



BIOLOGY

BOOKS - SANTRA BIOLOGY (BENGALI ENGLISH)

EVOLUTION

Mcqs

1. Life originated in

A. Air

B. Soil

C. Mountain

D. Water

Answer: D



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2. Atmosphere of earth just before the origin of life consisted of

A. Water vapours, CH_4 , NH_3 and Oxygen

B. CO_2 , NH_3 and CH_4

C. CH_4 , NH_3 , H_2 and water vapours

D. CH_4 , O_3 , O_2 and water vapours

Answer: C



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3. English scientist who worked on origin of life and settled in india was

A. A.I. oparin

B. Archbishop Usher

C. Louis Pasteur

D. J.B.S Haldane

Answer: D



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4. Gaseous mixture used by miller for synthesis of amino acids through heat and electric discharge included

A. Methane, ammonia, hydrogen and water vapours

B. Methane, ammonia, nitrogen and water vapours

C. Ammonia, carbon dioxide, nitrogen and water vapours.

D. Methane, oxygen, nitrogen and water vapours

Answer: A



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5. Experimental proof that some simple molecules like H_2 , NH_3 , CH_4 and H_2O gases rise to amino acids during origin of life was provided by

A. Lamark

B. Darwin

C. Stanley miller

D. Harold Urey

Answer: C



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6. Earth originated in the past period of about

A. 4.5 billion years

B. 8.0 billion years

C. 3 billion years

D. 1 billion years

Answer: A



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7. The scientist associated with formulation of modern theory of origin of life and having written *Orig. of L* if *e* was

A. Oparin

B. Huxley

C. Lamark

D. Darwin

Answer: D



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8. The most primitive cell-like chemical aggregates capable of growth and division were

A. Chemoautotrophs

B. Eobionts

C. Prokaryotes

D. Microspheres

Answer: D



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9. Choose the correct sequence during formation of chemicals on early earth

A. Ammonia, Water, Nucleic acid, Protein

B. Ammonia, Proteins, Carbohydrates,
Nucleic acid

C. Ammonia, Nucleic acid, Proteins,
Carbohydrates

D. Proteins, Carbohydrate, Water, Nucleic
acid

Answer: B



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10. First photosynthetic organisms to appear on earth were

- A. Bacteria
- B. Green algae
- C. Cyanobacteria
- D. Bryophytes

Answer: C



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11. Oparin's theory is based on

- A. Artificial synthesis
- B. Spontaneous generation
- C. God's creation
- D. Panspermia

Answer: A



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12. Coacervates are

A. Lipoproteins

B. Mixtures of ammonia, carbohydrates and water

C. Colloidal suspensions

D. Fatty acids and nitrogenous compounds

Answer: C



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13. Who demonstrated that life comes from life with the help of flask with boiled broth ?

A. Redi

B. Pasteur

C. Van Helmont

D. Arrhenius

Answer: B



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14. Possible early source of energy was

A. Chlorophyll

B. CO_2

C. UV radiations and lightening

D. Green plants

Answer: C



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15. Theory of origin of life was proposed by

A. Tansley

B. Oparin

C. Darwin

D. Malthus

Answer: B



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16. Which is the most important for origin of life ?

A. Oxygen

B. Water

C. Nitrogen

D. Carbon

Answer: B



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17. Chemical theory for origin of life was given by

- A. Stanley miller
- B. Oparin and Haldane
- C. Spallanzani
- D. Louis Pasteur

Answer: B



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18. Theory of spontaneous creation was supported by

A. Van Helmont

B. Aristotle

C. Spallanzani

D. Pasteur

Answer: B



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19. Which ones are the most essential for origin of life ?

