

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2012.

Ph.D. (TAXONOMY)

COURSE CODE : 132

Register Number :

Signature of the Invigilator
(with date)

COURSE CODE : 132

Time : 2 Hours

Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each of the question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you -1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. The important aspects of the taxonomic study are
 (A) Nomenclature (B) Classification
 (C) Identification (D) All of the above
2. The binomial system of nomenclature was initially devised by
 (A) Linnaeus (B) Casper Bauhin
 (C) de Candolle (D) Caesalpino
3. The repetition of generic name as a specific epithet is called
 (A) Homonymy (B) Synonymy
 (C) Tautonymy (D) None of the above
4. Binomials becomes trinomials when
 (A) The name of a species is changed
 (B) The name of a genus is changed
 (C) When the subspecific category is also indicated
 (D) None of the above
5. The particular specimen or element designated by the author of a taxon is designated as
 (A) Paratype (B) Holotype
 (C) Lectotype (D) Neotype
6. The first person to propose the concept of species was
 (A) Charles Darwin (B) Linnaeus
 (C) Tournefort (D) John Ray
7. A specimen of element selected by a competent worker as a substitute for an undesignated, missing or destroyed holotype is called
 (A) Neotype (B) Paratype
 (C) Cotype (D) Lectotype
8. Cytotaxonomy utilizes the following different criteria
 (A) Chromosome number (B) Chromosome morphology
 (C) Cytochemistry (D) All of the above
9. Taxonomy based on identification of evolutionary units within species by determining their genetical interrelationship is called:
 (A) Numerical taxonomy (B) Biochemical taxonomy
 (C) Experimental taxonomy (D) Chemotaxonomy

10. Who has introduced five kingdom system of biological classification?
 (A) Linnaeus (B) Copeland
 (C) Ernst Mayr (D) Robert H. Whittaker
11. Who has suggested six-kingdom classification?
 (A) Whittaker (B) Carl Woese
 (C) Huxley (D) Haeckel
12. Six-kingdom classification is based on the sequence of :
 (A) Nitrogenous bases in DNA (B) Ribosomal RNA genes
 (C) Messenger RNA genes (D) Transfer RNA genes
13. Authors of the book Principles of Numerical Taxonomy are
 (A) Alston and Turner (B) Sokal and Sneath
 (C) Hansen and Rahn (D) Engler & Prantl
14. Which of the following habitats show the highest diversity of living species?
 (A) Grassland (B) Temperate forest
 (C) Desert (D) Tropical rainforest
15. The Red Data Book which lists endangered species is maintained by
 (A) WWF (B) UNO
 (C) WHO (D) IUCN
16. Most dangerous threat to wildlife is by
 (A) Hunting (B) Overgrazing
 (C) Habitat destruction (D) Introduction of exotic species
17. Conservation is
 (A) Proper use of natural resources (B) Protection of natural resources
 (C) Management of natural resources (D) All of the above
18. The central legislative measures called 'Wildlife (Protection) Act' was passed in
 (A) 1951 (B) 1972 (C) 1977 (D) 1980
19. When was 'Man and the Biosphere' programme launched by the UNESCO
 (A) 1965 (B) 1968 (C) 1971 (D) 1986

20. Species most vulnerable to extinction from human activities are those with
 (A) Low carrying capacity (B) High population growth rates
 (C) Large niches (D) Many natural predators.
21. The correct order of ornithine cycle of urea formation is
 (A) Ornithine, arginine, citrulline (B) Ornithine, citrulline, arginine
 (C) Ornithine, arginine, urinine (D) Ornithine, urinine, arginine
22. RBC in mammals have no nucleus because
 (A) it has degenerated during development
 (B) they do not have nucleus since early
 (C) nucleus is harmful for RBC
 (D) nucleus decrease surface area
23. Genes located on Y-chromosome are
 (A) Mutant genes (B) Autosomal genes
 (C) Holandric genes (D) Sex-linked genes
24. Double hydrogen bonds occurs in DNA between
 (A) U & T (B) T & C (C) A & G (D) A & T
25. The reverse transcription is also called
 (A) RNA dependent DNA polymerase (B) DNA dependent RNA polymerase
 (C) Both (a) and (b) are correct (D) None of these
26. Oncogenic viruses are harmful in
 (A) Provirus state (B) Lytic phase
 (C) Prophase state (D) Hybrid test
27. Vitamin K is required in the process of blood clotting for
 (A) Change of prothombin to thrombin (B) Synthesis of thrombin
 (C) Change of fibrinogen to fibrin (D) Formation of thromboplastin
28. The resolving power of telescope depends upon
 (A) Length of telescope (B) Diameter of objective
 (C) Focal length of objective (D) Focal length of eye-piece
29. Oils and fats are mixture of
 (A) Higher alcohols (B) Esters of higher acids
 (C) Esters and lower acids (D) Higher acids

