

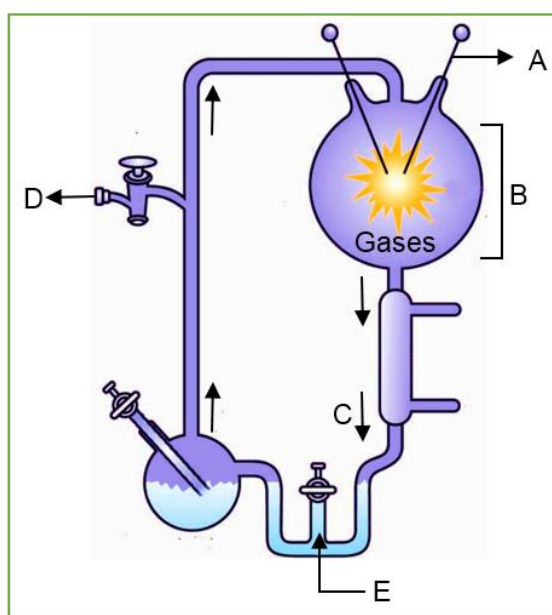
Exercise-1

Marked Questions are for Revision Questions.

ONLY ONE OPTION CORRECT TYPE

SECTION - A # ORIGIN OF LIFE

- Atmosphere of earth, just before the origin of life, consisted of
 - Water vapours, CH_4 , NH_3 and Oxygen
 - CO_2 , NH_3 and CH_4 only
 - CH_4 , NH_3 , H_2 and water vapours
 - CH_4 , O_3 , O_2 and water vapours
- The diagram represent Millier's experiment. Choose the correct combination of labelling.



- A → electrodes, B → $\text{NH}_3 + \text{H}_2 + \text{H}_2\text{O} + \text{CH}_4$, C → cold water, D → vacuum, E → U trap
 - A → electrodes, B → $\text{NH}_3 + \text{H}_2 + \text{H}_2\text{O} + \text{CO}_2$, C → hot water, D → vacuum, E → U trap
 - A → electrodes, B → $\text{NH}_3 + \text{H}_2\text{O}$, C → hot water, D → vacuum, E → U trap
 - A → Compressor, B → $\text{NH}_3 + \text{H}_2 + \text{H}_2\text{O} + \text{CH}_4$, C → steam, D → vacuum, E → U trap
- The first organisms were
 - Chemoautotrophs
 - Chemoheterotrophs
 - Autotrophs
 - Eukaryotes
 - Which was not present freely in the early atmosphere of the earth?
 - Water
 - Carbon monoxide
 - Hydrogen
 - Oxygen
 - Complex organic compounds first evolved on earth and required for origin of life were
 - Urea and amino acids
 - Proteins and nucleic acids
 - Proteins and amino acids
 - Urea and nucleic acid
 - First photosynthetic organisms to appear on earth were
 - Bacteria
 - Green algae
 - Cyanobacteria
 - Bryophytes

7. ✖ Oparin's theory is based on
(1) Artificial synthesis (2) Spontaneous generation
(3) God's creation (4) Panspermia
8. ✖ Possibly, the early source of energy was
(1) Chlorophyll (2) CO₂
(3) UV radiations and lightning (4) Green plants
9. Presence of NaCl in the body fluid indicates that life originated in
(1) Primitive ocean (2) Fresh water lakes (3) Salt solution (4) All of the above
10. ✖ Which of the following is most important for origin of life?
(1) Oxygen (2) Water (3) Nitrogen (4) Carbon

SECTION - B # EVIDENCES OF EVOLUTION

1. Haeckel's biogenetic law or recapitulation theory states that
(1) Life history of an animal reflects evolutionary history of the same species
(2) Progeny resembles parents
(3) Mutations are acquired characters
(4) All organisms begin their life from zygote
2. ✖ Homologous organs have
(1) dissimilar origin and dissimilar structures
(2) dissimilar origin but similar functions
(3) similar origin with similar or dissimilar functions
(4) similar origin with dissimilar functions
3. Vestigial organ of Python is/are
(1) Teeth (2) Hind limbs (3) Scales (4) Nose
4. ✖ Process of evolution
(1) is discontinuous
(2) was discontinuous in the past but continuous presently
(3) was continuous in the past but discontinuous presently
(4) is continuous
5. Which is true regarding sedimentary rocks?
(1) Upper strata are older and lower younger (2) Upper strata younger and lower older
(3) There is no stratification (4) Origin from volcanoes
6. ✖ Resemblance between widely different groups due to a common adaptation is
(1) Parallel evolution (2) Divergent evolution
(3) Convergent evolution (4) Retrogressive evolution
7. Which one of the following is a vestigial organ in man?
(1) Iris (2) Nasal epithelium (3) Malleus (4) Ear Pinna muscles

8. ✖ Homologous organs are
(1) Wings of Pigeon and Butterfly (2) Wings of Pigeon and Housefly
(3) Wings of Pigeon and arms of Humans (4) Wings of Bat, Housefly and Butterfly
9. Which one of the following is not a vestigial structure in humans?
(1) Epiglottis (2) Vermiform appendix
(3) Wisdom teeth (4) Body hair
10. Missing link between reptiles and birds is
(1) *Archaeopteryx* (2) *Platypus* (3) Java Ape Man (4) Whale
11. ✖ Analogous organs are
(1) Wings of bird and butterfly (2) Wings of bird and bat
(3) Limbs of horse and man (4) Teeth of man and Gorilla
12. ✖ Fossil X is older than fossil Y because
(1) Fossil X was found in deeper sedimentation
(2) Fossil Y was found in deeper sedimentation
(3) Fossil Y has homologous and analogous organs of X
(4) Fossil X has some vestigial organs functional in Y
13. ✖ Which of the following has completely constructed phylogeny?
(1) Monkey (2) Dinosaur (3) Horse (4) Man
14. Fossils can be dated absolutely by
(1) the amount of calcium (2) the radioactive carbon content
(3) their association with mammals (4) their stratigraphic age
15. ✖ Which one of the following provides direct evidence in favour of organic evolution through ages?
(1) Atavism (2) Paleontology (3) Vestigial organs (4) Galapagos Island fauna
16. ✖ The Finches of Galapagos islands provide an evidence in favour of
(1) biogeographical distribution (2) special creation
(3) Lamarckism (4) retrogressive evolution
17. Wings of mosquito, bat and bird indicate
(1) Divergent evolution (2) Convergent evolution
(3) Atavism evolution (4) Parallel evolution
18. ✖ Organisms present at different places, without any traces in between, show
(1) Speciation (2) Discontinuous distribution
(3) Continuous distribution (4) Migration
19. Mammals occur on land, air and in water. It is
(1) Convergent evolution (2) Microevolution
(3) Example of analogous organs (4) Adaptive radiation
20. ✖ Darwin's finches are a good example of
(1) adaptive radiation (2) Industrial melanism
(3) homologous organs (4) both (1) and (3)

