

ZOOLOGY

UNIT-1

THE LIVING WORLD

Choose the appropriate answer:

- Study of reciprocal relationship between organism and their environment is called
(1) Phytogeography (2) Ecology
(3) Physiology (4) Paleobotany
- Study of acquired characters of animals and plants is called
(1) Teratology (2) Ctetology
(3) Cetology (4) Evolution
- Which of the following insects has the shortest life span ?
(1) May fly (2) *Cicada*
(3) Locust (4) *Culex*
- In a colony of honey bees, which of the following develop from unfertilized eggs ?
(1) Queen (2) Worker
(3) Drone (4) All of these
- Culture responsible for discovery of penicillin was
(1) *Penicillium notatum*
(2) *Streptococcus*
(3) *Staphylococcus aureus*
(4) *E.coli*
- Which of the following features are linked to volant adaptations ?
(1) Recurved claws
(2) Development of hooves
(3) Webbed digits
(4) Light and fused bones
- 'Homeostasis' is
(1) Maintenance of favourable internal conditions
(2) A self regulatory mechanism
(3) Ability to continue metabolic activities at optimum level despite unfavourable external conditions
(4) All of these
- Find the odd one out
(1) Skin tanning on exposure to sunlight
(2) Hibernation
(3) Fleshy stems of desert plants
(4) Spore formation
- Which of the following functions as 'blue-print' for building and running cellular machinery ?
(1) RNA (2) DNA
(3) ATP (4) Proteins
- 'Bibliophobia' is
(1) Fear of being in an enclosed space
(2) Fear of heights
(3) Fear of books
(4) Fear of the dark
- Study of 'Visceral organs' is known as
(1) Serology (2) Splanchnology
(3) Syndesmology (4) Synecology
- Regulation of organization occurs through
(1) Flow of information
(2) Aggregation and interaction
(3) Entropy and flow of energy
(4) Aggregation, Interaction, equilibrium and change
- Which of the following is opposite of palaentology?
(1) Neonatology (2) Neontology
(3) Neornithology (4) Nidology
- Which type of energy is required to overcome 'entropy' in a living system?
(1) Heat energy (2) Free energy
(3) Light energy (4) Mechanical energy
- Flowers of *Ophrys muscifera* resembling female *Colpa aurea* wasp get pollinated due to the phenomenon of
(1) Pseudo copulation (2) Mimicry
(3) Parthenocarp (4) Pseudo pollination
- Silver revolution and Green revolution are connected with more production of
(1) Milk and food (2) Egg and food
(3) Fish and food (4) Food for all
- Study of causal agents of diseases is known as
(1) Immunology (2) Etiology
(3) Epidemiology (4) Gerontology
- Retention of larval traits in adult is known as
(1) Paedogenesis (2) Neoteny
(3) Both (1) & (2) (4) None of these

19. Which of the following is/are living fossil?
 (1) Cockroach (2) *Cycas*
 (3) *Ginkgo* (4) All of these
20. A person has to plant trees in the forest he must have knowledge of
 (1) Sericulture (2) Silviculture
 (3) Apiculture (4) Pisciculture
21. By chance unexpected & intuitive discoveries are called
 (1) Finalism (2) Serendipity
 (3) Teleology (4) Both (2) & (3)
22. Glucose concentration for normal biological function is
 (1) 0.9 gm/ml (2) 200 mg/ml
 (3) 500 mg/100 ml (4) 100 mg/100 ml
23. Human lungs have an internal surface area of
 (1) 93 m² (2) 50 m²
 (3) 10 m² (4) 1000 m²
24. Gregarious flowering and fruiting after 48 years is seen in
 (1) *Bambusa tulda*
 (2) *Rhizophora*
 (3) *Melocanna bambusoides*
 (4) Both (1) & (3)
25. Capsid of viruses is formed of
 (1) Carbohydrates (2) Fats
 (3) Proteins (4) Both (1) & (3)
26. Amniocentesis is useful in
 (1) Female infanticide
 (2) Sex determination of foetus
 (3) Detection of genetic disorders in foetus
 (4) Both (2) & (3)
27. Genetic drift occurs due to
 (1) Gene recombinations during crossing over
 (2) Elimination of genes of certain characters in a population
 (3) Differential reproduction
 (4) Chromosomal aberrations
28. Sympatric speciation can occur due to
 (1) Seasonal isolation
 (2) Physiological isolation
 (3) Geographical isolation
 (4) Both (1) & (2)
29. Find the odd one out in terms of distribution ?
 (1) Alligators (2) Kangaroo
 (3) Magnolias (4) Tulips
30. Hardy Weinberg equilibrium will be disturbed if
 (1) Migration takes place
 (2) Selection occurs
 (3) Mutation occurs
 (4) All of these
31. Developmental history of mammalian heart shows that it passes through a two chambered fish like heart to three chambered frog like heart and finally a four chambered heart. Which of the following law or principle explains such development
 (1) Hardy Weinberg Principle
 (2) Biogenetic theory
 (3) Mutation theory
 (4) Cope's theory
32. Anagenesis is
 (1) Speciation by adaptive radiation
 (2) Speciation by phyletic evolution
 (3) Abrupt speciation
 (4) Allopatric speciation
33. Which of the following is referred to be the first one toed horse
 (1) Eohippus (2) Merychippus
 (3) Pliohippus (4) Equus
34. Which of the following features is not true for Archaeopteryx?
 (1) Two jaws modified into beak
 (2) Hind limbs built on typical avian plan
 (3) Presence of weak sternum
 (4) Pneumatic bones
35. The phenomenon of industrial melanism demonstrates
 (1) Geographical isolation
 (2) Induced mutation
 (3) Reproductive isolation
 (4) Natural selection
36. Match the following
 (a) More melanin pigment (i) Allen's law
 (b) More vertebrae (ii) Gloger's rule
 (c) Smaller ears and tails (iii) Gause's law
 (d) Competitive exclusion (iv) Jordan's rule
 (v) Bergman's law
 (1) a(i), b(ii), c(iii), d(iv) (2) a(ii), b(iv), c(i), d(iii)
 (3) a(iii), b(i), c(iv), d(v) (4) a(ii), b(i), c(iv), d(iii)