30. Cardiac muscles have
 (A) Anastomosing fibres (B) Intercalated discs
 (C) Uninucleated fibres (D) All are correct
31. Which of the following is a Ca^{++} binding protein?
 (A) Ferritin (B) Calmodulin
 (C) Actin (D) Keratin
32. Brachymeiosis is
 (A) Failure of metaphase (B) Failure of meiosis I or II
 (C) Failure of prophase (D) Doubling of chromosomes
33. The chromosomal proteins, histones are rich in
 (A) Arginine but not lysine (B) Tryptophan and histidine
 (C) Lysine but not arginine (D) Lysine and arginine
34. Nitrate reductase enzyme contain
 (A) Flavoprotein (B) Molybdenum
 (C) Leghaemoglobin (D) Both (A) and (B)
35. The fluid part of a cell known as cell sap is the
 (A) Non-living content of the cytosol
 (B) Non-living content of vacuole of the cell
 (C) Living content of cytosol
 (D) Living content of the vacuole of the cell
36. Species is
 (A) Specific class of evolution
 (B) Specific unit of evolution
 (C) Specific unit of the evolutionary history of a race
 (D) Not related to evolution
37. A species is taxonomically
 (A) a fundamental unit in the phylogenetic history of the organism
 (B) a group of evolutionary related population
 (C) a base category to which most taxonomic information is attached
 (D) a population with common characteristics as evolutionary base of variation

38. Two or more species occupying identical or overlapping areas are known as
 (A) Sympatric (B) Subspecies
 (C) Allopatric (D) Sibling species
39. The species inhabiting different geographic areas are
 (A) Sympatric (B) Allopatric
 (C) Sibling species (D) Morphospecies
40. Of all the taxa, the only one that exists in nature as a biologically cohesive unit is the
 (A) Species (B) Genus (C) Kingdom (D) Phylum
41. Static concept of species was put forward by
 (A) Darwin (B) Theophrastus (C) de Candolle (D) Linnaeus
42. Mayr's Biological Concept of species is mainly based on
 (A) Morphology (B) Reproductive isolation
 (C) Modes of reproduction (D) Morphology and reproduction
43. Which of the following species is restricted to a given area?
 (A) Allopatric species (B) Sympatric species
 (C) Sibling species (D) Endemic species
44. Species which are able to exchange gene freely without loss of fertility or vigour is known as
 (A) Superspecies (B) Coenospecies
 (C) Ecospecies (D) Semispecies
45. Binomial nomenclature was introduced by
 (A) John Ray (B) Carolus Linnaeus
 (C) de Candolle (D) Darwin
46. Binomial nomenclature means
 (A) Every organism is having one scientific name with a combination of genus and species
 (B) Organism contains generic name
 (C) Organism contains specific name
 (D) None of these