SECTION - C # THEORIES OF EVOLUTION

1. For its entry into gene pool a mutation must occur in
 (1) Centriole (3) Somatic RNA (2) Plasma proteins (4) Germplasm DNA
2. ~~2.~~ Neo-Darwinism believes that new species develop through
 (1) Mutations with natural selection
 (2) Continuous variations with natural selection
 (3) Hybridisation
 (4) Mutations only
3. Some organisms, escape detection from enemies by resembling other organisms. The phenomenon is
 (1) Homology (2) Mimicry (3) Artificial selection (4) Natural selection
4. ~~4.~~ A very important factor in evolution of a new species is
 (1) Extensive inbreeding (2) Extensive outbreeding
 (3) Reproductive isolation (4) Immigration
5. Hugo de Vries's contribution is
 (1) Theory of Natural selection (2) Theory of Mutation
 (3) Law of dominance (4) Law of segregation
6. ~~6.~~ Hugo de Vries worked on the plant
 (1) Garden Pea/*Pisum sativum* (2) Sweet Pea/*Lathyrus odoratus*
 (3) Chinese Primrose / *Primula sinensis* (4) Evening Primrose / *Oenothera lamarckiana*
7. Darwin was most influenced by
 (1) Lamarck's theory of acquired characters (2) Weismann's theory of germplasm
 (3) Wallace's theory of origin of species (4) Essay on Population by Malthus
8. Which one provides correct sequence of events in origin of new species according to Darwinism?
 1. Natural selection
 2. Variations and their inheritance
 3. Survival of the fittest
 4. Struggle for existence
 (1) 1, 2, 3, 4 (2) 2, 3, 1, 4 (3) 3, 4, 1, 2 (4) 4, 2, 3, 1.
9. ~~9.~~ Major defect of Darwinism was
 (1) Non-description of survival of fittest
 (2) Non-description of natural selection
 (3) Non-description of overproduction of young ones
 (4) Non-description of reason for variations.
10. Which one does not favour Lamarckian concept of inheritance of acquired characters?
 (1) Lack of pigment in cave dwellers
 (2) Absence of limbs in snakes
 (3) Presence of webbed toes in aquatic birds
 (4) Melanisation of Peppered Moth in industrial areas.
11. Light coloured Peppered Moth/*Biston betularia* gets changed to its darker variety due to

- (1) Translocation of block of genes in response to heavy carbons
 (2) Deletion of gene segment due to industrial pollution
 (3) Mutation of single Mendelian gene
 (4) Industrial carbon deposited on wings
12. In which respect, Darwin's theory is wrong?
 (1) High efficiency of reproduction (2) Origin of species
 (3) Survival of the fittest (4) Arrival of the fittest
13. Genetic drift is effective in
 (1) Small population with or without mutated genes
 (2) Large population with random mating
 (3) Animal population
 (4) Plant population
14. Genetic drift
 (1) Is random change in gene frequency
 (2) other name of natural selection
 (3) Is an orderly change in gene frequency
 (4) Produces greatest fluctuations in large populations.
15. A population is in Hardy-weinberg equilibrium for a gene with only two alleles. If the gene frequency of an allele A is 0.7, the genotype frequency of Aa is
 (1) 0.21 (2) 0.42 (3) 0.36 (4) 0.7
16. If the frequency of dominant allele is 60%, find out the percentage of heterozygous individuals in the population.
 (1) 48% (2) 50% (3) 47% (4) 45%
17. The first mammals were like
 (1) Chimpanzee (2) Gorilla (3) Shrews (4) Reptiles
18. Select the correct statement(s).
 i. Microbial experiment show the pre-existing advantageous mutations when selected will result in the observation of new phenotypes. Over few generation this would result in speciation.
 ii. Neanderthal fossils represent a human relative.
 iii. In 1938, a fish caught in South Africa happened to be a coelacanth (lobe fins) which was thought to be extinct. These animals evolved into the first amphibian living on both land and water.
 iv. Lichens can be used as pollution indicators.
 v. Alfred Wallace, a naturalist, who worked in Malay Archipelago (present Indonesia) has also come to similar conclusion on natural selection as reached by Darwin.
 (1) i and ii (2) i, ii, iii and iv (3) iii and iv (4) all of these
19. Read the following three statements (i - iii) and mark the right option.
 i. The thorns in *Bougainvillea* and tendrils in cucurbits represent divergent evolution.
 ii. The similarity in the eyes of *Octopus* and moneys is the result of convergent evolution.
 iii. The potato and sweet potato are the examples of homology.
 (1) i and ii correct (2) ii and iii correct (3) i and iii correct (4) All are correct
20. Choose the wrong statment regarding Hardy-Weinberg principle.

- (1) Allele frequencies in a population are stable and constant from generation to generation.
- (2) Sum total of all the allelic frequencies in a population is 1.
- (3) Variation due to genetic drift results in changed frequency of genes and alleles in future generations.
- (4) Genetic recombination (non-random mating) helps in maintaining Hardy-Weinberg equilibrium.

21. Given below are four statements (i - iv) each with one or two blanks. Select the option which correctly fills up the blanks in two statements.

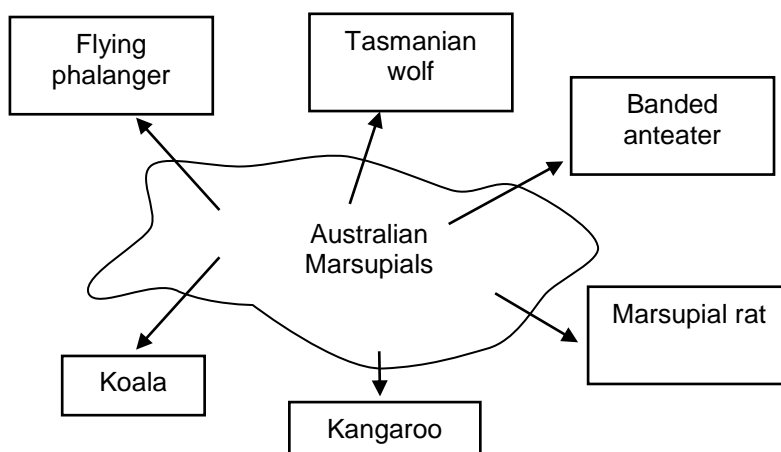
- i. Wings of butterfly and birds look alike and are the results of ____ (A) ____, evolution.
 - ii. Miller showed that CH_4 , H_2 , NH_3 and ____ (A) ____, when exposed to electric discharge in a flask resulted in formation of ____ (B) ____.
 - iii. Vermiform appendix is a ____ (A) ____ organ and an ____ (B) ____ evidence of evolution.
 - iv. According to Darwin evolution took place due to ____ (A) ____ and ____ (B) ____ of the fittest.
- (1) iv \rightarrow (A) Small variations, (B) Survival, i \rightarrow (A) Convergent
 - (2) i \rightarrow (A) Convergent, ii \rightarrow (A) Oxygen, (B) Nucleosides
 - (3) ii \rightarrow (A) Water vapour, (B) Amino acids, iii \rightarrow (A) Analogous, (B) Anatomical
 - (4) iii \rightarrow (A) Vestigial, (B) Anatomical, iv \rightarrow (A) Mutations, (B) Multiplications

22. Match the evolution concepts in List I with List II and select the correct answer using the codes given below the list.

List I		List II	
A.	Mutation	I.	Change in population's allele frequencies due to chance alone.
B.	Gene flow	II.	differences in survival and reproduction among variant individuals
C.	Natural selection	III.	Immigration, emigration change allele frequencies
D.	Genetic drift	IV.	Source of new alleles

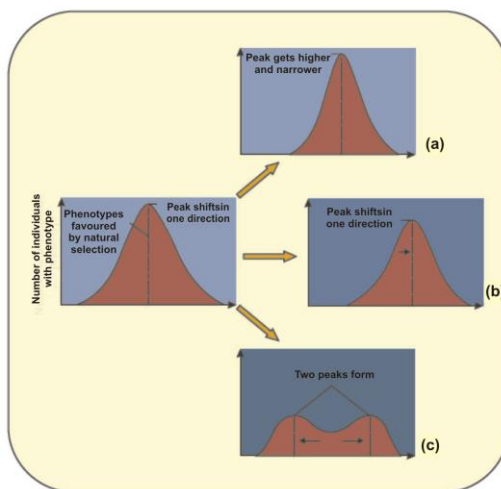
- (1) A \rightarrow I, B \rightarrow II, C \rightarrow III, D \rightarrow IV
- (2) A \rightarrow IV, B \rightarrow II, C \rightarrow III, D \rightarrow I
- (3) A \rightarrow III, B \rightarrow I, C \rightarrow IV, D \rightarrow II
- (4) A \rightarrow IV, B \rightarrow III, C \rightarrow II, D \rightarrow I

23. Following diagram provides an example of



- (1) Convergent evolution
- (2) Parallel evolution
- (3) Recapitulation
- (4) Divergent evolution

24. Following is the diagrammatic representation of the operation of natural selection of different trait, which of the following options correctly identifies all the three graphs A, B and C



	A	B	C
(1)	Directional	Stabilizing	Disruptive
(2)	Stabilizing	Directional	Disruptive
(3)	Disruptive	Stabilizing	Directional
(4)	Directional	Disruptive	Stabilizing

25. The diagram below shows four species of birds that evolved from an ancestral species that had a small pointed beak. Today, all four species inhabit the same island.