37. Life can not originate again from inorganic materials present on earth because of
 (1) High environmental pollution
 (2) Global warming
 (3) Oxidising atmosphere
 (4) Absence of prebiotic soup
38. Who disapproved the theory of inheritance of acquired characters
 (1) Charles Darwin
 (2) Alfred Russel Wallace
 (3) August Weismann
 (4) Hugo de Vries
39. "Survival of the fittest" phrase was used first time by
 (1) Charles Darwin (2) Thomas Malthus
 (3) Herbert Spencer (4) Alfred Russel Wallace
40. The fossil amphibian believed to be missing link between amphibian and reptile is
 (1) Seymouria (2) Hemiglossus
 (3) Lycaenops (4) Peripatus
41. Proconsuls are ancestors of
 (1) Man only (2) Apes only
 (3) Both (1) & (2) (4) All primates
42. Neo-Darwinism believes that new species develop through
 (1) Continuous variations with natural selection
 (2) Mutation with natural selection
 (3) Hybridization
 (4) Acquired characters
43. Flippers of seal are
 (1) Fins (2) Skin outgrowths
 (3) Forelimbs (4) Hind limbs
44. A starfish with six arms may be a case of
 (1) Meristic variation (2) Evolution
 (3) Substantive variation (4) Autotomy
45. Which of the following morphological change is not involved in human evolution?
 (1) Flattening of face with boarding of forehead with vertical elevation
 (2) Decrease in the mobility of neck
 (3) Formation of chin
 (4) Reduction of brow ridges
46. Pithecanthropus was discovered in
 (1) China (2) Germany
 (3) Java (4) Africa
47. The manuscript "on the tendency of varieties to depart from the original type" was written by
 (1) Malthus (2) Darwin
 (3) A.R. Wallace (4) A.I. Oparin
48. Which of the following is regarded as offshoot of main human evolution
 (1) *Homo habilis*
 (2) *Homo heidelbergensis*
 (3) *Homo erectus*
 (4) *Homo sapiens fossilis*
49. Basic principles of embryonic development were first given by
 (1) Von Baer (2) Weismann
 (3) Ernst Haeckel (4) Morgan
50. The embryos of snakes, birds and mammals possess gill pouches temporarily. This indicates that
 (1) Common ancestor of these animals had gill pouches
 (2) Fluid medium in which these embryos develop has abundant O₂
 (3) Lung evolved from gills
 (4) Embryos require pouches for breathing
51. Two bands of a population come together after a period of isolation. Speciation will have taken place if the two groups
 (1) Cannot interbreed & produce fertile offsprings
 (2) Compete for the same food supply
 (3) No longer intermingle
 (4) Produce sterile offsprings
52. 'Appetency' concept was given by
 (1) Darwin (2) Lamarck
 (3) Oparin (4) Hugo De Vries
53. Which of the following scientist experimented on *Oenothera lamarckiana*?
 (1) Hugo de Vries (2) Mendel
 (3) Weismann (4) Lamarck
54. Find the odd one out
 (1) Eocene epoch (2) Oligocene epoch
 (3) Miocene epoch (4) Pleistocene epoch
55. Who gave the principle that population tends to multiply more rapidly than food supply?
 (1) Darwin (2) Lamarck
 (3) Hugo de Vries (4) Malthus

56. Frequency of sickle cell anaemia is high in some parts of Africa inspite of its disadvantageous nature. It is because of the reason that
- (1) It is very hot and humid in South Africa
 - (2) Sickle cell anaemics have some resistance to Malaria
 - (3) It is a case of genetic drift
 - (4) All of these
57. The scientist who discarded the 'Theory of spontaneous generation' for origin of life was
- (1) Aristotle
 - (2) Louis Pasteur
 - (3) Van Helmont
 - (4) Spillanzani
58. Which protozoan resembles the ancestral form from which the plants & animals evolved
- (1) *Amoeba*
 - (2) *Euglena*
 - (3) *Paramecium*
 - (4) *Plasmodium*
59. Find the incorrect connecting link match
- (1) Latimeria – Between fishes & amphibians
 - (2) Prototherians – Between birds and mammals
 - (3) Peripatus – Between Annelida and Arthropoda
 - (4) Auricularia – Between Echinodermata and Hemichordate larva
60. Natural selection causes allele frequencies of a population to change. It can lead to
- (1) Stabilizing selection
 - (2) Directional selection
 - (3) Disruptive selection
 - (4) All of these
61. Lederberg's replica experiment is connected with
- (1) Artificial selection
 - (2) Preadaptive mutations
 - (3) Adaptive radiations
 - (4) Genetic drift
62. Which of the following pair is not correct ?
- (1) Convergent evolution : Stream lined body forms in fish and whale
 - (2) Retrogressive evolution : Origin of amphibians from fishes
 - (3) Eohippus : 4 functional toes on each forefoot
 - (4) Palynology : Study of pollen & spores
63. Stanley Miller synthesized simple amino acids from
- (1) CH₄, N₂, H₂ and O₂
 - (2) H₂, NH₃, CH₄ and water vapours
 - (3) N₂, H₂, CH₄ and water
 - (4) NH₃, CH₄, N₂ and H₂
64. Who diverged from the main line of hominoid evolution about eighty million years ago?
- (1) Gibbon
 - (2) Anthropoids
 - (3) Gorilla
 - (4) Chimpanzee
65. Tasmanian "tiger cat" is a marsupial while Bobcat in a placental mammal. This shows
- (1) Convergent evolution
 - (2) Divergent evolution
 - (3) Parallelism
 - (4) Inheritance of acquired characters
66. Which of the following are degenerate organisms?
- (1) *Lamprey* and *Amphioxus*
 - (2) *Herdmania* and *Sacculina*
 - (3) *Cycas* and *Ginkgo*
 - (4) None of these
67. Which of the following moth is more suitable for industrial areas
- (1) *Biston betularia*
 - (2) *Biston carbonaria*
 - (3) Both (1) & (2)
 - (4) None of these
68. Charles Darwin proposed which of the following
- (1) Natural selection theory
 - (2) Artificial selection theory
 - (3) Theory of pangenesis
 - (4) All of these
69. First living beings on this earth were
- (1) Chemoautotrophs
 - (2) Chemoheterotrophs
 - (3) Photo autotrophs
 - (4) All of these
70. Rocks of which era do not contain any fossils?
- (1) Archaeozoic era
 - (2) Proterozoic era
 - (3) Mesozoic era
 - (4) Coenozoic era
71. Post zygotic isolation can be due to
- (1) Incompatibility
 - (2) Hybrid Inviability
 - (3) Hybrid breakdown
 - (4) All of these
72. Darwin was greatly influenced by writings of which naturalist while formulating the theory of natural selection ?
- (1) Thomas Malthus
 - (2) Herbert Spencer
 - (3) Hugo de Vries
 - (4) Lamarck
73. Which of the following types of mutations produces a new amino acid at a specific site in a polypeptide
- (1) Silent mutation
 - (2) Nonsense mutation
 - (3) Missense mutation
 - (4) Null mutation

