Roll No. .....

Question Booklet Number

O. M. R. Serial No.

M. Sc. (Fourth Semester)

(NEP) EXAMINATION, 2025-26

ZOOLOGY

(Ecology and Toxicology)

Paper Code							
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Questions Booklet Series
D

Time : 1:30 Hours] [*Maximum Marks : 75*

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.

2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.

3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।

2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।

3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page) **(शेष निर्देश अन्तिम पृष्ठ पर)**

(Only for Rough Work)

1. LD_{50} refers to :

(A) Dose lethal to 100% population

(B) Dose lethal to 50% of test organisms

(C) Lowest dose tested

(D) Safe dose

2. Pollution of water bodies mainly results in :

(A) Increased oxygen levels

(B) Eutrophication

(C) Improved aquatic life

(D) Soil conservation

3. Deforestation leads to :

(A) Increased biodiversity

(B) Soil erosion

(C) Stable climate

(D) Increased rainfall

4. The main cause of ecosystern degradation is :

(A) Natural succession only

(B) Migration

(C) Photosynthesis

(D) Human activities

5. Air Quality Index (AQI) indicates :

(A) Water pollution

(B) Soil nutrients

(C) Level of air pollution

(D) Ocean acidity

6. Ecological footprint measures :

(A) Environmental impact of human activities

(B) Size of human population only

(C) Weather patterns

(D) Genetic diversity

7. Carbon footprint is an indicator of :

(A) Soil fertility

(B) Water quality

(C) Greenhouse gas emissions

(D) Forest density

8. Recycling of materials helps in :

(A) Increasing waste

(B) Conserving resources

(C) Depleting minerals

(D) Increasing pollution

9. The three pillars of sustainable development are :

(A) Growth, trade, industry

(B) Environment, economy, society

(C) Agriculture, mining, tourism

(D) Forest, water, soil

10. Sustainable development balances :

(A) Environment only

(B) Economy only

(C) Social, economic, and environmental factors

(D) Population growth only

11. Climate change can lead to loss of biodiversity due to :

(A) Stable habitats

(B) Habitat destruction

(C) Increased soil fertility

(D) Reduced temperature

12. Coral bleaching occurs mainly because of :

(A) Cold water

(B) Oil spills

(C) Rise in sea temperature

(D) Wind storms

13. Nectar in flowers mainly serves to :

(A) Protect from predators

(B) Attract pollinators

(C) Prevent fertilization

(D) Reduce seed formation

14. Bat pollination is known as :

(A) Entomophily

(B) Ornithophily

(C) Chiropterophily

(D) Hydrophily

15. The mosquito in malaria acts as a :

(A) Primary host

(B) Secondary host

(C) Vector

(D) Producer

16. In a host-parasite relationship, the parasite :

(A) Derives nourishment from the host

(B) Lives independently

(C) Provides nutrients to host

(D) Kills host immediately

17. Camouflage is an adaptation mainly used by :

(A) Predators only

(B) Prey only

(C) Both (A) and (B)

(D) Decomposers

18. The Lotka-Volterra model describes :

(A) Energy flow

(B) Nutrient cycling

(C) Predator-prey population dynamics

(D) Genetic variation

19. In predator-prey relationship, the predator is benefited and the prey is :

(A) Harmed

(B) Unaffected

(C) Benefited

(D) Symbiotic

20. The range of environmental conditions under which a species can survive is called :

(A) Realized niche

(B) Fundamental niche

(C) Habitat

(D) Biome

21. A tiger in a forest represents its :

(A) Niche only

(B) Habitat only

(C) Both (A) and (B)

(D) Ecosystem

22. The principle stating that two species cannot occupy the same niche is called :

(A) Hardy-Weinberg principle

(B) Competitive exclusion principle

(C) Gause's principle

(D) Both (B) and (C)