Which statement best explains the variation in the beaks of these four species?

- (1) Over time, an abundance of seeds for food led to increased similarities between the species
- (2) Over time, an abundance of seeds for food led to increased differences between the species
- (3) Competition of limited food resources led to selection for similar traits
- (4) Competition for limited food resources led to selection for different traits

MISCELLANEOUS QUESTIONS

1. Which of the following has been basic to origin of life
 (1) Carbohydrates (2) Proteins (3) Nucleic acids (4) Nucleoproteins
2. Origin of life from pre-existing life is propounded by
 (1) Biogenesis theory (2) Abiogenesis theory
 (3) Special creation theory (4) Extra terrestrial theory
3. Stanley Miller's experiment supports
 (1) Abiogenesis (2) Biogenesis (3) Pangenesis (4) Chemical theory

4. Which of the following amino acids was not found to be synthesised in Miller's experiment?
 (1) Alanine (2) Glycine (3) Aspartic acid (4) Glutamic acid
5. Scientists believe that life on earth originated by
 (1) Spontaneous generation (2) Chemical evolution
 (3) Special creation (4) Extraterrestrial transfer
6. Which one is linked to evolution?
 (1) Extinction (2) Competition (3) Variation (4) Reproduction
7. Which of the following is not a concept of Lamarck?
 (1) Rate and survival of organism is different due to variation
 (2) Environmental pressure causes variation
 (3) Inheritance of acquired characters
 (4) If an organ is used constantly it will continuously increase in size
8. Darwin's finches provide an excellent evidence in favour of organic evolution. These are related to which of the following evidences?
 (1) Anatomy (2) Biogeography (3) Embryology (4) Palaeontology
9. Which of the following was formed in S. Miller's experiment?
 (1) Microspheres (2) Nucleic acids (3) Amino acids (4) UV radiations
10. Which of the following are not analogous organs?
 (1) Fins of fishes and flippers of Whales
 (2) Stings of Honey Bee and scorpion
 (3) Wing of insect and wings of *Lepisma*
 (4) Thorn of *Bougainvillea* and tendril of *Cucurbita*
11. Which one of the following was not given by Darwin's theory of evolution?
 (1) Over-production (2) Natural selection (3) Genetic drift (4) Struggle for existence
12. Biological concept of species is mainly based on
 (1) Reproductive isolation (2) Morphological features only
 (3) Morphology and methods of reproduction (4) Methods of reproduction only
13. Which of the following provides most evident proof of evolution?
 (1) Fossils (2) Morphology (3) Embryo (4) Vestigial organs
14. Which of the following is not vestigial in man?
 (1) Tail vertebrae (2) Nictitating membrane
 (3) Nails (4) Vermiform appendix
15. Human hand, wing of bat and flipper of whale represent
 (1) Analogous organs (2) Vestigial organs
 (3) Homologous organs (4) Evolutionary organs
16. Monkeys and some lower groups have certain blood groups which are
 (1) Identical to those of man (2) Identical to those of arthropod
 (3) Somewhat similar to white persons (4) Not identical to those of man

17. Living organism with complete fossil history is
(1) Dinosaur (2) *Archaeopteryx* (3) Horse (4) Man
18. Vestigial pelvic girdle and bone remnants of hind limbs are characteristic of
(1) Whale (2) Dolphin (3) Shark (4) Seal
19. The correct sequence of evolution of horse is
(1) *Equus*, *Eohippus*, *Mesohippus*, *Merychippus*
(2) *Eohippus*, *Mesohippus*, *Merychippus*, *Equus*
(3) *Mesohippus*, *Eohippus*, *Merychippus*, *Equus*
(4) *Merychippus*, *Eohippus*, *Equus*, *Mesohippus*
20. Homology is similarity in
(1) Appearance (2) Physiology (3) Origin (4) Function
21. Human beings have vestigial vermiform appendix. The ancestors must have been
(1) Insectivorous (2) Herbivorous (3) Carnivorous (4) Sanguivorous
22. Evolution of a species or group can be studied through
(1) Fossils (2) Carbon dating (3) DNA analysis (4) All of the above
23. Phenomenon of organisms having dissimilar structure with a similar origin is
(1) Mimicry (2) Analogy (3) Homology (4) Both A and B
24. Tasmanian Wolf is a marsupial while Wolf is a placental mammal. This shows
(1) Convergent evolution (2) Divergent evolution
(3) Parallelism (4) Inheritance of acquired characters
25. Occurrence of higher number of endemic species in South America and Australia is due to
(1) Retrogressive evolution
(2) Continental separation
(3) These species have become extinct from other regions
(4) Absence of terrestrial links between these places
26. Unit of evolution is
(1) Population (2) Species (3) Individual (4) Subspecies
27. Coevolution does not occur in case of
(1) Parasitism (2) Mutualism (3) Both (1) and (2) (4) Commensalism
28. Which one of the following is not a vestigial organ?
(1) Flippers of seal (2) Coccyx of man
(3) Hind limbs of Python (4) Wings of Kiwi
29. The organs, which are functionally different but are related through common descent, are
(1) Analogous (2) Homologous (3) Divergent organs (4) Parallel organs
30. Which one of the following statements is incorrect?
(1) Wings of insects and birds are analogous (2) Wings of bat and birds are homologous
(3) Wings of insects and bat are analogous (4) Wings of insects and birds are homologous

31. Plants and animals of Galapagos Islands resembled those of the neighbouring mainland in
(1) North Africa (2) South Africa (3) North America (4) South America
32. Darwin's finches show
(1) Adaptive radiation (2) Parallel evolution (3) Homology (4) Natural selection
33. Relatedness of two species is tested through
(1) RNA and proteins (2) DNA and proteins
(3) Antibodies and transposons (4) none of the above
34. Common link between apes and man was
(1) *Ramapithecus* (2) *Dryopithecus*
(3) *Homo erectus* (4) *Homo neanderthalensis*.
35. Primitive Man who built up dwelling huts and buried its dead was
(1) Java Ape Man (2) Cro-Magnon Man (3) Peking Man (4) Neanderthal man
36. Which one is closest to modern man?
(1) Cro-Magnon Man (2) Neanderthal man (3) *Homo erectus* (4) *Homo habilis*
37. Human evolution is best related to
(1) Development of brain (2) Migratory habit
(3) Omnivorous diet (4) All the above
38. Which one is correct?
(1) Australopithecus is real ancestor of man
(2) Homo erectus is real ancestor of man
(3) Neanderthal man is direct ancestor Homo sapiens
(4) None of the above
39. The earliest hominids that evolved more than two million years ago were
(1) *Homo erectus* (2) *Australopithecus* (3) Cro-Magnon Man (4) Neanderthal Man
40. During course of evolution which part of brain has shown maximum increase in size
(1) Fore brain (2) Mid brain (3) Hind brain (4) All the above.
41. Individuals of a species which occur in a particular area constitute
(1) Flora (2) Fauna (3) Community (4) Population.
42. Gene pool of a population tends to remain stable if the population is large,' without large scale mutations, without migration and with
(1) Random mating (2) Moderate environmental changes
(3) Natural selection (4) Reduction in predators
43. Darwin's theory states that
(1) Characters are acquired through inheritance
(2) Species change morphologically with time
(3) Nature selects organisms which can adapt
(4) Evolution is due to effect of environment.
44. Reproductive isolation is