74. Which of the following are not homologous organs?
 (1) Fore limbs of Bat and Whale
 (2) Thorn of *Bougainvillea* and tendril of *Cucurbita*
 (3) Wings of butterfly and wings of pterodactyl
 (4) Mouth parts of cockroach and mouth part of mosquito
75. Neanderthal man differs from modern man in
 (1) Receding jaws (2) Protruding jaws
 (3) Could make good tools (4) Developed chin
76. A-B grouping of blood is found in
 (1) Only human beings
 (2) Human beings and apes
 (3) Only apes
 (4) Human beings, apes, and monkeys
77. The law which states that evolution is irreversible is
 (1) Dollo's Law (2) Cope's Law
 (3) Bergman's Law (4) Allen's Law
78. Which of the following compounds had very important role in prebiotic evolution?
 (1) SO_2 (2) NO
 (3) CH_4 (4) SO_3
79. Trace the correct order in the phylogeny of horse
 (1) *Eohippus* → *Mesohippus* → *Merychippus* → *Pliohippus* → *Equus*
 (2) *Eohippus* → *Pliohippus* → *Mesohippus* → *Merychippus* → *Equus*
 (3) *Mesochippus* → *Eohippus* → *Merychippus* → *Pliohippus* → *Equus*
 (4) *Eohippus* → *Equus* → *Pliohippus* → *Mesohippus* → *Merychippus*
80. Mutation is
 (1) Change that affects parents only and is never inherited
 (2) A factor responsible for plant growth
 (3) Change that is inherited
 (4) A change which affects the offsprings of F_2 generation only
81. Parallel evolution is
 (1) Adaptive divergence in evolution
 (2) Adaptive convergence of widely different species
 (3) Adaptive convergence of closely related species
 (4) None of these
82. How will you define a scientific law?
 (1) A term used to describe meaningful data
 (2) A process or way of arriving at a solution
 (3) A possible answer to explain a question
 (4) A uniform constant feature of nature supported by several theories
83. Who is regarded as "Father of Human genetics"?
 (1) Sutton (2) Garrod
 (3) Mendel (4) Morgan
84. Darwin's finches show one of the following aspects of evolution
 (1) Biogeographic evidence
 (2) Industrial melanism
 (3) Biochemical evidence
 (4) Embryological evidence
85. The scientist who gave a recipe for spontaneous generation of mice from dirty, sweat soaked shirt put with wheat barn was
 (1) Aristotle (2) Von Helmont
 (3) William Harvey (4) Spallanzani
86. The factors considered in synthetic theory of evolution are
 (1) Gene mutations (2) Migration
 (3) Hybridisation (4) All of these
87. The most primitive chemical aggregates capable of growth and division were
 (1) Chemoautotrophs (2) Eobionts
 (3) Prokaryotes (4) Coacervates
88. Which is not a vestigial organ of man?
 (1) Nictitating membrane
 (2) Epiglottis
 (3) Vermiform appendix
 (4) Muscles of ear pinnae
89. Find the incorrect match
 (1) T. Dobzhansky – Genetics and Origin of species
 (2) Charles Darwin – Descent of Man
 (3) Oparin – Origin of species
 (4) Darlington – The evolution of genetic systems
90. The sum total of all genes in a breeding population is called
 (1) Deme (2) Genome
 (3) Gene pool (4) None of these
91. Primitive atmosphere was lacking in
 (1) CH_4 (2) NH_3
 (3) H_2 (4) O_2

92. The splint bone of present day horse is a vestige of
- (1) Fourth toe
 - (2) First toe
 - (3) Second toe
 - (4) Second & fourth toes in limbs
93. Which statement is correct for *Latimeria*?
- (1) It is the oldest living fish
 - (2) It is a fleshy finned fish
 - (3) It is supposed to be ancestor of amphibians
 - (4) All of these
94. The best test of the relatedness of two species is in similarity of their
- (1) Anatomy
 - (2) DNA and proteins
 - (3) Development
 - (4) Courtship behaviour
95. Evolution was defined as 'descent with modification' by
- (1) Charles Darwin
 - (2) Jean Baptiste de Lamarck
 - (3) Hugo de Vries
 - (4) T. Dobzhansky
96. On the basis of distribution of plants and animals, the earth has been divided into 6 realms by
- (1) P.L. Sclater for animals and A.R. Wallace for plants
 - (2) P.L. Sclater for birds and A.R. Wallace for animals
 - (3) David Lack for birds
 - (4) Alfred Wegener for plants & animals
97. Red data book contains
- (1) Rare species
 - (2) Endangered species
 - (3) Extinct species
 - (4) All of these
98. Term coacervate was given by
- (1) Oparin
 - (2) J.B.S. Haldane
 - (3) Sydney Fox
 - (4) Both (1) & (2)
99. Study of eggs of birds is called
- (1) Osteology
 - (2) Ornithology
 - (3) Odontology
 - (4) Oology
100. Bacteriophage are those which ?
- (1) Attack bacteria
 - (2) Attack virus
 - (3) Attack fungi
 - (4) Attack cyanobacteria
101. Development of bark, scales around young buds and defoliation (leaf fall) is
- (1) Short term adaptation
 - (2) Long term adaptation
 - (3) Homeostasis
 - (4) Mutation
102. Which of the following is/are resurrection plant?
- (1) *Selaginella lepidophylla*
 - (2) *Craterostigma and Myrothamnus*
 - (3) Both (1) & (2)
 - (4) Irish Moss
103. Clinical death occurs when there is
- (1) No pulse rate
 - (2) Pupil are dilated & fixed
 - (3) Both (1) & (2)
 - (4) Pupil constricted but not fixed
104. The language of signals used by bushmen of Kalahari desert during hunting is called
- (1) Chirology
 - (2) Phenology
 - (3) Chorology
 - (4) Cytology
105. When you enter a darkened cinema hall from bright light you can see almost nothing at first. Within few seconds you are able to adjust your sight to dim light. This is
- (1) Short term adaptation
 - (2) Long term adaptation
 - (3) Homeostasis
 - (4) Acquired adaptation
106. For the movement of cilia and flagella, chemical energy ATP is transformed into
- (1) Mechanical energy
 - (2) Electrical energy
 - (3) Heat energy
 - (4) All of these
107. *Rigor mortis* is
- (1) Stiffening of muscles after death
 - (2) Stiffening of muscles after running
 - (3) Fixation of pupil after death
 - (4) Both (1) & (2)
108. Which of the following statement is correct ?
- (1) Homeostasis is restricted to individual level
 - (2) Homeostasis operates at all levels in the living hierarchy
 - (3) Homeostasis is not through feedback mechanisms
 - (4) Homeostasis is restricted to cellular level
109. Which of the following animals are oviparous and connecting links ?
- (1) Duck bill platypus (*ornithorhynchus*)
 - (2) *Echidna*
 - (3) Lung fishes
 - (4) All of these
110. Migration of birds and study of periodicity phenomenon like leaf fall is
- (1) Ethology
 - (2) Phenology
 - (3) Geography
 - (4) None of these

