63. Which pest causes damage to Lac crop by secreting a powdery wax substance on the surface of Leaves and Stems ?

(A) Lac beetle

(B) Mealy bug

(C) Termite

(D) Scale Insect

64. What is the purpose of seed Lac production in Lac processing ?

(A) Removing impurities

(B) Obtains Lac day

(C) Creating Lac resin beads

(D) Producing Lac-based varnishes

65. Which of the following countries is not known for its Lac culture ?

(A) China

(B) Japan

(C) Nigeria

(D) India

66. Which one of the following in the first from of Lac ?

(A) Shellac

(B) Stick lac

(C) Seed Lac

(D) None of the above

67. Which Genus does the Lac Insect belong to ?

(A) Laccifer

(B) Coccus

(C) Dactulopius

(D) Aleurodicus

68. Which of the following is not an enemy of Lac culture ?

(A) Termite

(B) Lac beetle

(C) Aphid

(D) Mealy bug

69. Which is the purpose of swarming in Lac Insects ?

(A) Escaping unfavorable environments

(B) Attracting prey for feeding

(C) Ensuring territorial dominance

(D) Facilitating genetic diversity

70. What is Lac cultivation ?

(A) Cultivation of a type of Insect

(B) Cultivation of a type of Mushroom

(C) Cultivation of a type of Flower

(D) Cultivation of a type of Fish

71. Which part of the Lac Insects body is responsible for the production of Lac resin ?

(A) Antennae

(B) Mouthparts

(C) Legs

(D) Abdomen

72. What is the function of Lac Insect's proposcis ?

(A) Respiration

(B) Feeding

(C) Locomotion

(D) Sensory preception

73. Which physical factor affects the hardness and brittleness of Lac ?

(A) Temperature

(B) Light Intensity

(C) Soil pH

(D) Humidity

74. Which of the following best describes the Lac Insect's feeding behaviour ?

(A) Herbivoros

(B) Parasitic

(C) Carnivorous

(D) Omnivorous

75. Which chemical compound gives Lac its characteristic red colour ?

(A) Catechins

(B) Alizarin

(C) Laccaic acid

(D) Laccase

76. What is the main season for Lac cultivation in India ?

(A) Summer

(B) Spring

(C) Monsoon

(D) Winter

77. Which of the following is not a use of Lac ?

(A) Wood finish

(B) Food coloring

(C) Paper manufacturing

(D) Pharmaceutical coatings

78. In which stage of the lac insect's life cycle does resin secretion occur ?

(A) Puba

(B) Adult

(C) Larva

(D) All stages

79. Lac insects can be found on which part of the host plant during the active feeding phase ?

(A) Leaves

(B) Bark

(C) Roots

(D) Trunk

80. Which region is known for being a major producer of Lac ?

(A) Africa

(B) Europe

(C) Asia

(D) North America

81. What is the protective outer covering of the Lac Insect called ?

(A) Carapace

(B) Epidermis

(C) Exoskeleton

(D) Cuticle

82. How do male and female Lac Insects differ in terms of morphology ?

(A) Males are winged and female are wingless

(B) Male have longer antennae than females

(C) Male are larger than females

(D) Male have more developed mouth-parts

83. Which of the following varieties of silk is not produced in India ?

(A) Muga Silk

(B) Mulberry Silk

(C) Tassar Silk

(D) American Silk

84. How many stages are there in the ilte cycle of silkworm ?

(A) 1-2

(B) 3-4

(C) 4-5

(D) 5-6

85. Lac Insects are commonly found on which part of Host plant ?

(A) Stems/Branches

(B) Leaves

(C) Flowers

(D) Fruits

86. Which Indian government agency is responsible for the promotion and development of Lac cultivation ?

(A) Indian Council of Agricultural Research (ICAR)

(B) Lac Development Board (LDB)

(C) Central Silk Board (CSB)

(D) Ministry of Agriculture

87. Silk is produced by :

(A) Cocoon

(B) Adult mouth

(C) Larva

(D) Larva and Adult moth

88. This amongst the following produces silk :

(A) Butterflies

(B) Bombyx mori

(C) Dysdercus koenigii

(D) Bombus indica

89. What is the colour of raw Lac resin ?

(A) Black

(B) White

(C) Yellow

(D) Red

90. What is Sericulture ?

(A) Rearing of Birds

(B) Rearing of Silkworm

(C) Rearing of Fishes

(D) Rearing of Cockroach

91. What is the primary source of Lac production in the global area ?

(A) Cows

(B) Insects

(C) Sheep

(D) Goats

92. Lac is secreted by which gland of Lac Insects ?

(A) Gastric gland

(B) Cutaneous gland

(C) Salivary gland

(D) Intestinal gland

93. Silk contains a protein known as :

(A) Casein

(B) Fibroin

(C) Sericin

(D) Both (B) and (C)