- (1) Inability to interbreed (2) Ability to interbreed
(3) Breeding in isolation (4) Intraspecific breeding
45. New species develop due to
(1) Isolation and mutation (2) Competition and mutation
(3) Isolation and competition (4) Isolation and variation
46. Different species occurring in different geographical areas are known as
(1) Allopatric (2) Sympatric (3) Sibling species (4) Deme
47. Unit of natural selection or survival of the fittest is
(1) Species (2) Population (3) Family (4) Individual.
48. Dark coloured Peppered Moth is able to survive in industrial areas as compared to light coloured form because of
(1) High fecundity (2) Mimicry
(3) Natural selection in smoky environment (4) Lethal mutation
49. According to Lamarckism long necked Giraffes evolved because
(1) Nature selected only long necked animals
(2) Of stretching of necks by short one over many generations
(3) Humans preferred long necked animals
(4) Mutation
50. Ultimate source of variation is
(1) Mutation (2) Sexual reproduction (3) Genetic drift (4) Gene flow
51. Maintenance of genetic equilibrium is known as
(1) Gause principle (2) Bergman law (3) Hologen principle (4) Hardy-Weinberg principle
52. Which is likely to hasten organic evolution?
(1) Favourable environment (2) Abundant genotype variations
(3) Over-production (4) Reproductive isolation
53. A group of interbreeding individuals reproductively isolated from others is
(1) Biological species (2) Morphospecies (3) Linnean species (4) Evolutionary species
54. Sudden and a heritable change in a character of an organism is
(1) Selection (2) Heterosis (3) Inbreeding (4) Mutation
55. According to Neo Darwinism, evolution is due to
(1) Gene flow (2) Change in gene structure
(3) Change in size of gene pool (4) Change in gene frequency
56. Which is correct about species?
(1) Members of a species occupy the different habitat
(2) Members of a species are morphologically dissimilar
(3) Members of a species cannot interbreed amongst themselves
(4) Members of a species cannot interbreed with members of other species
57. Reproduction can occur within members of

- (1) Genus (2) Species (3) Family (4) Order

58. Species are differentiated on the basis of
 (1) Interbreeding (2) Reproductive isolation
 (3) Species diversity (4) None of the above
59. Two related populations occupying geographically separate area are
 (1) Allopatric populations (2) Parapatric populations
 (3) Quantum populations (4) Saltational populations
60. An example of reproductive isolation is
 (1) Mule (2) *Bonellia* (3) Dinosaurs (4) *Archaeopteryx*
61. Genetic drift operates in
 (1) Large isolated population (2) Small isolated population
 (3) Fast reproductive population (4) Slow reproductive population
62. Hardy-Weinberg equilibrium is influenced by gene flow, genetic drift, mutation, genetic recombination and
 (1) Evolution (2) Limiting factor (3) Over-production (4) Natural selection
63. Darwin could not properly explain the theory of evolution because of lack of
 (1) Evidences (2) Speciation (3) Variations (4) Genetics
64. In the early earth, organic acids were produced by the combination of H₂ with
 (1) ammonia and methane (2) hydrogen
 (3) organic matter (4) sulphates and nitrates
65. Coacervates belong to category of
 (1) cyanobacteria
 (2) Protozoans
 (3) molecular aggregates
 (4) molecular aggregate surrounded by lipid membrane
66. Darwinian theory of pangenesis shows similarity with theory of inheritance of acquired characters then what will be correct according to it?
 (1) useful organs become strong and developed while useless organs become extinct. These organs help in struggle for survival.
 (2) Size of organs increase with ageing
 (3) Development of organs is due to will power
 (4) There should become physical basis of inheritance
67. An evolutionary pattern characterized by a rapid increase in the number and kind of closely related species is called
 (1) convergent evolution (2) divergent evolution
 (3) adaptive radiation (4) parallel evolution
68. The important gas which was absent during the formation of Earth is
 (1) oxygen (2) hydrogen (3) nitrogen (4) carbon dioxide
69. Mammals have originated from which of the following

- (1) Pisces (2) Amphibia (3) Reptilia (4) Aves
70. Sequence of which of the following is used to know phylogeny?
 (1) mRNA (2) rRNA (3) tRNA (4) DNA
71. Lamarckism cannot explain
 (1) webbed toes in aquatic birds (2) weak muscles in the son of a wrestler
 (3) long narrow and limbless body of snakes (4) heterophylly
72. According to Hugo de Vries theory, evolution is
 (1) discontinuous (2) jerky
 (3) continuous and smooth (4) both (1) and (2)
73. Which of the following species are restricted to an area?
 (1) Sibling species (2) Endemic species (3) Allopatric species (4) Sympatric species
74. Biological concept of species is mainly based on
 (1) reproductive isolation (2) morphological features only
 (3) methods of reproduction only (4) morphology and methods of reproduction
75. Name given to fossil hominid of Shivalik hills in India is
 (1) *Ramapithecus* (2) *Austarlopithecus* (3) *Pithecanthropus* (4) *Neanderthalensis*
76. In population 'X' proportion of gene 'M' is 60% and gene 'm' is 40% then which of the following options is correct for the heterozygous genotype in the offspring (According to Hardy-Weinberg Law)?
 (1) 48% (2) 36% (3) 16% (4) 20%

Exercise-2

1. ✎ Which are actual evidence supporting the endosymbiotic theory for the origin of eukaryotes?
 (1) fossil evidence suggest early eukaryotes are proteobacteria
 (2) free-living mitochondria still exist in some environments
 (3) mitochondria and chloroplasts have their own DNA
 (4) all of the above are true
2. ✎ ***In a population of black-colored seagull, black colour is due to a melanic dominant allele. Mm and MM individuals are black, and mm individuals are white. In each population, 81 individuals are white-colored, with 19 black-colored individuals.***
 Assuming Hardy-Weinberg equilibrium, what is the approximate frequency of the melanic (M) allele in each population?
 (1) 0.81 (2) 0.19 (3) 0.90 (4) 0.10
3. The difference in color between the new population and the old population is due to which evolutionary phenomenon?
 (1) Stabilizing selection (2) Mutation (3) Founder Effect (4) Allopatric speciation
4. ✎ Which is FALSE about conditions on the earth 3.8 billion years ago?
 (1) The atmosphere contained more CO₂ than is present day