111. Study of malformation and abnormal growth in foetus, during embryogenesis is
 (1) Teratology (2) Teleology
 (3) Traumatology (4) None of these
112. Which of the following is classified with dicotyledonous plants but lacks cotyledons?
 (1) Cuscuta (2) Maize
 (3) Coconut (4) All of these
113. Which of the following is incorrect statement ?
 (1) *Eudynamis* is a brood parasite
 (2) Archemedes principle is an example of serendipity
 (3) Female *Anopheles* sucks human blood for the formation of its egg
 (4) Night blooming flowers are coloured scented and pollinated by moth
114. Find the odd one out
 (1) *Phyllium* (2) *Kallima*
 (3) *Carausius* (4) *Palaemon*
115. Heterophylly is an adaptation seen in
 (1) *Nepenthes* (2) *Drosera*
 (3) *Limnophila* (4) *Utricularia*
116. 'Eobionts' that appeared in sea water were
 (1) Anaerobic and chemoheterotrophs
 (2) Aerobic and chemoautotrophs
 (3) Anaerobic and chemoautotrophs
 (4) Aerobic and chemoheterotrophs
117. The formation of polypeptide by polymerisation of amino-acids without following the central dogma of molecular biology was demonstrated by
 (1) Urey and Miller (2) Oparin and Haldane
 (3) Sydney Fox (4) Hugo De Vries
118. Which of the following is not included in Neo-Lamarckism?
 (1) Change in environment has direct effect on the organisms
 (2) Use and disuse of organs play a role in evolution
 (3) Variations affecting the germs cells only are passed from one generation to the next
 (4) None of these
119. Polyploidy gives an example of
 (1) Sympatric speciation
 (2) Reproductive isolation
 (3) Allopatric speciation
 (4) Both (1) & (2)
120. Which of the following fish / fishes are not poikilothermic?
 (1) Tuna fish (2) Sword fish
 (3) Electric-ray (4) Both (1) & (2)
121. The father of DNA-finger printing is
 (1) Paul Berg (2) Alec Jeffreys
 (3) T.H. Morgan (4) Bateson
122. Who was considered as 'God of Medicine' in ancient Indian times ?
 (1) Charaka (2) Dhanvantri
 (3) Hippocrates (4) Sushruta
123. Which of the following is incorrect match ?
 (1) Group of symptoms (a) Syndrome of a disease
 (2) Detection of (b) Amniocentesis chromosomal aberration
 (3) Pangenesis (c) Evolutionary agents
 (4) *Bacillus anthracis* (d) Bioterrorism
124. The term interparity refers to
 (1) One time reproduction in life
 (2) Presence of adult organs in larva
 (3) Repeated reproduction at intervals
 (4) Production of a few offspring
125. Growth occurs due to the synthesis of
 (1) Protoplasmic substances
 (2) Apoplasmic substances
 (3) Secretion of digestive juices
 (4) Both (1) & (2)
126. Ancestor of man who first stood erect was
 (1) Australopithecus (2) Dryopithecus
 (3) Linnopithecus (4) Pliopithecus
127. Which energy transformation is characteristic of *Torpedo*?
 (1) Radiant energy → chemical energy
 (2) Chemical energy → light energy
 (3) Chemical energy → Electrical energy
 (4) Chemical energy → Mechanical energy
128. Faecal pellets buried in sediments are called
 (1) Coprolites (2) Impressions
 (3) Gastroliths (4) Palyno fossils

129. Which of the following period involved origin of Jawed fishes ?
- (1) Cambrian (2) Ordovician
(3) Silurian (4) Devonian
130. Match the following
- (a) Cohen and Boyer (i) Recombinant DNA technology
(b) Wilmot & Campbell (ii) Improved wheat seed
(c) Norman Ernest Borlaug (iii) Clone Dolly
(d) Walter Sutton (iv) Chromosomal basis of heredity
- (1) a(i), b(ii), c(iii), d(iv) (2) a(i), b(iii), c(ii), d(iv)
(3) a(i), b(iii), c(iv), d(iii) (4) a(i), b(iii), c(iv), d(ii)
131. Which of the following is responsible for maintaining constant temperature in human beings?
- (1) Thermoreceptors (2) Hypothalamus
(3) Negative feed back (4) All of these
132. Presence of adhesive and curved claws indicates
- (1) Cursorial adaptation (2) Scansorial adaptation
(3) Natatorial adaptation (4) Fossorial adaptation
133. A chemical reaction that yields energy and does not require any energy from outside source is
- (1) Exergonic reaction
(2) Endergonic reaction
(3) Non spontaneous reaction
(4) Coupled reaction
134. Who among the following did not contribute to Genetics ?
- (1) Charaka (2) Gregor Mendel
(3) Walter Sutton (4) None of these
135. The early concept that all creatures remained unchanged since they were created as per Wisdom of god was discarded by
- (1) Aristotle (2) Georges Cuvier
(3) Lamarck (4) both (2) & (3)
136. *De Humani Corporis Fabrica* is a work by
- (1) William Harvey (2) Galen
(3) Andreas Vesalius (4) Georges Leopold Cuvier
137. Darwin had put forward Theory of Pangenesis as the mechanism of inheritance in his book
- (1) On the origin of species by means of natural selection
(2) On the variation of plants and animals under domestication
(3) Different forms of flowers on plants of the same species
(4) The expression of the emotions in men and Animals
138. Choose the odd one out w.r.t. to sub-division of plants according to Susruta Samhita
- (1) Kanda (2) Vanaspati
(3) Virudha (4) Vrksa
139. Which of the following is not an Andaja ?
- (1) Insects (2) Birds
(3) *Echidna* (4) Dolphin
140. DNA is the hereditary material in all organisms except
- (1) TMV (2) Retro-virus
(3) $\phi \times 174$ (4) Both (1) & (2)
141. The RBCs are not nucleated in case of
- (1) Toad (2) Monkey
(3) Lizard (4) All of these
142. Carnivorous quadrupeds like lion, tiger are grouped under
- (1) Kulacara (2) Janghala
(3) Guhasaya (4) Sarpa
143. Which of the following scientists have contributed to the study of embryonic development of chick?
- (1) Leeuwenhoek (2) Aristotle
(3) W. Harvey (4) Both (2) & (3)
144. A logical explanation that accounts for the observation by predicting a plausible answer is
- (1) Identification of a problem
(2) Experimentation
(3) Hypothesis
(4) Theory
145. A Noble Prize was awarded for the interpretation of genetic code and its function in protein synthesis to
- (1) Har Gobind Khorana (2) Robert W. Holley
(3) Marshall W. Nirenberg
(4) All of these
146. Which of the following organelles are energy transducers ?
- (1) Mitochondria (2) Chloroplasts
(3) Ribosomes (4) Nuclei
147. Female *Anopheles* mosquito has mouth parts modified to suck blood because
- (1) It has to spread malaria
(2) It is stronger than male mosquito
(3) It requires protein from mammalian blood for maturation of its eggs
(4) It likes to feed on blood