23. Nitrogen fixation converts atmospheric nitrogen (N_2) into :

(A) Oxygen

(B) Ammonia

(C) Carbon dioxide

(D) Nitrate only

24. Biogeochemical cycles involve the movement of elements between :

(A) Only living organisms

(B) Only atmosphere

(C) Living and non-living components of Earth

(D) Only soil

25. Earthworms involved in decomposition are known as :

(A) Producers

(B) Primary consumers

(C) Detritivores

(D) Carnivores

26. The process of breaking down organic matter into simpler substances is called :

(A) Photosynthesis

(B) Respiration

(C) Decomposition

(D) Transpiration

27. The 10% law of energy transfer was proposed by :

(A) Charles Darwin

(B) Alfred Wallace

(C) Raymond Lindeman

(D) Gause

28. Community dominated by one or few species is called :

(A) Balanced community

(B) Monoculture

(C) Dominant community

(D) Climax community

29. Species richness refers to :

(A) Number of individuals of one species

(B) Number of species in a community

(C) Biomass of community

(D) Genetic variation

30. The first organisms to colonize a barren area are called :

(A) Dominant species

(B) Climax species

(C) Pioneer species

(D) Endangered species

31. The study of ecological communities is called :

(A) Autecology

(B) Synecology

(C) Taxonomy

(D) Genetics

32. Which biome experiences moderate rainfall and four distinct seasons ?

(A) Temperate deciduous forest

(B) Desert

(C) Tropical rainforest

(D) Tundra

33. Savanna is a type of :

(A) Temperate forest

(B) Tropical grassland

(C) Desert

(D) Tundra

34. Which biome has the highest biodiversity ?

(A) Tundra

(B) Desert

(C) Tropical rainforest

(D) Grassland

35. Evergreen forests are mainly found in :

(A) Desert

(B) Savanna

(C) Tundra

(D) Tropical rainforest

36. The Sahara Desert belongs to which life zone ?

(A) Tundra

(B) Desert

(C) Grassland

(D) Temperate Forest

37. Which life zone has heavy rainfall throughout the year ?

(A) Desert

(B) Tundra

(C) Tropical rainforest

(D) Grassland

38. Laterite soil is rich in :

(A) Nitrogen

(B) Humus

(C) Iron and Aluminium

(D) Potash

39. Alluvial soil is mainly deposited by :

(A) Wind

(B) Rivers

(C) Volcanoes

(D) Glaciers

40. The uppermost fertile layer of soil is called :

(A) Bedrock

(B) Subsoil

(C) Topsoil

(D) Parent rock

41. The main source of energy driving Earth's climate system is :

(A) Moon

(B) Sun

(C) Volcanoes

(D) Ocean currents

42. Which layer of the atmosphere contains weather phenomena ?

(A) Stratosphere

(B) Mesosphere

(C) Troposphere

(D) Thermosphere

43. The main gases responsible for the greenhouse effect are :

(A) Oxygen and Nitrogen

(B) Carbon dioxide and Methane

(C) Helium and Neon

(D) Hydrogen and Argon

44. Which of the following is NOT a biotic factor ?

(A) Bacteria

(B) Fungi

(C) Sunlight

(D) Plants

45. Which of the following is an example of mutualism ?

(A) Snake and rat

(B) Bee and flower

(C) Lion and deer

(D) Cactus and desert

46. In parasitism, the parasite :

(A) is harmed

(B) is unaffected

(C) benefits

(D) dies immediately

47. Family planning programs help in :

(A) Increasing birth rate

(B) Controlling population growth

(C) Increasing pollution

(D) Promoting illiteracy

48. Vaccination contributes to human welfare by :

(A) Increasing income

(B) Preventing diseases

(C) Promoting tourism

(D) Reducing taxes

49. Which factor is most important for human welfare ?

(A) Military power

(B) Public health

(C) Space research

(D) Luxury goods

50. Human welfare programs mainly aim to :

(A) Increase industrial production

(B) Improve quality of life

(C) Promote trade

(D) Increase population

51. Foetal elimination depends largely on :