- (2) The atmosphere contained more O_2 than is present day
(3) Biochemical evidence suggests there may have been life
(4) All of the above are false
5. ✖ The evolutionary force that is believed to be the driving force behind sympatric evolution is:
(1) directional selection (2) stabilizing selection
(3) disruptive selection (4) balancing selection
6. Species that have evolved in earlier era and undergone minimum evolutionary changes are called living fossils. Which of the following species is a living fossil?
(1) Amoeba (2) King crab (3) Squid (4) Monitor lizard
7. Though the Lamarck's hypothesis of use and disuse has not influenced much about is best demonstrated in an individual by:
(1) cornification of facial skin (2) bone remodeling
(3) muscle toning (4) sensory discrimination
8. ✖ In the evolution of man, which of the following was not involved?
(1) Progressive reduction in hair cover (2) Progressive increase in size of brain
(3) Progressive development of erect posture (4) Progressive increase in mobility of facial muscles
9. All of the following are the examples of the effect of use and disuse of organs influence their size (Lamarckism) except:
(1) Elongation of neck in giraffe (2) Disappearance of limbs in snakes
(3) Disappearance of tail in man (4) Disappearance of tail of tadpole of frog
10. Adaptive radiation in a taxon is mainly due to
(1) allopatric distribution (2) sympatric distribution
(3) parapatric distribution (4) orthopatric distribution
11. ✖ The groups of extinct animals that are closest to the extinct dinosaurs are
(1) crocodiles and birds (2) chelonians and mammals
(3) snakes and turtles (4) marsupials and running birds

Exercise-3

PART - I : NEET / AIPMT QUESTION (PREVIOUS YEARS)

1. Concept of chemical evolution of life is based on (AIPMT-2001)
 - (1) Effect of solar radiations on chemicals
 - (2) Interaction of water, air and clay under intense heat
 - (3) Combination of chemicals under hot moist environmental conditions
 - (4) Crystallization of chemicals
2. Similarities between organisms of different genotypes is due to (CBSE-2001)
 - (1) Convergent evolution
 - (2) Divergent evolution
 - (3) Microevolution
 - (4) Macroevolution
3. Reason for diversity in living beings is due to (CBSE-2001)
 - (1) Short term evolutionary changes
 - (2) Long term evolutionary changes
 - (3) Mutations
 - (4) Gradual change
4. In Lederberg's replica plating, streptomycin resistant strain can develop by using (CBSE-2001)
 - (1) Minimal medium and streptomycin
 - (2) Complete medium and streptomycin
 - (3) Only minimal medium
 - (4) Only complete medium.
5. Darwin's theory of pangenesis proposes (CBSE-2001)
 - (1) Some physical basis of inheritance
 - (2) Development of useful organs and degeneration of useless organs
 - (3) Increase in organ size with age
 - (4) Development of organs due to will power
6. In which condition gene ratio remains constant in a species (CBSE-2002)
 - (1) Gene flow
 - (2) Mutation
 - (3) Random mating
 - (4) Sexual selection
7. Fossil evidence indicates that original place for start of human evolution was (CBSE-2002)
 - (1) Java
 - (2) France
 - (3) Africa
 - (4) China
8. Which is sequenced during phylogeny? (CBSE 2002)
 - (1) mRNA
 - (2) rRNA
 - (3) tRNA
 - (4) DNA
9. Which is most important for speciation? (CBSE-2002)
 - (1) Seasonal isolation
 - (2) Reproductive isolation
 - (3) Temporal isolation
 - (4) Behavioural isolation
10. Some bacteria can grow in streptomycin containing medium due to (CBSE-2002)
 - (1) Induced mutation
 - (2) Natural selection
 - (3) Reproductive isolation
 - (4) Mimicry
11. Which one of the following sequences was proposed by Darwin and Wallace for organic evolution? (CBSE-2003)
 - (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

12. Random genetic drift in a population probably results from (CBSE-2003)
(1) Highly genetically variable individuals
(2) Interbreeding within small population
(3) Constant low mutation rate
(4) Large population size
13. Industrial melanism is an example of (CBSE-2003)
(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
14. Which experiment suggests that simplest living organisms could not have originated spontaneously from non-living matter? (AIPMT-2005)
(1) Microbes did not appear in stored meat
(2) Microbes appeared from unsterilized organic matter
(3) Larvae could appear in decaying organic matter
(4) Meat was not spoiled when heated and kept in sealed vessel
15. Which one supports Darwin's concept of natural selection? (CBSE-2005)
(1) Development of transgenic animals
(2) Production of Dolly sheep by cloning
(3) Prevalence of pesticide resistant insects
(4) Development of organs from stem cells for organ transplantation
16. Which is relatively the most accurate method of dating of fossils? (CBSE-2005)
(1) Radiocarbon dating method (2) Potassium - Argon method
(3) Electron Spin Resonance (ESR) method (4) Uranium - Lead method
17. There are two opposing views about origin of modern man. According to one view Homo erectus in Asia was ancestor of modern man. A study of variations of DNA, however suggested African origin of modern man. What kind of observation on DNA variations could suggest this (CBSE-2005)
(1) Greater variation in Asia than in Africa
(2) Greater variation in Africa than in Asia
(3) Similar variation in Africa and Asia
(4) Variation only in Asia and no variation in Africa
18. Industrial melanism as found in peppered moth proves that (AIPMT-2007)
(1) Melanic form has no selective advantage in industrial area
(2) Lighter form has no selective advantage in polluted industrial area and non-polluted area
(3) Melanism is pollution generated feature
(4) True black melanic form develops by recurring random mutation
19. A high density elephant population in an area will result in (AIPMT-2007)
(1) Mutualism (2) Predation on one another
(3) Interspecific competition (4) Intraspecific competition

20. Select the correct statement (AIPMT-2007)
 (1) Darwinian variations are small and directionless
 (2) Mutations are random and directional
 (3) Fitness is the end result of the ability to adapt and get selected by nature
 (4) All mammals except whales and camels have seven cervical vertebrae
21. Which one is the important consequence of geographical isolation (AIPMT-2007)
 (1) Preventing speciation (2) Allopatric speciation
 (3) Random creation of new species (4) No change in isolated fauna
22. The finches of Galapagos Islands provide an evidence in favour of (CBSE PMT-2007)
 (1) Evolution due to mutation (2) Retrogressive evolution
 (3) Biogeographical evolution (4) Special creation
23. Adaptive radiation refers to (CBSE PMT-2007)
 (1) Evolution of different species from a common ancestor
 (2) Migration of members of a species to a geographical area
 (3) Power of adaptation in an individual to a variety of environments
 (4) Adaptation due to geographical isolation
24. Which one of the following statements is correct? (AIPMT 2007)
 (1) There is no evidence of presence of gills in mammalian embryos
 (2) Ontogeny repeats phylogeny
 (3) All plant and animal cells are totipotent
 (4) Stem cells are specialized cells
25. Two species of different genealogy show resemblance due to similar adaptation. The phenomenon is (AIPMT 2007)
 (1) Convergent evolution (2) Divergent evolution
 (3) Micro-evolution (4) Co-evolution
26. Which is incorrect about protobionts in abiogenic origin of life? (AIPMT-2008)
 (1) They were partially isolated from surroundings
 (2) They could maintain an internal environment
 (3) They were able to reproduce
 (4) They could separate combination of molecules from the surroundings
27. Darwin's finches are an excellent examples of (CBSE-2008)
 (1) Brood parasitism (2) Seasonal migration (3) Connecting links (4) Adaptive radiation
28. Thorns of *Bougainvillea* and tendril of *Cucurbita* are examples of (CBSE-2008)
 (1) Vestigial organs (2) Analogous organs
 (3) Retrogressive evolution (4) Homologous organs
29. Crocodile and Penguin are similar to Whale and Dogfish in which one of the following features? (AIPMT Mains 2010)
 (1) Have gill slits at some stage
 (2) Possess a solid single stranded central nervous system
 (3) Lay eggs and guard them till they hatch
 (4) Possess bony skeleton