148. Central part of the earth NiFe comes under
(1) Baryosphere (2) Pyrosphere
(3) Lithosphere (4) Stratosphere
149. Which of the following cannot be grown on artificial culture medium
(1) Yeast (2) E.Coli
(3) Aspergillus (4) TMV
150. Tusks of walrus are
(1) Upper incisors (2) Lower canines
(3) Upper canines (4) Lower incisors
151. Which of the following birds is adapted to hover in flight, to sip nectar and capture insects hidden deep in corolla ?
(1) Humming bird (2) Sun-bird
(3) Both (1) & (2) (4) None of these
152. Which of the following insects show mimicry in order to avoid detection ?
(1) *Carausius* (2) *Phyllium*
(3) *Kallima* (4) All of these
153. Population at any trophic level is kept under check by
(1) Food chain (2) Food web
(3) Homeostasis (4) Adaptations
154. Energy transfer or transformations are never 100% efficient. This is due to
(1) Enthalpy (2) Entropy
(3) Steady State (4) Activation Energy
155. Sweating during exercise is a homeostatic mechanism, It helps to
(1) Conserve body heat
(2) Cool down the body
(3) Remove excess water and salts
(4) Increase heart rate and metabolism
156. Bacteriophage is
(1) A bacterium that infects tissue cells
(2) An organelle of a bacterium
(3) A bacteria that can kill
(4) A virus that infects a bacterium
157. Volant adaptations are for
(1) Climbing (2) Burrowing
(3) Flying (4) Swimming
158. The term 'homeostasis' was coined by
(1) Cannon (2) Waldeyer
(3) Bernard (4) Linnaeus
159. Blue print for all information required by a cell for its growth, differentiation and other life processes is stored in
(1) RNA
(2) DNA
(3) Both RNA and DNA
(4) Neither DNA nor RNA
160. Respiration refers to
(1) Catabolism (2) Anabolism
(3) Metabolism (4) Tropism
161. Pancreatic hormone glucagon controls
(1) Glycogenesis (2) Glycogenolysis
(3) Glyconeogenesis (4) None of these
162. Water helps to prevent thermal shocks to body due to its property of
(1) Adhesion and cohesion
(2) High thermal conductivity
(3) High latent heat
(4) High Surface tension
163. Optimum concentration of Sodium chloride in tissue fluid / blood should be
(1) 0.09 gm / 100 ml (2) 9 gm / 100 ml
(3) 0.9 gm / 100 ml (4) 90 mg / 100 ml
164. The total heat content of a system is called
(1) Enthalpy (2) Entropy
(3) Free energy (4) Activation energy
165. Feet are adapted for wading in
(1) King fisher (2) Wood pecker
(3) Ostrich (4) Grebe
166. Leaves in 'Hydrilla' are
(1) Totally submerged and dissected
(2) Partially dissected and partially floating leaves
(3) Totally submerged and floating leaves
(4) None of these
167. Secretions of cells such as digestive juices, sweat etc. are
(1) Apoplasmic substances
(2) Protoplasmic substances
(3) Both (1) and (2)
(4) None of these
168. Development is characterised by
(1) Growth (2) Morphogenesis
(3) Differentiation (4) All of these

169. Which of the following statements is not true for 'Entropy' in a living system
- (1) It increases enthalpy
 - (2) It leads to disintegration of a system
 - (3) It concerns the property of spontaneity
 - (4) In a living system it occurs due to inefficient transfer and transformation of energy
170. Feed back mechanism regulates the level of
- (1) Thyroxine in blood
 - (2) Glucose in blood
 - (3) Antidiuretic hormone in blood
 - (4) All of these
171. Which one of the following is the odd one ?
- (1) Phototropism
 - (2) Seed dormancy
 - (3) Accumulation of melanin due to excessive exposure to sunlight
 - (4) Protruded ankle bone in man
172. One of the following represents 'homeostasis'
- (1) Salt intake during summer
 - (2) Leaf fall and seed dormancy
 - (3) Excessive sweating during exercise
 - (4) Heating of body during exercise
173. While sleeping
- (1) No metabolic reaction occur
 - (2) There is no energy transformation
 - (3) Basal metabolic rate is zero
 - (4) Energy transformations for vital functions occur
174. What is not true for H₂O ?
- (1) It has high latent heat of vaporisation
 - (2) High adhesion and cohesion forces
 - (3) High viscosity
 - (4) High specific heat
175. Choose the mismatch
- (1) *Cicada* : Longest inactive life span
 - (2) *Carausius* : Dead leaf Butterfly
 - (3) *Phyllium* : Leaf insect
 - (4) *Kallima* : Mimicry
176. The regulation of temperature occurs by cooling the body. This control system is called
- (1) Negative feedback loop
 - (2) Positive feedback loop
 - (3) Both (1) and (2)
 - (4) Adaptation
177. Ultimate source of energy is
- (1) ATP
 - (2) Sun
 - (3) Glucose
 - (4) Food
178. Scala naturae (ladder of nature) was a theory in which all things were placed in a hierarchy. It was given by
- (1) Haeckel
 - (2) Aristotle
 - (3) Leeuwenhoek
 - (4) Cuvier
179. Parrot has a life span of
- (1) 140 years
 - (2) 100 years
 - (3) 74 years
 - (4) 37 years
180. Saline drip is given to a patient suffering from cholera because
- (1) Sodium helps in retaining water in body tissues
 - (2) Sodium chloride dulls pain
 - (3) Sodium chloride provides energy
 - (4) It is a cell fuel
181. What is correct about energy transfer and energy transformation in living cells
- (1) Both occur continuously
 - (2) Both occur discontinuously
 - (3) First energy transfer and then energy transformation
 - (4) First energy transformation and then energy transfer
182. In cold environment, a person will not show
- (1) Vasoconstriction of peripheral vessels
 - (2) Increased secretion of thyroid and adrenal medulla
 - (3) Increased heart beat and volume per stroke
 - (4) Shivering
183. Scientist/s who first synthesised biomolecules in laboratory were
- (1) Melvin and Calvin
 - (2) Miller and Urey
 - (3) Oparin and Haldane
 - (4) Richter & Arrhenius
184. Study of evolutionary history of species comes under
- (1) Ethology
 - (2) Ontogeny
 - (3) Phylogeny
 - (4) Pterology
185. Biosphere includes the zone/s where life exists
- (1) On lithosphere
 - (2) In hydrosphere
 - (3) In atmosphere
 - (4) All of these