47. Carolus Linnaeus system is an artificial system because
- It is based on evolutionary trends
 - It is based on number of characters
 - It is based on a few characters of superficial similarities and dissimilarities on morphology
 - It is phylogenetic
48. Linnaeus system of classification was based on
- Cytology
 - Morphology
 - Ecology
 - Embryology
49. Natural classification is based on
- Ontogeny
 - Morphology
 - Phylogeny
 - Both morphology and phylogeny
50. Natural system of classification differs from artificial system in
- Developing evolutionary trends
 - Employing only one floral trait
 - Taking only one vegetative trait
 - Bringing out similarities and dissimilarities
51. Classification given by Bentham and Hooker is
- Numerical
 - Artificial
 - Natural
 - Phylogenetic
52. Phylogenetic system brings about
- Grouping according to evolutionary trends
 - Grouping on the basis of increasing complexities
 - Grouping according to morphological characters
 - Reproductive similarities
53. Who is the author of 'Species Plantarum'?
- Charles Darwin
 - John Ray
 - Carolus Linnaeus
 - Julian Huxley
54. Who proposed phylogenetic classification of plants?
- Hutchinson
 - Linnaeus
 - Darwin
 - Bentham and Hooker

55. The concept of genus was proposed by
 (A) John Ray (B) Hooker
 (C) Tournefort (D) Bessey
56. The term 'Taxonomy' was first proposed by the French Botanist
 (A) de Candolle (B) Linnaeus
 (C) Lamarck (D) Nageli
57. Which of the following taxa is not recognized by a botanist?
 (A) Family (B) Species
 (C) Subspecies (D) Order
58. The outlook of classical systematic is embedded in
 (A) Species concept (B) Biological concept
 (C) Typological concept (D) None of these
59. The term 'Systematics' was coined by:
 (A) Ernst Haeckel (B) de Candolle
 (C) Copeland (D) Carolus Linnaeus
60. The correct sequence of taxa is:
 (A) Class-Order-Family-Tribe-Genus-Species
 (B) Class-Order-Tribe-Family-Genus-Species
 (C) Phylum-Order-Class-Tribe-Genus-Species
 (D) Phylum-Tribe-Class-Order-Genus-Species
61. A taxonomic system based only on the traits that reflect the order in time in which branches arose in a phylogenetic tree is called
 (A) Phylogeny (B) Cladistics
 (C) Classical evolutionary taxonomy (D) Phonetics
62. Phylogeny describe a species
 (A) Morphological similarities with other species
 (B) Evolutionary history
 (C) Geographic distribution
 (D) Reproductive compatibilities with other species

63. A taxonomic system based on all phenotypic similarities equally weighted and without regard to evolutionary relationship is called
 (A) Phylogeny (B) Cladistics
 (C) Classical evolutionary taxonomy (D) Phonetics
64. A taxonomic system that uses phenotypic similarities as well as judgments of homologies along a branching sequence is called
 (A) Phylogeny (B) Cladistics
 (C) Classical evolutionary taxonomy (D) Phonetics
65. Pupal stage can be seen in
 (A) Cow (B) Butterfly (C) Goat (D) Bird
66. Corals are
 (A) Cnidaria (B) Platyhelminthes
 (C) Echinodermata (D) Porifera
67. Which are very close to butterfly in phylogenetics relationship
 (A) Moth (B) Beetle (C) Dragonfly (D) Damselfly
68. Scleractinian corals are colourful due to
 (A) Ink of octopus (B) Water colour
 (C) Zooxanthallae (D) Industrial waste
69. What is the full form of SCUBA diving?
 (A) Self Contained Breathing Apparatus
 (B) Self Controlled Breathing Apparatus
 (C) Self Combined Breathing Apparatus
 (D) Self controlled Breathing Arrangement
70. What is the basic component of scleractinian corals?
 (A) Iron (B) Calcium (C) Boron (D) Magnesium
71. How many Biosphere Reserves are there in Andaman & Nicobar Islands?
 (A) 0 (B) 1
 (C) 2 (D) None of the above
72. How many Marine National Parks are there in India?
 (A) 4 (B) 5 (C) 6 (D) 9