94. Which set is of beneficial insects to man ?

(A) Honeybee, Lac Insect, Cochneal Insect

(B) Silkworm, Honeybee, Wasp

(C) Honeybee, Silkworm, Cockroach

(D) Sand Fly, Butter Fly, Honeybee

95. Silk, honey and Lac are ?

(A) Secretory substance of Insects

(B) Secretory subtance of Plants

(C) Artificial Chemicals

(D) All of the above

96. Which insect species is primarily responsible for Lac cultivation in India ?

(A) Hymenoptera

(B) Lepidoptera

(C) Hemiptera

(D) Diptera

97. Which Industry extensively uses Lac as a raw material ?

(A) Cosmetics

(B) Construction

(C) Automotive

(D) Electronics

98. Which part of the Lac Insect's anatomy is responsible for gas exchange ?

(A) Tracheae

(B) Spiracles

(C) Malpighian tubules

(D) Book Lungs

99. Lac Insect belongs to which family ?

(A) Bombycidae

(B) Menoponidae

(C) Kerriidae

(D) Leptophlebidae

100. Which of the following is an example of Homology and similarity tool ?

(A) BLAST

(B) RasMol

(C) EMBOSS

(D) PROSPECT

Roll No. .....

O. M. R. Serial No. | | | | | | | | |

Question Booklet Number
345446

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

ZOOLOGY

(Aquaculture) (Elective)

Paper Code							
B	0	5	0	8	0	7	T

Questions Booklet Series
B

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)

1. Drying of fishes by lowering temperature is known as :

(A) Smoking

(B) Freeze drying

(C) Salting

(D) Chilling

2. Estuarine fish culture is a culture of fish in :

(A) Marine water

(B) Fresh water of river

(C) Fresh water of pond

(D) Aquatic medium where fresh and marine water get mixed together

3. Spawning of fishes is induced by injecting females with :

(A) Progesterone

(B) Prostaglandin

(C) FSH and LH

(D) Estrogen

4. In sewage fed fish culture :

(A) No oxidation pond is required

(B) Serial oxidation ponds are required

(C) Sewage water in directly used

(D) Single oxidation pond is required

5. Which one of the following is an economically important marine fish ?

(A) Rohu

(B) Catla

(C) Hilsa

(D) Cyprinus

6. Black spot disease of marine fish is caused by :

(A) Dinoflagellates

(B) Anchor worm

(C) *Ichthypothirius multifillis*

(D) *Cryptocotyle lingua*

7. 'Black Pearl' is obtained from :

(A) *P. margaratifera*

(B) *P. maxima*

(C) *P. fucuta*

(D) *P. sutchi*

8. Pearl mother layer is :

(A) Prismatic layer

(B) Periostracum

(C) Nacre

(D) Mantle

9. Dropsy in fishes is caused by :

(A) Virus

(B) Fungi

(C) Bacteria

(D) Algae

10. Fin rot disease is caused by :

(A) Bacteria

(B) Fungi

(C) Virus

(D) Algae

11. The classification of culture method of aquatic species is done on the basis of :

(A) Feeding frequency

(B) Frequency of water exchange

(C) Stocking density

(D) Aeration capacity

12. *Hilsa ilisha* is a :

(A) Flying fish

(B) Migratory fish

(C) Pipe fish

(D) Pearl fish

13. Symptoms of Branchiomycosis disease in fish :

(A) hemorrhages in eyes

(B) bleeding in gills

(C) inflammation of intestinal tract

(D) All of the above

14. In shrimps, the black death disease is due to deficiency of :

(A) Vitamin A

(B) Mythiocobalamine

(C) Vitamin C

(D) Calciferol

15. Mullet is an example of :

(A) Freshwater fish

(B) Brackish water fish

(C) Marine water fish

(D) All of the above

16. The commercial scale mud crab culture is developed in which ecosystem ?

(A) Marine water

(B) Cold water

(C) Inland water

(D) Brackish water

17. Fish production is practised with :

(A) Maize crop

(B) Wheat

(C) Paddy

(D) Pulse

18. Which is an ornamental species of fish ?

(A) Catla

(B) Rohu

(C) Koi

(D) Singgi

19. The maximum production of fish species in India :

(A) Rohu

(B) Mrigala

(C) Catla

(D) Lanchi

20. The world fisheries day is celebrated on :

(A) 21st November

(B) 21st December

(C) 21st February

(D) 21st October

21. Tarpaulin fish tank is a component of :

(A) Recirculating aquaculture system

(B) Biofloc technology

(C) Both (A) and (B)