30. The most apparent change during the evolutionary history of *Homo sapiens* is traced in
(1) Remarkable increase in the brains size (2) Loss of body hair (AIPMT Mains 2010)
(3) Walking upright (4) Shortening of the jaws
31. Evolution of different species in a given area starting from a point and spreading to other geographical areas is known as (AIPMT Pre 2012)
(1) Adaptive radiation (2) Natural selection (3) Migration (4) Divergent evolution
32. According to Darwin, The organic evolution is due to (NEET-2013)
(1) Interspecific competition
(2) Competition within closely related species
(3) Reduced feeding efficiency in one species due to the presence of interfering species
(4) Intraspecific competition
33. Variation in gene frequencies within populations can occur by chance rather than by natural section. This is referred to as (NEET-2013)
(1) Genetic drift (2) Random mating (3) Genetic load (4) Genetic flow
34. The process by which organisms with different evolutionary history evolve similar phenotypic adaptations in response to a common environmental challenge, is called (NEET-2013)
(1) Convergent evolution (2) Non-random evolution
(3) Adaptive radiation (4) Natural selection
35. Which one of the following are analogous structures? (AIPMT-2014)
(1) Wings of Bat and Wings of Pigeon
(2) Gills of Prawn and Lungs of Man
(3) Thorns of Bougainvillea and Tendrils of Cucurbita
(4) Flippers of Dolphin and legs of Horse
36. A population will not exist in Hardy-Weinberg equilibrium if (AIPMT-2015)
(1) there are no mutations (2) there is no migration
(3) the population is large (4) individuals mate selectively
37. Which is the most common mechanism of genetic variation in the population of a sexually-reproducing organism? (AIPMT-2015)
(1) Chromosomal aberrations (2) Genetic drift
(3) Recombination (4) Transduction
38. Which of the following had the smallest brain capacity? (AIPMT 2015)
(1) *Homo sapiens* (2) *Homo neanderthalensis*
(3) *Homo habilis* (4) *Homo erectus*
39. Industrial melanism is an example of : (Re-AIPMT 2015)
(1) Natural selection (2) Mutation (3) Neo Lamarckism (4) Neo Darwinism
40. The wings of a bird and the wings of an insect are : (Re-AIPMT 2015)
(1) analogous structures and represent convergent evolution
(2) phylogenetic structures and represent divergent evolution
(3) homologous structures and represent convergent evolution
(4) homologous structures and represent divergent evolution

41. Which of the following structures is homologous to the wing of a bird? (NEET-1 2016)
(1) Flipper of Whale (2) Dorsal fin of the Shark
(3) Wing of a Moth (4) Hind limb of Rabbit
42. Analogous structures are a result of : (NEET-1 2016)
(1) Stabilizing selection (2) Divergent evolution
(3) Convergent evolution (4) Shared ancestry
43. Following are the two statements regarding the origin of life: (NEET-1 2016)
(a) The earliest organisms that appeared on the earth were non-green and presumably anaerobes.
(b) The first autotrophic organisms were the chemoautotrophs that never released oxygen.
Of the above statements which one of the following options is correct?
(1) Both (a) and (b) are false.
(2) (a) is correct but (b) is false.
(3) (b) is correct but (a) is false.
(4) Both (a) and (b) are correct.
44. Genetic drift operates in (NEET-2 2016)
(1) slow reproductive population (2) small isolated population
(3) large isolated population (4) non-reproductive population
45. In Hardy-Weinberg equation, the frequency of heterozygous individual is represented by (NEET-2 2016)
(1) q^2 (2) p^2 (3) $2pq$ (4) pq
46. The chronological order of human evolution from early to the recent is (NEET-2 2016)
(1) *Australopithecus* → *Homo habilis* → *Ramapithecus* → *Homo erectus*
(2) *Australopithecus* → *Ramapithecus* → *Homo habilis* → *Homo erectus*
(3) *Ramapithecus* → *Australopithecus* → *Homo habilis* → *Homo erectus*
(4) *Ramapithecus* → *Homo habilis* → *Australopithecus* → *Homo erectus*
47. Which of the following is the **correct** sequence of events in the origin of life? (NEET-2 2016)
I. Formation of protobionts
II. Synthesis of organic monomers
III. Synthesis of organic polymers
IV. Formation of DNA-based genetic systems
(1) II, III, IV, I (2) II, III, IV (3) I, III, II, IV (4) II, III, I, IV
48. Artificial selection to obtain cows yielding higher milk output represents: (NEET-2017)
(1) stabilizing selection as it stabilizes this character in the population.
(2) directional as it pushes the mean of the character in one direction.
(3) disruptive as it splits the population into two, one yielding higher output and the other lower output.
(4) stabilizing followed by disruptive as it stabilizes the population to produce higher yielding cows.
49. Which of the following represents order of 'Horse'? (NEET-2017)
(1) Equidae (2) Perissodactyla (3) Caballus (4) Ferus

- 50._ Among the following sets of examples for divergent evolution, select the *incorrect* option: (NEET-2018)
 (1) Forelimbs of man, bat and cheetah (2) Eye of octopus, bat and man
 (3) Brain of bat, man and cheetah (4) Heart of bat, man and cheetah
- 51._ The similarity of bone structure in the forelimbs of many vertebrates is an example of (NEET-2018)
 (1) Homology (2) Adaptive radiation
 (3) Convergent evolution (4) Analogy
- 52._ According to Hugo de Vries, the mechanism of evolution is (NEET-2018)
 (1) Multiple step mutations (2) Minor mutations
 (3) Phenotypic variations (4) Saltation
53. Variations caused by mutation, as proposed by Hugo de Vries, are: (NEET-1-2019)
 (1) small and directionless (2) random and directional
 (3) random and directionless (4) small and directional
54. A gene locus has two alleles A, a. If the frequency of dominant allele A is 0.4, then what will be the frequency of homozygous dominant, heterozygous and homozygous recessive individuals in the population (NEET-1-2019)
 (1) 0.16 (M); 0.36 (Aa); 0.48 (aa) (2) 0.36 (M); 0.48 (Aa); 0.16 (aa)
 (3) 0.16 (M); 0.24 (Aa); 0.36 (aa) (4) 0.16 (M); 0.48 (Aa); 0.36 (aa)
55. In a species, the weight of newborn ranges from 2 to 5 kg. 97% of the newborn with an average weight between 3 to 3.3 kg survive whereas 99 of the infants born with weights from 2 to 2.5 or 4.5 to 5 kg die. Which type of selection process is taking place? (NEET-1-2019)
 (1) Cyclical Selection (2) Directional Selection
 (3) Stabilizing Selection (4) Disruptive Selection
56. Match the hominids with their correct brain size: (NEET-1-2019)
 (a) Homo habilis (i) 900cc
 (b) Homo neanderthalensis (ii) 1350 cc
 (c) Homo erectus (iii) 650-800cc
 (d) Homo sapiens (iv) 1400cc
 Select the correct option.
 (a) (b) (c) (d)
 (1) (iv) (iii) (i) (ii)
 (2) (iii) (i) (iv) (ii)
 (3) (iii) (ii) (i) (iv)
 (4) (iii) (iv) (i) (ii)
57. In Australia, marsupials and placental mammals have evolved to share many similar characteristics. This type of evolution may be referred to as - (NEET-2-2019)
 (1) Adaptive Radiation (2) Divergent Evolution
 (3) Cyclical Evolution (4) Convergent Evolution

58. A population of a species invades a new area. Which of the following condition will lead to Adaptive Radiation? (NEET-2-2019)
- (1) Area with large number of habitats having very low food supply.
 - (2) Area with a single type of vacant habitat.
 - (3) Area with many types of vacant habitats.
 - (4) Area with many habitats occupied by a large number of species.
59. Which of the following statements is correct about the origin and evolution of men ? (NEET-2-2019)
- (1) Agriculture came around 50,000 years back.
 - (2) The Dryopithecus and Ramapithecus primates existing 15 million years ago, walked like men.
 - (3) Homo habilis probably ate meat.
 - (4) Neanderthal men lived in Asia between 100000 and 40000 years back