186. Which of the following is not the set of homologous organs
- (1) Hand of man and fore-limb of bat
 - (2) Mouth parts in different insects
 - (3) Wings of birds and insects
 - (4) Different beaks in different birds
187. Origin of Oxygen producing cyanobacteria dates back to million years ago
- (1) 3500 - 3800
 - (2) 3300 - 3500
 - (3) 4200
 - (4) 1600
188. Which of the following factors is supposed to be responsible for mass-extinction ?
- (1) Global cooling
 - (2) Meteorites striking the earth
 - (3) Absence of water
 - (4) Both (1) and (2)
189. Match the following
- | Column A | Column B |
|----------------|--|
| a. Microfossil | (i) Foot prints on soft surface later forming rock |
| b. Coprolites | (ii) Hardened and fossilized mud surrounding an extinct individual |
| c. Moulds | (iii) Faecal pellets buried in sediments |
| d. Imprints | (iv) Fossils of spore pollen grains |
- (1) a(ii), b(i), c(iii), d(iv)
 - (2) a(iii), b(iv), c(ii), d(i)
 - (3) a(iv), b(iii), c(ii), d(i)
 - (4) a(iii), b(iv), c(i), d(ii)
190. Dinosaurs originated during which period
- (1) Triassic
 - (2) Cambrian
 - (3) Permian
 - (4) Silurian
191. Basic unit of evolution is
- (1) Population
 - (2) Species
 - (3) Permian
 - (4) Silurian
192. Due to difference in genitalia if two groups are reproductively isolated, it is called
- (1) Seasonal isolation
 - (2) Temporal isolation
 - (3) Mechanical isolation
 - (4) Ethological isolation
193. Mark the correct match
- (1) Jean Baptiste Lamarck – Natural selection
 - (2) Darwin – *Philosophie zoologique*
 - (3) Oparin – Coacervates
 - (4) S.W. Fox – Origin of species
194. Theory of Darwin can't explain
- (1) Heritable and nonheritable variation
 - (2) Arrival of fittest
 - (3) Presence of vestigial organ
 - (4) All of these
195. The loss of deleterious recessive genes in homozygotes of sickle cell anemia is balanced by gain from successful reproduction in heterozygotes. This is referred as
- (1) Balancing selection
 - (2) Natural selection
 - (3) Both (1) and (2)
 - (4) Directional selection
196. Ice age is related to
- (1) Pliocene
 - (2) Pleistocene
 - (3) Miocene
 - (4) Eocene
197. *Drosophila pseudoobscura* and *Drosophila persimilis* do not cross-fertilise and justify the definition of
- (1) Sibling species
 - (2) Polytypic species
 - (3) Lumpers
 - (4) Splitters
198. Development of frog from a tailed larva to a tailless adult accounts for which evolutionary evidence?
- (1) Bio chemical evidence
 - (2) Anatomical evidence
 - (3) Biogeographical evidence
 - (4) Embryological evidence
199. The correct sequence of the periods of mesozoic era from earliest to the latest is
- (1) Permian, Triassic, Jurassic
 - (2) Triassic, Jurassic, Carboniferous
 - (3) Jurassic, Permian, Triassic
 - (4) Triassic, Jurassic, Cretaceous
200. Age of Invertebrates is
- (1) Ordovician
 - (2) Silurian
 - (3) Permian
 - (4) Cambrian
201. Reappearance of certain ancestral characters is called
- (1) Palaeogenesis
 - (2) Atavism
 - (3) Paedogenesis
 - (4) Polyembryony

202. One of the following is not related to Mutation Theory
- (1) Continuous evolution
 - (2) Hugo de Vries
 - (3) *Oenothera lamarckiana*
 - (4) Inheritable character of mutations
203. Cosmozoic theory of the origin of life was proposed by
- (1) Richter and Arrhenius
 - (2) Muller and Morgan
 - (3) Urey and Miller
 - (4) Haeckel
204. The theory of recapitulation means that
- (1) Life history of an animal reflects its evolutionary history
 - (2) All animals start as an egg
 - (3) Progeny of an organism resembles its parents
 - (4) Body parts once lost are regenerated
205. Some organisms escape detection from enemies by resembling other organisms. The phenomenon is
- (1) Homology
 - (2) Mimicry
 - (3) Natural selection
 - (4) Artificial selection
206. The Oriental and Australian regions are divided by
- (1) Wallace's line
 - (2) Weber's line
 - (3) Sclater's line
 - (4) Both (1) and (2)
207. Match the columns
- | | |
|------------------|-------------------------------------|
| a. Dobzhansky | (i) H.M.S. Beagle |
| b. G.L. Stebbins | (ii) Genetics and organic evolution |
| c. T.R. Malthus | (iii) Process of organic evolution |
| d. Richard Owen | (iv) Essay on population |
| | (v) Homology and Analogy |
- (1) a(i), b(ii), c(iii), d(iv)
 - (2) a(ii), b(iii), c(iv), d(v)
 - (3) a(v), b(iv), c(iii), d(ii)
 - (4) a(ii), b(i), c(iii), d(v)
208. Appearance of First mammal on earth dates back to
- (1) 449 million years ago
 - (2) 220 million years ago
 - (3) 1600 million years ago
 - (4) 180 million years ago
209. 2.5 billion years ago the dominant flora on earth were
- (1) Green algae
 - (2) Mosses
 - (3) Blue green algae
 - (4) Fungi
210. At the time when earth originated there was large amount of methane and other hydrocarbons but now in the present atmosphere, it has been replaced by
- (1) H₂
 - (2) CO₂
 - (3) O₂
 - (4) N₂
211. Life is present even below the sheet of ice in Antarctica because
- (1) Water possesses high latent heat
 - (2) Water is source of molecular oxygen to biosphere
 - (3) Being bad conductor of heat, ice protects the water from freezing underneath
 - (4) Water helps in synthesis as well as breaking up of complex molecules.
212. The first organic compound in primordial earth was
- (1) Carbondioxide
 - (2) Methane
 - (3) Carbon monoxide
 - (4) Ethylene
213. There is no life on other planet because of absence of
- (1) O₂
 - (2) Water
 - (3) H₂
 - (4) Nucleic acid
214. Mark the wrong match
- (1) Discontinuous distribution - Finches of Galapagos Island
 - (2) Restricted distribution - Platypus and kangaroo
 - (3) Parallel evolution - Deer and horse
 - (4) Convergent evolution - Spiny ant eater & Scaly ant eater
215. Which of the statement is incorrect w.r.t. palaeontology ?
- (1) Fossil record contains some transitional link like *Archaeopteryx*
 - (2) Palaeontology helps in tracking the ancestry of some animals
 - (3) If we proceed from recent to earliest rocks fossils forms become more and more complex
 - (4) None of these
216. Four fingers and one splint bone in fore-foot; three toes and two splint in hind foot is the characteristic of
- (1) *Meryhippus*
 - (2) *Pliohippus*
 - (3) *Hyracotherium*
 - (4) None of these