(D) None of the above

22. RAS stands for :

(A) Recirculating Aquaculture System

(B) Recirculating Agriculture System

(C) Recirculating Advanced System

(D) Revised Aquaculture System

23. A versatile equipment used to freeze fish of any size and shape of fish is :

(A) Fluidized bed freezer

(B) Air blast freezer

(C) Horizontal contact plate freezer

(D) Vertical plate freezer

24. Which of the following is an exotic fish ?

(A) Chanos

(B) Mullets

(C) Major carps

(D) Crucian carps

25. An advantage of induced breeding in fishes is :

(A) have more seeds

(B) have more fish

(C) earn more money

(D) All of the above

26. The ripe breeder can be induced to spawn by administrating :

(A) Pituitary hormones

(B) Thyroid hormones

(C) Hypothalamic hormones

(D) All of the above

27. The pond where fryes are reared up to fingerling stage is known as :

(A) Nursery pond

(B) Breeding pond

(C) Rearing pond

(D) Stocking pond

28. 'Velvet disease' of fishes is caused by :

(A) Dinoflagellate parasites

(B) Helminths parasite

(C) Heavy metals

(D) Pollutants

29. Which of the following is an entangling types of gear ?

(A) Drag net

(B) Bag net

(C) Gill net

(D) Hooks and lines

30. Which river is richest source of Indian major carps seed ?

(A) Ganga

(B) Brahmputra

(C) Godavari

(D) Narmada

31. Largest fish producing state in India is :

(A) Odisha

(B) West Bengal

(C) Tamil Nadu

(D) Uttar Pradesh

32. Unio is :

(A) Shrimp

(B) Carp

(C) Freshwater mussel

(D) Crab

33. Prawn belongs of the class :

(A) Crustacea

(B) Annelida

(C) Cephalopoda

(D) Hexapoda

34. Pearl oyster belongs to class :

(A) Gastropoda

(B) Cephalopoda

(C) Scaphopda

(D) Pelecypoda

35. The father of the pearl industry is :

(A) Kokichi Mikinaoto

(B) Sungut Sen

(C) Kojimara

(D) None of the above

36. Which animal in harmful to the pearl industry :

(A) Euspongia

(B) Cliona

(C) Pinctada

(D) Solea

37. The nacreous layer of pearl consists of :

(A) Chitin

(B) Conchiolin

(C) Calcium carbonate and conchyolin

(D) Calcium carbonate

38. Which country does produce the vast majority of freshwater pearls ?

(A) Japan

(B) China

(C) U. S. A.