(A) Maternal elimination

(B) Foetal kidney maturity

(C) Foetal liver only

(D) Placental filtration only

52. Drug residues in eggs are important due to :

(A) Environmental toxicity

(B) Kidney failure

(C) Faster metabolism

(D) Human consumption risk

53. Milk is slightly :

(A) Acidic

(B) Alkaline

(C) Neutral

(D) Highly basic

54. The rate of pulmonary elimination depends on :

(A) Lipid solubility only

(B) Blood flow and ventilation

(C) Kidney function

(D) Urine pH

55. The most important enzyme family in DMES is :

(A) Amylase

(B) Pepsin

(C) Catalase

(D) Cytochrome P450

56. Enterohepatic recirculation occurs between :

(A) Liver and intestine

(B) Liver and kidney

(C) Kidney and intestine

(D) Lung and liver

57. The primary organ responsible for excretion of water-soluble toxicants is :

(A) Liver

(B) Lungs

(C) Kidney

(D) Skin

58. Enzyme inhibition can be :

(A) Only reversible

(B) Only irreversible

(C) Reversible or irreversible

(D) Always permanent

59. In electron transfer, oxidation means :

(A) Gain of electrons

(B) Loss of electrons

(C) Gain of hydrogen

(D) Loss of oxygen

60. Which toxin commonly induces hydrogen abstraction ?

(A) Cyanide

(B) Hydroxyl radical

(C) Carbon monoxide

(D) Lead

61. Methanol poisoning is treated with :

(A) Ethanol or Fomepizole

(B) NAC

(C) Charcoal only

(D) Atropine

62. Chelating agents are used in :

(A) Gas poisoning

(B) Snakebite only

(C) Alcohol overdose

(D) Heavy metal poisoning

63. An ideal antidote should :

(A) Increase toxicity

(B) Be expensive

(C) Be specific and rapidly acting

(D) Have no therapeutic effect

64. Lipid-soluble xenobiotics accumulate in fat mainly due to :

(A) Covalent binding

(B) Non-covalent hydrophobic interactions

(C) DNA binding

(D) Active secretion

65. Covalent binding to DNA may result in :

(A) Detoxification

(B) Mutation

(C) Increased solubility

(D) Reduced toxicity always

66. Biotransformation primarily occurs in the :

(A) Heart

(B) Lung

(C) Liver

(D) Bone

67. Biomagnification mainly occurs with chemicals that are :

(A) Highly biodegradable

(B) Water soluble

(C) Persistent and lipid soluble

(D) Volatile

68. Organs receiving highest blood flow include :

(A) Skin only

(B) Bone only

(C) Brain, liver, kidney

(D) Nails

69. Xenobiotics are :

(A) Naturally occurring nutrients

(B) Hormones

(C) Enzymes

(D) Foreign chemicals entering the body

70. Major similarity between gills and lungs is :

(A) Both provide large surface area for diffusion

(B) Both are thick membranes

(C) Both digest food

(D) Both store toxins

71. Carbon monoxide causes toxicity by :

(A) Blocking lungs physically

(B) Binding to hemoglobin

(C) Destroying alveoli immediately

(D) Increasing oxygen supply

72. Toxicant uptake through gills occurs mainly by :

(A) Active transport only

(B) Phagocytosis

(C) Passive diffusion

(D) Pinocytosis

73. Lipid-soluble toxicants easily cross gill membranes because :

(A) Gills are impermeable

(B) Membranes are lipid-rich

(C) Blood is acidic

(D) Water blocks diffusion

74. Distribution of toxicants depends on :

(A) Blood flow

(B) Lipid solubility

(C) Protein binding

(D) All of the above

75. The primary site of toxicant absorption in the GI tract is :

(A) Stomach

(B) Esophagus

(C) Small intestine

(D) Large intestine

76. Hydrophilic chemicals generally :

(A) Penetrate easily through intact skin

(B) Have limited dermal absorption

(C) Accumulate in fat

(D) Evaporate instantly

77. Biomagnification differs from self-concentration because it involves :

(A) Acute exposure only

(B) Increase in concentration at higher trophic levels

(C) Rapid degradation