217. Most of the examples given in support of Lamarckism explain the use and disuse of organ but can not explain
- (1) Tendency to increase in size of living organism
 - (2) Production of new organ results from a new need
 - (3) Inheritance of acquired characters
 - (4) All of these
218. Related population occupying the same isolated territory side by side are called _____ species
- (1) Allopatric
 - (2) Sympatric
 - (3) Quantum
 - (4) Parapatric
219. Choose the incorrect statement
- (1) The theory of Autogenesis was refuted by Louis Pasteur
 - (2) The primitive earth had reducing atmosphere compared to present oxidising one
 - (3) The first cells probably had DNA as their hereditary material
 - (4) Protobionts with chromophores became energy transducing devices
220. Which of the following cannot be explained by mutation theory ?
- (1) Mutations are the source of variations
 - (2) Evolution can be progressive as well as retrogressive
 - (3) Nature plays a significant role in evolution of species
 - (4) Evolution can be discontinuous change
221. Which of the following is not included in Neo Lamarckism ?
- (1) Change in environment has direct effect on the organisms
 - (2) Variation affecting germ cells are passed from one generation to the next
 - (3) Use and disuse of organs plays a role in evolution
 - (4) None of these
222. Which of the following is not true about coacervates?
- (1) They are formed when a mixture of large proteins and polysaccharide is shaken
 - (2) They exhibit simple metabolism
 - (3) Coacervates do not have outer membranes of lipid and could reproduce
 - (4) They were observed by Oparin
223. Parallelism is
- (1) Adaptive divergence in evolution
 - (2) Adaptive convergence of closely related species in evolution
 - (3) Adaptive convergence of widely different species in evolution
 - (4) None of these
224. The incorrect statement is
- (1) Endemism is a result of geographical isolation
 - (2) Huxley stated “ Birds are the glorified reptiles”
 - (3) Genetic polymorphism helps in preservation of genetic variability through homozygotic selection
 - (4) Balancing selection is not the only factor controlling levels of genetic variations occurring in natural populations.
225. Complete mineralisation of original structures results in
- (1) Unaltered fossils
 - (2) Petrified fossils
 - (3) Moulds
 - (4) Casts
226. One of the following is not true ?
- (1) A species is a collection of demes
 - (2) Deme is a group of populations with common gene pool
 - (3) Change in gene frequencies indicates evolution is not in progress
 - (4) According to Hardy Weinberg’s Principle, gene frequencies can remain constant if mutations don’t occur
227. Which of these is a true statement ?
- (1) Eukaryotes evolved before prokaryotes
 - (2) Prokaryotes evolved before eukaryotes
 - (3) The true cell evolved before the protocell
 - (4) Prokaryotes did not evolve until 1.5 billion years ago
228. Which of the statement is not true for Genetic Drift
- (1) It is a non-directional force
 - (2) It causes sudden fluctuations in a small group of population
 - (3) The allelic combination of founders may be enhanced in a new population
 - (4) None of these

229. Parallel evolution of marsupials in Australian region and placentals in other parts of the world shows that
- (1) Natural selection can lead to similar adaptations for survival in the similar habitats
 - (2) Unrelated groups mimic each other
 - (3) The similarity between placentals and marsupials has no evolutionary significance
 - (4) None of these
230. According to *Oparin*, which one of the following was not present in the primitive atmosphere of the earth?
- (1) Oxygen
 - (2) Hydrogen
 - (3) Water vapour
 - (4) Methane
231. Presence of gills in the tadpole of frog indicates that
- (1) Fishes evolved from frog-like ancestors
 - (2) Frogs will have gills in future
 - (3) Frogs evolved from gilled ancestors
 - (4) Fishes were amphibious in the past
232. Convergent evolution is illustrated by
- (1) Rat and dog
 - (2) Bacterium and protozoan
 - (3) Starfish and cuttle fish
 - (4) Dogfish and whale
233. Which one of the following sequences was proposed by Darwin and Wallace for organic evolution ?
- (1) Overproduction, variations, constancy of population size, natural selection
 - (2) Variations, constancy of population size, overproduction, natural selection
 - (3) Overproduction, constancy of population size, variations, natural selection
 - (4) Variations, natural selection, overproduction, constancy of population size
234. Random genetic drift in a population probably results from
- (1) Highly genetically variable individuals
 - (2) Interbreeding within this population
 - (3) Constant low mutation rate
 - (4) Large population size
235. Which group of vertebrates comprises the highest number of endangered species ?
- (1) Mammals
 - (2) Fishes
 - (3) Reptiles
 - (4) Birds
236. In recent years, DNA sequences (nucleotide sequence) of mt-DNA and Y chromosomes were considered for the study of human evolution, because
- (1) They are small, and therefore, easy to study
 - (2) They are uniparental in origin and do not take part in recombination
 - (3) Their structure is known in greater detail
 - (4) They can be studied from the samples of fossil remains
237. Industrial melanism is an example of
- (1) Drug resistance
 - (2) Darkening of skin due to smoke from industries
 - (3) Protective resemblance with the surroundings
 - (4) Defensive adaptation of skin against ultraviolet radiations
238. In a random mating population in equilibrium which of the following brings about a change in gene frequency in a non-directional manner ?
- (1) Mutations
 - (2) Random drift
 - (3) Selection
 - (4) Migration
239. Darwin in his 'Natural Selection Theory' did **not** believe in any role of which one of the following in organic evolution ?
- (1) Parasites and predators as natural enemies
 - (2) Survival of the fittest
 - (3) Struggle for existence
 - (4) Discontinuous variations
240. Which one of the following describes correctly the homologous structures ?
- (1) Organs with anatomical similarities, but performing different functions
 - (2) Organs with anatomical dissimilarities, but performing same function
 - (3) Organs that have no function now, but had an important function in ancestors
 - (4) Organs appearing only in embryonic stage and disappearing later in the adult
241. Which one of the following conditions though harmful in itself, is also a potential saviour from a mosquito borne infectious disease ?
- (1) Thalassaemia
 - (2) Sickle cell anaemia
 - (3) Pernicious anaemia
 - (4) Leukemia
242. Which of these are considered most essential in the origin of life ?
- (1) Enzymes
 - (2) Nucleic acids
 - (3) Carbohydrates
 - (4) Proteins