(D) India

39. Which of these is not a type of freshwater pearl ?

(A) Majorca pearl

(B) Potato pearl

(C) Seed pearl

(D) Keshi pearl

40. Which of the following is not a common colour for a freshwater pearl ?

(A) White

(B) Pink

(C) Purple

(D) Black

41. Pearl oyster secretes pearls to :

(A) regenerate injured parts

(B) protect itself against invading parasite

(C) harden its mental cavity

(D) None of the above

42. Which of the following is known as the pearl city ?

(A) Bengaluru

(B) Hyderabad

(C) Chennai

(D) Kochi

43. What is the main use of fish genetics in aquaculture ?

(A) Indentifying disease-resistant strains of fish

(B) Enhancing the flavor of fish

(C) Improving to texture of fish meat

(D) None of the above

44. What is the name of first transgenic fish approved for human consumption ?

(A) Gold fish

(B) Salmon

(C) Aqua Advantage Salmon

(D) Trout titan

45. The process of introducing foreign DNA into the genome of an organism is called :

(A) Transformation

(B) Transcription

(C) Translation

(D) Replication

46. Which of the following biotechnological tools is used to identify genetic variations ?

(A) DNA fingerprinting

(B) RNA sequencing

(C) Western blotting

(D) ELISA

47. Which of the following is not a benefit of genetically modified fish is aquaculture ?

(A) Enhanced growth rate

(B) Disease resistance

(C) Improved nutrition

(D) Increased biodiversity

48. Which of the following is not a type of DNA marker used in fish genetics research ?

(A) Microsatellite

(B) SNPs

(C) GLPs

(D) RAPDs

49. What is the main advantage of using genetic markers in fish breeding programs ?

(A) Increased growth rate

(B) Disease resistance

(C) Increased survival rate

(D) All of the above

50. Which of the following is not a method used to introduce foreign DNA into fish cells ?

(A) Microinjection

(B) Electroporation

(C) Lipofection

(D) Western blotting

51. Which of the following is not a use of fish genetics in aquaculture ?

(A) Selecting broodstock for breeding programs

(B) Developing new fish vaccines

(C) Improving fish welfare

(D) Enhancing the color of fish meat

52. Which of the following is not a type of genetic variation in fish populations ?

(A) Insertions and deletions

(B) Nucleotide substitution

(C) Gene duplication

(D) Protein folding

53. What is the name of the technique used to measure gene expression levels in fish ?

(A) RNA sequencing

(B) Microarray analysis

(C) DNA fingerprinting

(D) Southern blotting

54. Which of the following is a potential environmental risk associated with genetically modified fish ?

(A) Reduced genetic diversity in wild fish population

(B) Increased susceptibility to disease in wild fish population

(C) Higher levels of mercury in fish meat

(D) None of the above

55. Which of the following is not a type of fish biotechnology used in aquaculture ?

(A) Transgenic fish production

(B) Gene editing

(C) Cryopreservation

(D) None of the above

56. What is the name of the process used to introduce new genetic material into the germline of fish ?

(A) Somatic cell nuclear transfer

(B) *In vitro* fertilization

(C) Gene therapy

(D) Germline engineering

57. Hatcheries are used for what propose ?

(A) Incubation of eggs

(B) Rearing of spawn

(C) Fish breeding

(D) Stocking of fry

58. The important cultivable crab is :

(A) *Scylla serrate*

(B) *Lates calcarifer*

(C) *Penaeus monodon*

(D) *Pinctada*

59. Generally spawning tanks of prawns are, painted on inner side by ..... point.

(A) Red

(B) White

(C) Yellow

(D) Black

60. *Penaeus monodon* is commonly known as :

(A) Tiger prawn

(B) White prawn

(C) Red prawn

(D) White prawn

61. For selection of site for prawn culture the important factor is :

(A) Topography

(B) Soil type

(C) Water quality

(D) All of the above

62. Which state has received the state award under the category of best hilly and north eastern state in fisheries sector ?

(A) Meghalaya

(B) Nagaland

(C) Sikkim

(D) Assam

63. Why can seaweed be considered as "good for the planet" ?

(A) It helps of produce oxygen

(B) It helps to trap carbon form the environment

(C) It produces iodine

(D) All of the above

64. The other name for seaweed is :

(A) Macroalgae

(B) Microalgae

(C) Pond weed

(D) None of the above

65. Agar is obtained from the algal species of :

(A) Chondrus

(B) Gigartina

(C) Geledium

(D) Laminaria

66. Which of the following algae continues to be a significant food in China ?

(A) Brown algae

(B) Green algae

(C) Red algae

(D) Yellow algae

67. Which of the following species produces neurotoxin which causes the death of aquatic animals ?

(A) Chlorella

(B) Gonyaulax

(C) Prototheca

(D) Caphaleuros

68. Carrageenan is used as a/an :

(A) emulsifier

(B) solidifying agent

(C) binder

(D) emulsifier and binder

69. Central Institute of Brackish Water Aquaculture is located as :

(A) Patna

(B) Chennai

(C) Bhubaneshwar

(D) Kochi

70. Migratory fish that lives in fresh water but breed in salt water is known as :

(A) Potamodromous fish

(B) Anadromous fish

(C) Catadromous fish

(D) Amphidromous fish

71. The cultivation of selected fishes in confined area with utmost care to get maximum yield is known as :

(A) Pisciculture

(B) Aquaculture

(C) Culture fishery

(D) Capture fishery

72. National Bureau of Fish Genetic Resources (NBFGR) is situated at :

(A) Delhi

(B) Bombay

(C) Chennai

(D) Lucknow

73. Which of the following is the characteristic feature of shell fishery ?

(A) Rearing of bony fishes

(B) Rearing of cartilaginous fishes

(C) Rearing of aquatic animals having an outer shell

(D) Rearing of aquatic plants

74. Which of the following is not a method of fish perseveration ?

(A) Chilling

(B) Baking

(C) Canning

(D) Salting

75. "Blue Revolution" is related with :