73. Tiger falls under which category
 (A) Schedule I (B) Schedule II (C) Schedule III (D) Schedule IV
74. How many body parts can be seen in insects?
 (A) 5 (B) 4 (C) 3 (D) 2
75. Phenomenon of 'Industrial Melanism' demonstrates
 (A) Natural selection (B) Induced mutation
 (C) Geographic isolation (D) Reproductive isolation
76. The evolution of one population in response to the evolution of another population and vice versa, is called
 (A) Coevolution (B) Convergent evolution
 (C) Divergent evolution (D) Parallel evolution
77. In some birds, such as peacock and pheasant, the males are more colourful than the females. The selective agent producing the evolution of such conspicuous features is:
 (A) Female (B) Predators (C) Climate (D) Humans
78. Different species of dragonflies do not mate with each other because the males of each species have appendages that can clasp and hold for copulation only females of their own species. This is an example of
 (A) Ecological isolation (B) Temporal isolation
 (C) Mechanical isolation (D) Behavioral isolation
79. A potential danger to a population that has been is the
 (A) Loss of genetic variability (B) Tendency towards assertive mating
 (C) Hardy-Weinberg equilibrium (D) Reduce gene flow
80. Which of the following atoms typically cycles within the most localized area?
 (A) Carbon (B) Water (C) Nitrogen (D) Phosphorus
81. Flow of energy gradually decreases when it passes from lower to higher trophic levels. This is explained by:
 (A) First law of thermodynamics (B) Second law of thermodynamics
 (C) Newton's law (D) None of these
82. Which of the following habitats form the highest diversity of living species?
 (A) Tropical forests (B) Grassland
 (C) Desert (D) Tropical rain forests

83. Cell walls of adjacent cells are connected by
 (A) Primary cell wall (B) Middle lamella
 (C) Secondary cell wall (D) Cellulose
84. Cell membrane in animals is composed mainly of the molecules of
 (A) Lipids (B) Proteins
 (C) Lipids and proteins (D) Carbohydrates
85. Protein molecules of plasma membrane are
 (A) hydrolytic (B) hydrophobic
 (C) hydrophilic (D) all of the above
86. Mitochondria are absent in
 (A) Maturing RBC's (B) Mature RBC
 (C) Liver cells (D) Nerve cells
87. Ribozyme is
 (A) RNA with extra phosphate (B) RNA without phosphate
 (C) RNA with sugar (D) RNA with enzyme activity
88. The male hormone testosterone is secreted by
 (A) Sperms (B) Seminiferous tubules
 (C) Leydig cells (D) Prostate gland
89. Biological action of estrogen include all of the following except:
 (A) Decreased glucose tolerance (B) Increased serum cholesterol
 (C) Stimulation of follicular growth (D) Delayed bone loss at menopause
90. What is the superficial specialized distinguished character of snout moth?
 (A) Antennae simple
 (B) Backwardly pointed antennae toward abdomen
 (C) Coiled antennae towards thorax
 (D) Backwardly pointed antennae toward thorax
91. What is the breathing apparatus of cockroach?
 (A) Lung (B) Gills (C) Booklung (D) Trachea

92. Receptors for protein hormones are located:
 (A) In cytoplasm (B) On cell surface
 (C) In nucleus (D) On endoplasmic reticulum
93. A male moth finds a mate by means of
 (A) Pheromone (B) Ecdysone
 (C) Brain hormone (D) Thyroxine
94. Which one of the following is a micro-nutrient?
 (A) Iron (B) Magnesium (C) Calcium (D) Oxygen
95. Which of the following are called critical elements?
 (A) Nitrogen, Phosphorous and Potassium
 (B) Zinc, Iron and Copper
 (C) Chlorine, nitrogen and Hydrogen
 (D) Oxygen, Nitrogen and Hydrogen
96. Nitrogen fixation by bacteria requires the enzyme
 (A) Decarboxylase (B) Nitrogenase
 (C) Nitrogen deaminase (D) Nitrodioxidase
97. Most essential source of calcium and phosphate is:
 (A) Meat (B) Egg (C) Cheese (D) Milk
98. Which of the following is a nutritionally essential amino acid for humans?
 (A) Phenylalanine (B) Serine
 (C) Aspartic acid (D) Glycine
99. During prolong starvation, body derives nutrition from storage of
 (A) Spleen (B) Lungs
 (C) Subcutaneous fat (D) Liver and lungs
100. Which of the following has single stranded DNA?
 (A) ϕ X174 coliphage (B) Reovirus
 (C) TMV (D) Wound tumour virus