PART - II : AIIMS QUESTION (PREVIOUS YEARS)

1. A compound important in prebiotic evolution was (AIIMS 1997)
- (1) SO₂
 - (2) CH₄
 - (3) SO₃
 - (4) NO
2. Which ones are the most essential for origin of life? (AIIMS-2001)
- (1) Enzymes
 - (2) Proteins
 - (3) Carbohydrates
 - (4) Nucleic acids
3. The early stage human embryo distinctly possesses (AIIMS-2003)
- (1) Gills
 - (2) Gill slits
 - (3) External ear (Pinna)
 - (4) Eye brows
4. Age of fossils was previously determined by radioactive elements. More precise recent method which has led to revision of evolutionary periods is (AIIMS 2007)
- (1) Study of carbohydrate and protein in fossils
 - (2) Study of conditions of fossilisation
 - (3) Electron spin resonance and fossil DNA
 - (4) Presence of carbohydrate and protein in rocks
5. Which of the following postulates is related with Neo-Darwinism? (AIIMS-2009)
- (1) mutations are believed to form new species
 - (2) it incorporates isolation as an essential component of evolution
 - (3) it can explain the occurrence of unchanged forms over millions of years
 - (4) all of the above
6. The concept of chemical evolution is based on (AIIMS-2010)
- (1) interaction of water, air and clay under intense heat
 - (2) effect of solar radiation on chemicals
 - (3) possible origin of life by combination of chemicals under suitable environmental conditions
 - (4) crystallization of chemicals
7. Basis of life are (AIIMS-2011)
- (1) nucleic acids
 - (2) proteins
 - (3) nucleoproteins
 - (4) amino acids
8. The animal group which does not exist in Galapagos is land is (AIIMS-2011)
- (1) Insects
 - (2) Protozoa
 - (3) Crustacea
 - (4) Amphibia

Answers

EXERCISE - 1

SECTION - A

1.	(3)	2.	(1)	3.	(2)	4.	(4)	5.	(2)	6.	(3)	7.	(1)
8.	(3)	9.	(1)	10.	(2)								

SECTION - B

1.	(1)	2.	(3)	3.	(2)	4.	(4)	5.	(2)	6.	(3)	7.	(4)
8.	(3)	9.	(1)	10.	(1)	11.	(1)	12.	(1)	13.	(3)	14.	(2)
15.	(2)	16.	(1)	17.	(2)	18.	(2)	19.	(4)	20.	(4)		

SECTION - C

1.	(4)	2.	(1)	3.	(2)	4.	(3)	5.	(2)	6.	(4)	7.	(4)
8.	(4)	9.	(4)	10.	(4)	11.	(3)	12.	(4)	13.	(1)	14.	(1)
15.	(2)	16.	(1)	17.	(3)	18.	(4)	19.	(1)	20.	(4)	21.	(1)
22.	(4)	23.	(4)	24.	(2)	25.	(4)						

MISCELLANEOUS QUESTIONS

1.	(3)	2.	(1)	3.	(4)	4.	(4)	5.	(2)	6.	(3)	7.	(1)
8.	(2)	9.	(3)	10.	(4)	11.	(3)	12.	(1)	13.	(1)	14.	(3)
15.	(3)	16.	(1)	17.	(3)	18.	(1)	19.	(2)	20.	(3)	21.	(2)
22.	(4)	23.	(3)	24.	(1)	25.	(2)	26.	(1)	27.	(4)	28.	(1)
29.	(2)	30.	(4)	31.	(4)	32.	(1)	33.	(2)	34.	(2)	35.	(4)
36.	(1)	37.	(1)	38.	(2)	39.	(2)	40.	(1)	41.	(4)	42.	(1)
43.	(3)	44.	(1)	45.	(1)	46.	(1)	47.	(4)	48.	(3)	49.	(2)
50.	(1)	51.	(4)	52.	(4)	53.	(1)	54.	(4)	55.	(4)	56.	(4)
57.	(2)	58.	(2)	59.	(1)	60.	(1)	61.	(2)	62.	(4)	63.	(4)
64.	(1)	65.	(3)	66.	(4)	67.	(1)	68.	(1)	69.	(3)	70.	(4)
71.	(2)	72.	(4)	73.	(2)	74.	(1)	75.	(1)	76.	(1)		

EXERCISE - 2

1.	(3)	2.	(4)	3.	(2)	4.	(2)	5.	(3)	6.	(2)	7.	(3)
8.	(4)	9.	(4)	10.	(1)	11.	(1)						

EXERCISE - 3

PART - I

1.	(3)	2.	(1)	3.	(2)	4.	(1)	5.	(1)	6.	(3)	7.	(3)
8.	(4)	9.	(2)	10.	(2)	11.	(3)	12.	(2)	13.	(3)	14.	(4)
15.	(3)	16.	(3)	17.	(2)	18.	(4)	19.	(4)	20.	(3)	21.	(2)
22.	(3)	23.	(1)	24.	(2)	25.	(1)	26.	(3)	27.	(4)	28.	(4)
29.	(1)	30.	(1)	31.	(1)	32.	(4)	33.	(1)	34.	(1)	35.	(2)
36.	(4)	37.	(3)	38.	(3)	39.	(1)	40.	(1)	41.	(1)	42.	(3)
43.	(4)	44.	(2)	45.	(3)	46.	(3)	47.	(4)	48.	(2)	49.	(2)
50.	(2)	51.	(1)	52.	(4)	53.	(3)	54.	(4)	55.	(3)	56.	(4)
57.	(4)	58.	(3)	59.	(4)								

PART - II

1.	(2)	2.	(4)	3.	(2)	4.	(3)	5.	(4)	6.	(3)	7.	(1)
8.	(4)	9.	(4)	10.	(1)	11.	(1)	12.	(1)	13.	(1)	14.	(1)
15.	(1)												

Self Practice Paper (SPP)

- Which was the first amino acid to be formed in Stanley Miller's experiment?
(1) Alanine (2) Aspartic acid (3) Glutamic acid (4) Glycine
- According to taxonomical position, find the odd one
(1) *Tyrannosaurus* (2) *Triceratops* (3) *Archaeopteryx* (4) *Pteranodon*
- Eye of octopus & mammal are ____ (A) ____ organs as they differ in ____ (B) ____ position and octopus eye lack ____ (C) ____.
(1) A → Analogous, B → Retinal, C → Blind spot
(2) A → Analogous, B → Retinal, C → Cornea
(3) A → Homogous, B → Corneal, C → Retina
(4) A → Homologous, B → aqueous chamber, C → Cornea
- Match the following & find animals showing adaptive convergence.