(A) Milk production

(B) Fish production

(C) Conservation of water

(D) Cleaning of rivers

76. National Fisheries Development Board is located in :

(A) Hyderabad

(B) Goa

(C) Mumbai

(D) Chennai

77. What is the cultivation of fish, shellfish and aquatic plants called ?

(A) Prawn culture

(B) Pearl culture

(C) Pisciculture

(D) Aquaculture

78. How much percentage do the Asian countries contribute to aquaculture ?

(A) 15%

(B) 35%

(C) 75%

(D) 90%

79. The most suitable pH for pond fish production is :

(A) 4.5–6.5

(B) 6.5–8.5

(C) 8.5–10

(D) above 10

80. The most preferred alkalinity range of pond water for fish culture is :

(A) 25–50 mg/L

(B) 50–100 mg/L

(C) 50–250 mg/L

(D) 250–500 mg/L

81. In fish culture ponds, the inlets and outlets are constructed in :

(A) Opposite side

(B) Right angle to each other

(C) Same side

(D) None of the above

82. Inland fisheries are :

(A) Deep sea fishing

(B) Capturing fishes from sea cost

(C) Raising and capturing fishes in fresh water

(D) Oil extraction from fishes

83. Induced breeding technique is used in :

(A) Marine fishery

(B) Capture fishery

(C) Culture fishery

(D) Inland fishery

84. Fish flour is rich in :

(A) Fat

(B) Protein

(C) Vitamins

(D) Minerals

85. Fishes reared in culture fishery in India are :

(A) Salmon and Rohu

(B) Salmon and Catla

(C) Catla and Magur

(D) Rohu and Catla

86. Hypophysation is done in major carps :

(A) to increase size

(B) to increase their growth

(C) to increase breeding in fisheries

(D) to increase their palatability

87. If more than single species of fish is cultured at a time, then it is called :

(A) Monoculture

(B) Aquaculture

(C) Polyculture

(D) Moriculture

88. Crustacean fishery is connected with :

(A) Oysters and crabs

(B) Lobsters and prawns

(C) Muscles and squids

(D) Shells and Cuttle fish

89. Which is purely capture type of fishery ?

(A) Marine fishery

(B) Inland fishery

(C) Culture fishery

(D) Aquaculture

90. Which of the following does include in genetic cause for decline of natural fishes ?

(A) Negative selection

(B) Over fishery

(C) Habit modification

(D) Exotic introduction

91. Inbreeding leads to genetic :

(A) Homozygosity

(B) Heterozygosity

(C) Polyzygosity

(D) All of the above

92. ..... system of seed production contributes good quality carp seed for freshwater aquaculture.

(A) Bundh breeding

(B) Induced breeding

(C) Both (A) and (B)

(D) None of the above

93. The carp pituitary extract can be preserved in glycerin and water in :

(A) 3 : 1 ratio

(B) 2 : 1 ratio

(C) 1 : 1 ratio

(D) 1 : 2 ratio

94. Common carp eggs are :

(A) Demersal

(B) Pelagic

(C) Sticky

(D) None of the above

95. Spawning and hatching units are disinfected with :

(A) 5 ppm potassium permanganate

(B) Sprinkle potassium permanganate

(C) 5 ppm copper sulphate

(D) Both (B) and (C)

96. The diameter of hatchery pool from outer side is :

(A) 3–6 m

(B) 1–2 m

(C) 10–15 m

(D) 16–20 m

97. Water temperature range for better breeding response :

(A) 5–6°C

(B) 10–12°C

(C) 20–25°C

(D) 28–30°C

98. Different techniques to rear the prawn larval for seed production :

(A) Water exchange system

(B) Green water system

(C) Air lift biofilter recirculatory system

(D) All of the above

99. Giant freshwater prawn is :

(A) *M. malcalmsoni*

(B) *M. idella*

(C) *M. rosenburgii*

(D) *M. mirabilis*

100. Which is a shrimp ?

(A) *Mugil cephalus*

(B) *Penaeus monodon*

(C) *Macrobrachium vollenhovenii*

(D) None of the above

Roll No. .....

B050701T

M. Sc. (First Semester)
(NEP) EXAMINATION, 2023-24
ZOOLOGY
(Non-Chordata)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. Write short notes on the following :

   (A) Sol-gel theory

(B) Amphiblastula larva

(C) Choanocytes

(D) Nematoblast

(E) Plant nematode

(F) Sporocyst larva

(G) Commissure

(H) Medreporite

(I) Atoll

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. What do you mean by the term protista ? Explain.
3. Write a note on various types of locomotions present in protozoa.
4. Explain the skeleton in sponges.
5. What are the different types of adaptation acquired by Helminthes ?

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. Describe various types of larva appears in cestodes.
7. 'Arthropods have a various types of respiratory apparatus and mechanism to survive.' Explain.
8. Write an essay on Torsion and Detorsion in Gastropods.
9. What are the salient features displayed in Ctenophora ? Explain its affinities with other group.