(D) Increase in concentration at higher trophic levels

78. MATC stands for :

(A) Minimum Acute Toxic Concentration

(B) Maximum Acceptable Toxicant Concentration

(C) Maximum Allowed Toxic Chemical

(D) Mean Acute Toxic Concentration

79. Earthworms are used in terrestrial toxicity tests to assess :

(A) Air pollution

(B) Soil contamination

(C) Water hardness

(D) Radiation

80. Water quality parameters monitored during aquatic toxicity tests include :

(A) Temperature and pH

(B) Soil texture

(C) Sunlight intensity

(D) Wind speed

81. Which species is commonly used in fish acute toxicity testing ?

(A) Frog

(B) Zebrafish

(C) Earthworm

(D) Rabbit

82. Bioaccumulation means :

(A) Storage of toxins in tissues

(B) Rapid elimination

(C) Decomposition

(D) Digestion

83. Carbon monoxide binds strongly to :

(A) DNA

(B) Hemoglobin

(C) Enzymes

(D) Fat

84. Teratogens cause :

(A) DNA repair

(B) Birth defects

(C) Fever

(D) Allergy

85. UV radiation mainly causes :

(A) Protein synthesis

(B) Thymine dimers

(C) Oxygen production

(D) Vitamin formation

86. Genetic poisons mainly affect :

(A) Cell membrane

(B) DNA

(C) Mitochondria

(D) Ribosomes

87. Proper food storage helps to :

(A) Increase toxins

(B) Reduce toxin formation

(C) Produce bacteria

(D) Increase contamination

88. Food infection differs from intoxication because :

(A) Toxin is preformed

(B) Microorganism multiplies in body

(C) No symptoms

(D) It is harmless

89. Cyanogenic glycosides release :

(A) Oxygen

(B) Carbon dioxide

(C) Hydrogen cyanide

(D) Methane

90. Antivenom works by :

(A) Destroying venom physically

(B) Neutralizing venom antibodies

(C) Increasing venom action

(D) Producing toxins

91. Toxin injected by animals for defense is called :

(A) Poison

(B) Venom

(C) Hormone

(D) Enzyme

92. Natural toxins may act as :

(A) Neurotoxins

(B) Hepatotoxins

(C) Cytotoxins

(D) All of the above

93. Cyanogenic glycosides are found in :

(A) Apple seeds

(B) Mango pulp

(C) Banana peel

(D) Coconut

94. Ricin toxin is obtained from :

(A) Castor plant

(B) Tobacco plant

(C) Neem plant

(D) Opium plant

95. Reversible effects usually disappear after :

(A) Continued exposure

(B) Removal of toxic agent

(C) Genetic mutation

(D) Permanent damage

96. Liver damage that does not recover even after treatment is :

(A) Reversible effect

(B) Acute effect

(C) Irreversible effect

(D) Temporary effect

97. Which of the following is a feature of acute toxicity ?

(A) Slow development of symptoms

(B) Immediate onset of symptoms

(C) Effects after years

(D) No visible symptoms

98. The time period associated with acute toxicity is usually :

(A) Months to years

(B) Weeks only

(C) Minutes to days

(D) Several decades

99. The slope of dose-response curve indicates :

(A) Toxic strength

(B) Color of substance

(C) Exposure time only

(D) Temperature

100. Chronic toxicity results from :

(A) Single high dose exposure

(B) Short exposure

(C) Long-term low-dose exposure

(D) No exposure

(Only for Rough Work)

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

Example :

Question :

Q. 1 (A) ● (C) (D)
Q. 2 (A) (B) ● (D)
Q. 3 (A) ● (C) (D)

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

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

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

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

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)
प्रश्न 2 (A) (B) ● (D)
प्रश्न 3 (A) ● (C) (D)

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

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

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