A. Anteater	i. Flying phalanger
B. Lemur	ii. Tasmanian tiger cat
C. Bobcat	iii. Numbat
D. Flying squirrel	iv. Spotted cuscus

 (1) A → ii, B → i, C → iii, D → iv (2) A → iv, B → ii, C → i, D → iii
 (3) A → iii, B → iv, C → ii, D → i (4) A → i, B → iii, C → iv, D → ii
- Difference in shape of beak in Darwin's finches is due to differential expression of which gene?
(1) BMP - 1 (2) BAP - 12 (3) BCP - 5 (4) BMP - 4
- Which of the following is not placental mammal?
(1) Mole (2) Lemur (3) Tiger cat (4) Bobcat
- According to Darwin, which of the following is mechanism of evolution?
(1) Natural selection (2) Variations
(3) Reproductive isolation (4) Mutation
- Which of the following is not an example of evolution of due to anthropogenic action?
(1) Excess use of herbicide, Pesticide (2) Antibiotics used against microbes
(3) Industrial melanism (4) Dominance of placental mammals on earth
- Which of the following is true wrt continental drift?
(1) Due to continental drift all present day sea were formed
(2) Due to continental drift South America separated from North America
(3) Due to continental drift animals of east Africa over-ridden by animals of North America
(4) Due to continental drift, animals of South America were overridden by animals of North America
- In experiments similar to Stanley Miller, Which of the given compounds were not formed?
(1) Pigment (2) Sugar (3) Nitrogenous bases (4) Protein

11. Which of the following are most important & least important evidence of evolution?
(1) Fossils & Analogous organs respectively (2) Biogeographical & Analogous respectively
(3) Vestigial organs & Analogous respectively (4) Fossils & Comparative biochemistry respectively
12. First amphibians that can live on both water & land, were evolved from
(1) Lung fishes (2) Lobefin fishes
(3) Shark & rays (4) early reptiles who went back to water
13. First plant to colonize land were
(1) Bryophytes (2) Pteridophytes (3) Chlorophytes (4) Tracheophytes
14. Variations as proposed by Darwin are
(1) Directionless & small (2) Directional & large
(3) Directional & small (4) Directionless & large
15. The rate of appearance of variations leading to speciation is directly related to
(1) Acquired Traits (2) Life span
(3) Cranial capacity (4) Non heritable Characters
16. Mutations are discontinuous variations, which were called _____ (A) _____ by Darwin & _____ (B) _____ by Bateson.
(1) A = Saltatory Variations, B = Sports
(2) A = Sports, B = Saltatory Variations
(3) A = Sports, B = Saltatory Variations
(4) A = Slatatory Variations, B = Punctuated equilibrium
17. *Drosophila pseudoobscura* & *Drosophilla persimilis* are examples of
(1) Sibling species (2) Polytypic species
(3) Evolutionary species (4) Temporal isolation
18. Occurrence of prototherians & metatherians is in Australia only, it is an example of
(1) Continental drift (2) Continuous distribution
(3) Discontinuous distribution (4) Both (1) & (3)
19. Evolution of diversified to similar species due to common environmental change is called
(1) Divergent evolution (2) Convergent evolution
(3) Parallel evolution (4) Both (1) & (3)
20. Given below is a list of certain factors
Mutation, Isolation, Speciation, Gene Migration, Fossilization, Genetic drift, Natural Selection, Putrefaction.
How many of these are known to affect H.W.E. principle?
(1) Two (2) Three (3) Four (4) Five
21. In Miller. Urey experiment ratio of CH_4 , NH_3 and H_2 was
(1) 1 : 2 : 3 (2) 2 : 1 : 3 (3) 1 : 3 : 2 (4) 2 : 1 : 2

22. Here are given some early men. Skeleton & cranial capacity of which of these should have maximum similarity with modern man?
(1) Cro-Magnon Man (2) Neanderthal man (3) Java Man (4) Peking Man
23. Given below are statements about biological evolution, which of the following is incorrect?
(1) Fitness is based on the characteristics, which are inherited
(2) There must be a somatic basis for getting selected and to evolve.
(3) Branching descent & natural selection are two key concepts of Darwinian Theory of evolution.
(4) Natural selection is based on certain observations, which are factual.
24. Which of the following is New World Monkey?
(1) *Alouatta* (Howler Monkey) (2) *Ateles* (spider Monkey)
(3) *Macaca* (Rhesus Monkey) (4) *Cebus* (Capuchin Monkey)
25. Which of the following is Australian marsupial?
(1) Anteater (2) Lemur (3) Spotted cuscus (4) Bobcat
26. Which of the following have not left any evidence of organic evolution?
(1) *Archaeopteryx* (2) Cow (3) *Peripatus* (4) *Neopilina*
27. The classical examples of adaptive radiation in development of new species is
(1) Darwin's finches (2) Marsupials of Australia
(3) Giant turtle (4) All of these
28. Atavism in man means
(1) Appearance of new characters (2) Evolution of existing characters
(3) Appearance of ancestral characters (4) Presence of tail in some reptiles
29. The best description of natural selection is
(1) Gradual accumulation of adaptations to changing environment
(2) Inheritance of acquired adaptations to environment
(3) Struggle for limited resources
(4) Accumulation of mutations
30. An evolutionary pattern characterized by a rapid increase in the number and kind of closely related species is called
(1) convergent evolution (2) divergent evolution
(3) adaptive radiation (4) parallel evolution
31. The term living fossil refers to a
(1) leaf like fossil well preserved in amber
(2) fossil formed from a living animal
(3) living animal which is about to be fossilized
(4) living organism showing some very primitive characters
32. Genetic drift in a new colony is known as the
(1) Natural selection (2) Founder effect (3) Branching descent (4) Saltation
33. Cranial capacity was highest in
(1) Cro-Magnon man (2) Neanderthal man (3) Java man (4) Peking man

34. Which one of the following is closest to the modern man?
 (1) Peking Man (2) Cro-Magnon Man (3) Java Ape Man (4) African Man
35. Evolution of man is believed to have taken place in
 (1) Central America (2) Australia (3) Asia (4) Africa
36. Primate closest to humans is
 (1) Lemur (2) New World Monkey (3) Gorilla (4) Tree Shrew
37. Which one of the following was the first to stand erect and showed bipedal movement?
 (1) Peking Man (2) *Australopithecus* (3) Java man (4) Cro-Magnon Man
38. Direct ancestral race of modern man was possibly
 (1) Neanderthal man (2) Cro-Magnon man (3) Peking man (4) Java man
39. Zoological name of Java man is
 (1) *Homo habilis* (2) *Homos* (3) *Homo erectus* (4) *Australopithecus*
40. Pre-historic man who ceremonially buried their dead ones was—
 (1) Peking man (2) Java man (3) Neanderthal man (4) Cro-Magnon man
41. Which amongst the following is nearest to modern man?
 (1) Java Ape man (2) *Australopithecus* (3) Neanderthal man (4) *Homo habilis*
42. Which is the most primitive ancestor of man?
 (1) *Ramapithecus* (2) *Australopithecus* (3) *Homo habilis* (4) *Homo neanderthalensis*
43. Which one is nonsignificant to evolution of man?
 (1) Opposable thumb
 (2) Change of diet from hard nuts/roots to soft food
 (3) Increased ability to communicate or develop community behaviour
 (4) Loss of tail.
44. Which is correct?
 (1) Neanderthal man is direct ancestor of humans
 (2) *Homo erectus* is direct ancestor of man
 (3) Cro-Magnon Man was found in Ethiopia
 (4) *Australopithecus* is real ancestor of modern man.
45. Place of human evolution is
 (1) Asia (2) Eastern Africa (3) Sub-arctic Europe (4) Arabia

SPP Answers

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|---------|---------|---------|---------|---------|---------|---------|
| 1. (4) | 2. (3) | 3. (1) | 4. (3) | 5. (4) | 6. (3) | 7. (1) |
| 8. (4) | 9. (4) | 10. (4) | 11. (1) | 12. (2) | 13. (1) | 14. (3) |
| 15. (2) | 16. (3) | 17. (1) | 18. (4) | 19. (2) | 20. (3) | 21. (4) |
| 22. (1) | 23. (2) | 24. (3) | 25. (3) | 26. (2) | 27. (4) | 28. (3) |
| 29. (1) | 30. (1) | 31. (4) | 32. (2) | 33. (1) | 34. (2) | 35. (4) |
| 36. (3) | 37. (2) | 38. (2) | 39. (3) | 40. (3) | 41. (1) | 42. (1) |
| 43. (4) | 44. (2) | 45. (2) | | | | |