Roll No. .....

B050702T

M. Sc. (First Semester) (NEP)
EXAMINATION, 2023-24
ZOOLOGY
(Biosystematics and Evolutionary Biology)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Differentiate between Alpha (α) and Beta (β) taxonomy.

(B) Molecular clock

(C) Polygenic inheritance

(D) Evolutionary species concept

(E) Application of systematics in Biology

(F) Chemotaxonomy

(G) Genetic drift

(H) Law of priority

(I) Hierarchy categories

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. What are the taxonomic keys ? Describe the various types of keys and their merits and demerits.

3. What do you understand by the zoological nomenclature ? Describe in details of interpretation and application of important rules of International Code of Zoological Nomenclature (ICZN).

4. Define the term "Animal Taxonomy". Describe the various theories of biological classification.

5. What is microtaxonomy ? Describe the various types of species concepts by the various taxonomists for the species differentiation.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. What is evolution ? Describe the Darwin's theory of Natural Selection in detail.

7. What is Hardy-Wienberg Law ? Describe the limitations and factors affecting the Hardy-Wienberg equilibrium.

8. What do you understand by the mutation ? Give an illustrated account of various types of mutations with suitable examples.

9. Write short notes on any *three* of the following :

(a) Allopatric and sympatric species

(b) Mechanisms of Isolation

(c) Genetic death

(d) Molecular tools in phylogeny

Roll No. .....

B050703T

M. Sc. (First Semester)
(NEP) EXAMINATION, 2023-24
ZOOLOGY
(Cell Biology and Genetics)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections. as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. Write short notes on the following :

(A) Oxidative Phosphorylation

(B) Endo membrane system

(C) Uniport and Antiport

(D) Cytokinesis

(E) Epitasis

(F) Frameshift Mutation

(G) Linkage Group

(H) Tryptophane operon

(I) c-DNA

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Describe the chemical constitution of plasma membrane and discuss the role of membrane proteins.

3. Describe briefly the structure and function of mitochondria.

4. What are the microfilaments and intermediate filaments ? Discuss their structure and function.

5. Explain briefly the dynamics of chromosome movements during cell division.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. Explain Mendel's law using chromosomes as the carriers of Mendelean factors.

7. What is gene Mutation ? Discuss the types of gene mutation.

8. What is recombinant DNA technology ? Explain the role of restriction enzymes in recombinant DNA technology.

9. Describe the 'lac' operon model for regulation of gene activity.

Roll No. .....

B050704T

M. Sc. (First Semester)
(NEP) EXAMINATION, 2023-24
ZOOLOGY
(Quantitative Biology, Research Methodology and Bioinstrumentation)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Standard Deviation

(B) Probability

(C) Histogram *vs.* Bar diagram

(D) Applied Research *vs.* Basic Research

(E) ANOVA

(F) PH meter

(G) Immunoprecipitation

(H) Laminar Flow

(I) ECG

Section—B
(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Explain measures of central tendency and its characteristics.

In a study on patients, the following data are abstained. Find its arithmetic mean.

Age	No. of Cases
10—19	1
20—29	0
30—39	1
40—49	10
50—59	17
60—69	38
70—79	9
80—89	3

3. What is Chi-square (χ^2) test ? Test whether the prevalence of carriers of filaria is associated with sex.

Sex	No. of carriers	No. of non carriers	Total studied
Male	78	412	490
Female	57	553	610

4. What is Research ? Describe its types in detail.
5. Write an essay on Report Writing and Publication. Describe ethical aspects of Biological Research.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. What is chromatography ? Discuss TLC and HPLC technique in detail.

7. Write an essay on Electron Microscope and its types.
8. Describe Flow-cytometry, its principle, mechanism and applications.
9. Describe In-situ localization by FISH and GISH technique in detail.

Roll No. .....

B050901T

M. Sc. (Third Semester)
(NEP) EXAMINATION, 2023-24
ZOOLOGY
(Ethology, Biodiversity and Wildlife Conservation)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Territorial behaviour

(B) Biological Rhythm

(C) Auditory and visual perception of the environment

(D) Schooling in fishes

(E) Hamilton's rule for kin selection

(F) Simpson's index

(G) Causes of loss of biodiversity

(H) Wildlife Act, 1972

(I) Wildlife Sanctuary

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Give a detailed description of stereotyped behaviours.