243. The theory which explains the origin of life and is based upon experiments ?
(1) Chemical theory (2) Catastrophism
(3) Abiogenesis (4) Biogenesis
244. Homologous organs indicate the
(1) Convergent evolution (2) Parallel evolution
(3) Common descendent (4) Natural selection
245. Cause of speciation is
(1) Random mating (2) Hybridization
(3) Isolation (4) Migration
246. Darwin's finches provide an excellent evidence in favour of evolution. The evidence comes from the field of
(1) Embryology (2) Palaeontology
(3) Biogeography (4) Anatomy
247. Mutation cannot explain
(1) Mimicry (2) Industrial melanism
(3) Connecting link (4) Living fossils
248. Reason of diversity in living beings is
(1) Mutation
(2) Long term evolutionary change
(3) Gradual change
(4) Short term evolutionary change
249. Forthcoming generations are less adaptive than there parental generations due to
(1) Natural selection (2) Mutation
(3) Genetic drift (4) Adaptation
250. Drawin's theory of pangenesis shows similarity with theory of inheritance of acquired characters then what shall be correct according to it
(1) Useful organs become strong and developed while useless organs become extinct
(2) Size of organs increase with ageing
(3) Development of organs is due to will power
(4) There should be some physical basis of inheritance

b G b G b G b

ANSWERS—ZOOLOGY : UNIT-1—THE LIVING WORLD

1. (2)	51. (1)	101. (1)	151. (3)	201. (2)
2. (2)	52. (2)	102. (3)	152. (4)	202. (1)
3. (1)	53. (1)	103. (3)	153. (1)	203. (1)
4. (3)	54. (4)	104. (1)	154. (2)	204. (1)
5. (3)	55. (4)	105. (3)	155. (2)	205. (2)
6. (4)	56. (2)	106. (1)	156. (4)	206. (1)
7. (4)	57. (2)	107. (1)	157. (3)	207. (2)
8. (3)	58. (2)	108. (2)	158. (1)	208. (2)
9. (2)	59. (2)	109. (4)	159. (2)	209. (3)
10. (3)	60. (4)	110. (2)	160. (1)	210. (2)
11. (2)	61. (2)	111. (1)	161. (2)	211. (3)
12. (4)	62. (2)	112. (1)	162. (3)	212. (2)
13. (2)	63. (2)	113. (4)	163. (3)	213. (2)
14. (2)	64. (2)	114. (4)	164. (1)	214. (1)
15. (1)	65. (1)	115. (3)	165. (1)	215. (3)
16. (2)	66. (2)	116. (1)	166. (1)	216. (4)
17. (2)	67. (2)	117. (3)	167. (4)	217. (4)
18. (2)	68. (4)	118. (2)	168. (4)	218. (2)
19. (4)	69. (2)	119. (3)	169. (4)	219. (3)
20. (2)	70. (1)	120. (4)	170. (4)	220. (3)
21. (2)	71. (4)	121. (2)	171. (4)	221. (3)
22. (4)	72. (1)	122. (2)	172. (3)	222. (3)
23. (1)	73. (3)	123. (3)	173. (4)	223. (3)
24. (4)	74. (3)	124. (3)	174. (3)	224. (3)
25. (3)	75. (2)	125. (4)	175. (2)	225. (2)
26. (3)	76. (2)	126. (1)	176. (1)	226. (3)
27. (2)	77. (1)	127. (3)	177. (2)	227. (2)
28. (4)	78. (3)	128. (1)	178. (2)	228. (4)
29. (2)	79. (1)	129. (3)	179. (1)	229. (1)
30. (4)	80. (3)	130. (2)	180. (1)	230. (1)
31. (2)	81. (3)	131. (4)	181. (1)	231. (3)
32. (2)	82. (2)	132. (2)	182. (3)	232. (4)
33. (3)	83. (2)	133. (2)	183. (2)	233. (3)
34. (4)	84. (1)	134. (4)	184. (3)	234. (3)
35. (4)	85. (2)	135. (4)	185. (4)	235. (4)
36. (2)	86. (4)	136. (3)	186. (3)	236. (2)
37. (3)	87. (4)	137. (2)	187. (2)	237. (3)
38. (3)	88. (2)	138. (1)	188. (2)	238. (1)
39. (3)	89. (3)	139. (4)	189. (3)	239. (1)
40. (1)	90. (3)	140. (4)	190. (1)	240. (1)
41. (3)	91. (4)	141. (2)	191. (1)	241. (2)
42. (2)	92. (4)	142. (3)	192. (3)	242. (2)
43. (3)	93. (4)	143. (4)	193. (3)	243. (1)
44. (1)	94. (2)	144. (3)	194. (4)	244. (3)
45. (2)	95. (1)	145. (4)	195. (3)	245. (3)
46. (3)	96. (2)	146. (2)	196. (2)	246. (3)
47. (3)	97. (2)	147. (3)	197. (1)	247. (4)
48. (2)	98. (1)	148. (1)	198. (4)	248. (2)
49. (1)	99. (4)	149. (4)	199. (4)	249. (2)
50. (1)	100. (1)	150. (3)	200. (4)	250. (4)