3. What is learning ? Explain in detail. Differentiate between associative and non-associative learning.

4. Describe reproductive behavior with special reference to sexual selection.
5. Describe origin and evolution of parental care in detail.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. What is ecosystem diversity ? Describe α, β and γ biodiversity.
7. What are biodiversity hotspots ? Describe in detail.
8. Describe *In-situ* and *Ex-situ* conservation in detail.
9. What are the different laws to protect wildlife in nature ?

Roll No. .....

B050902T

M. Sc. (Third Semester) (NEP) EXAMINATION, 2023-24

ZOOLOGY

(Molecular Biology, Immunology and Bioinformatics)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Solenoid Model

(B) Apoptosis

(C) Oncogenes

(D) Autoimmunity

(E) Sequence Retrieval System (SRS)

(F) Protein Identification Resource (PIR)

(G) RNA splicing

(H) Sequence Alignments

(I) Uniform Resource Locator (URL)

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Describe the transcription in prokaryotes in detail.
3. Explain the regulation of gene action in prokaryotes and eukaryotes.
4. Describe the effect of antibiotic on protein synthesis.
5. Describe the DNA replication in detail.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. What is innate and aquired immunity ? Describe in detail.
7. Describe the hypersenstivity and vaccines.
8. Explain the introduction and scope of bioinformatics.
9. Describe the Cheminformatic resource and pharmacoinformatic and explain their importance.

Roll No. .....

B050903T

M. Sc. (Third Semester)
(NEP) EXAMINATION, 2023-24
ZOOLOGY
(Waste Management and Sustainable Development)
(Elective)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Significance of recycling of waste management.

(B) E-waste

(C) Bio-remedial waste

(D) Ecological Footprint

(E) Crop rotation

(F) Solar energy

(G) Groundwater recharge

(H) Comment upon biosafety regarding sustainable development.

(I) Biomedical waste

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Give a detailed account about types of waste management and their environmental impact.
3. Discuss the public perception regarding the waste management.
4. Describe the physical and chemical of solid waste.

5. Write about the classification of hazardous waste management and discuss their treatment technology.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. Discuss in detail about the role of Government for sustainable development.
7. Give a details account of Environmental Laws and Acts.
8. What do you mean by ECO cities ? Discuss in detail about it.
9. Describe sustainable construction and wind energy regarding sustainable development.

Roll No. .....

B050904T

M. Sc. (Third Semester)

(NEP) EXAMINATION, 2023-24

ZOOLOGY

(Agrochemicals and Pest Management)

(Eective)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Define pests with examples.

P. T. O.

(B) Write a short notes on vermicomposting.

(C) Define green algae and its importance for plant growth.

(D) Briefly write about fungicides.

(E) What is Chemo-Sterilants ?

(F) Explain transgenic plants.

(G) Write importance of moulting hormones in insects.

(H) Describe LC_{50} and LT_{50}.

(I) How is green manure suitable for soil health ? Give the example of green manure.

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Describe Root knot nematodes and its management.

3. Classify the pests according to their nature of damage.
4. Describe different types of composting technologies for increasing the health of plants.
5. Classify the Biofertilizers. How is it helpful for human health and environment protection ?

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. Describe conventional chemical pesticides. Give its demerits.
7. Discuss devices for the control of insect pests in field crops.
8. Write in detail about insect growth regulators. Give natural hormones of insects, which play an important role in growth and development.
9. Describe the Bioefficiency of plant extract and Bioorganism for management of insect-pests.

Roll No. .....

B050906T

M. Sc. (Third Semester)
(NEP) EXAMINATION, 2023-24
ZOOLOGY
(Parasitology)
(Elective)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Parasitism
   (B) National level biodiversity of parasites
   (C) Mutualism
   (D) Immunological adaptations of Parasitism

P. T. O.

(E) Entamoeba histolytica

(F) Trichomonas species

(G) Biology of Digenea

(H) Wuchereria bancrafti

(I) Arthropod vectors of human pathogens

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Explain the types of host and parasites. Discuss about parasitic adaptations.
3. What is parasite population dynamics ? Explain its dimensions and saturation of niches of parasites.
4. Explain the procedure of collection, fixation and preservation of ecto and endo parasites with staining protocols.
5. Discuss in detail histological techniques for temporary and permanent 'whole mounts'.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. Explain morphology and life cycle of Trypanosoma and Giardia.

7. Discuss morphology, biology and life cycle of any *one* monogenea and *one* digenea.

8. Briefly explain life cycle of Ancyclostoma and Taenia solium.

9. Discuss in detail biting dipterans and non-biting dipterans.

Roll No. .....

B050907T

M. Sc. (Third Semester)

(NEP) EXAMINATION, 2023-24

ZOOLOGY

(Ichthyology)

(Elective)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Fin formula

(B) Gynogenesis

(C) Monophagic fishes

(D) Protozoan diseases in fishes

(E) Placoderms

(F) Chromosome Banding

(G) Name *five* food fishes of U. P. with their Zoological names

(H) Predatory fishes

(I) Age determination of fish by scale method

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Describe the origin and evolution of elasmobranch fishes.

3. Define the adaptive radiation. Describe the Hillstream adaptation with suitable examples.

4. Discuss cladistic classification i.e.; modern approach. Justify with suitable characteristics of suitable examples.
5. Discuss fish decomposition and their possible remedial process.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. What is migration ? Describe the various types of migratory fishes with suitable examples.
7. Give a detailed account of insectivorous fishes, their adaptation and utility.
8. What is fish preservation ? Give an account of process of fish preservation and their processing.
9. What are the various types of fish diseases. Describe the causal organisms, symptoms, pathogenicity, control and treatment of fungal diseases in fishes.

Roll No. .....

B050908T

M. Sc. (Third Semester)

(NEP) EXAMINATION, 2023-24

ZOOLOGY

(Endocrinology)

(Elective)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A

(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks. Support you

answer with labelled diagram wherever needed.

1. (A) Metabolic Functions of Thyrid Hormones

   (B) Corpuscles of Stannius

   (C) Adrenal Cortex

   (D) Diabetes Insipidus

   (E) Adrenal Medulla

   (F) Insect hormones and functions

   (G) Structure and functions of spermatogenesis

   (H) G1 Tract Hormones

   (I) Hormones from Pars Inter-media and Pars Nervosa

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Describe anatomy and histology of Pituitary Gland.

3. Give an account on Regulation of Endocrine action.
4. Histology and function of Pineal Apparatus.
5. How do we classify and characterize hormones ?

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. Discuss the role of hormones on cyclic changes in Ovary and Uterus during menstrual cycle.
7. Describe the history of Adrenal gland. Explain the functions of Hormone secreted by this gland.
8. Explain 'GIT Hormones' source and functions.
9. Discuss the structure of Pancreas and role of its hormones in carbohydrate metabolism.

Roll No. .....

B050909T

M. Sc. (Third Semester)
(NEP) EXAMINATION, 2023-24
ZOOLOGY
(Environmental Biology)
(Elective)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Demography

(B) Ganga action plan

(C) Productivity

(D) Limiting factors

(E) Survivorship curve

(F) Net reproductive rate

(G) Hotspots

(H) Bishnois' environmental movement

(I) EIA (Environmental Impact Assessment)

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Explain the harmful effects of climate change.

3. Write a note on rainwater harvesting.

4. Briefly explain non-living components of ecosystem.

5. Describe the marine ecosystem with suitable examples.

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. Give a brief account of different factors that regulate population growth giving suitable examples.
7. Write about population explosion and family welfare programme.
8. Describe the causes and effects of water pollution.
9. Write an essay on environmental conservation and management.

Roll No. .....

B050910T

M. Sc. (Third Semester)
(NEP) EXAMINATION, 2023-24
ZOOLOGY
(Animal Cytogenetics)
(Elective)

Time : Two Hours] [*Maximum Marks : 75*

Note : Attempt questions from all Sections as directed.

Inst. : The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

Section—A
(Short Answer Type Questions)

Note : All questions are compulsory. Each question carries 5 marks.

1. (A) Describe the action and uses for G, R, Q, C banding techniques.

(B) What is meant by the term epigenetics ?

(C) What is position effect variegation ?

(D) Describe the five regions of the Y-chromosome.

(E) Function of Plasma Membrane.

(F) Major function of rough ER.

(G) Function of action filaments.

(H) Genic Balance Theory.

(I) Autotrophy.

Section—B

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

2. Describe ultrastructure, chemical composition and functions of Plasma Membrane.

3. What is the basic difference between glucolysis and Kreb's cycle ? Describe in detail the process of glycolysis.

4. Describe the role of nucleus in the nucleocytoplasmic interaction.
5. Describe Meiosis. What is its significance in sexually reproducing organisms ?

Section—C

(Long Answer Type Questions)

Note : Attempt any *one* question. Each question carries 15 marks.

6. Describe genetically controlled sex determining mechanism.
7. Describe basic techniques for morphological analysis of cells and tissues.
8. What are chromosomal aberrations ? Describe in detail.
9. Describe the role of DNA and RNA in protein synthesis.