A. Enzymes

B. Proteins

C. Carbohydrates

D. Nucleic acids

Answer: D



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20. Experiment to prove chemical basis of origin of life carried out by Urey and Miller used NH_3 and

A. H_2O and H_2

B. H_2 , CH_4 and H_2O

C. CH_4 and H_2O

D. CH_4 and O_2

Answer: B



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21. Sequence of substances appearing during the origin of life would have been

A. Amino acids, ammonia, phosphates, nucleic acids

B. Ammonia, amino acids, proteins, nucleic acids

C. Nucleotides, amino acids, nucleic acids, enzymes

D. Enzymes, amino acids, proteins, nucleic acids

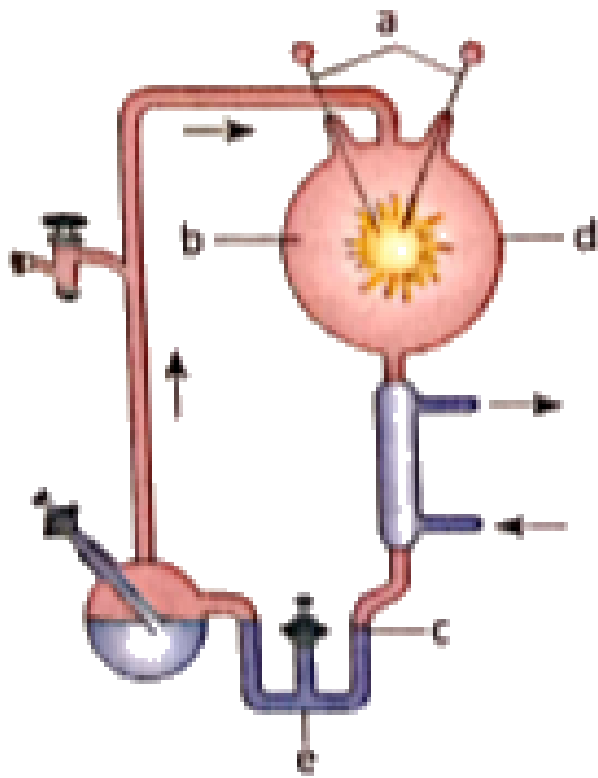
Answer: B



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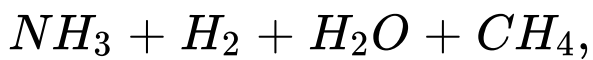
22. The diagram is of muller's experiment.

What is the correct labelling ? ItBRgt



A. a-electrodes,

b-



c-cold

water, d-vessel, e-U-trap

B. a-electrodes,

$b - NH_3 + H_2O + H_2 + CH_4$, c-steam,

d-sink, e-U-trap

C. a-electrodes, $b - NH_3 + CH_4$, c-cold

water, d-sink, e-U-trap

D. a-electrodes, $b - NH_3, H_2, CO_2, CH_4$,

c-hot water, d-vacuum, e-U-trap

Answer: A



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23. A connecting/missing link between reptiles and birds is

A. Archaeopteryx

B. Platypus

C. Java Ape Man

D. Whale

Answer: A



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24. Correct order is

A. Palaeozoic → Archaeozoic →

Coenozoic

B. Archaeozoic → Palaeozoic →

Proterozoic

C. Palaeozoic → Mesozoic → Coenozoic

D. Mesozoic → Archaeozoic →

Proterozoic

Answer: C



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25. The scientist to propose recapitulation theory was

A. Charles Darwin

B. S.L. Miller

C. J.B. Lamarck

D. Haeckel

Answer: D



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26. Evolution is

A. Progressive development of a race

B. History and development of race
alongwith variations

C. History of race

D. Development of race

Answer: B



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27. Homologous organs are

A. Dissimilar origin and dissimilar structures

B. Dissimilar origin but similar functions

C. Similar origin with similar or dissimilar functions

D. Similar origin with dissimilar functions

Answer: C



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28. Vestigial organ of python is

A. Teeth

B. Hind limbs

C. Scales

D. Nose

Answer: B



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29. Birds and mammals evolved during

A. Carboniferous

B. Permian

C. Oligocene-Miocene period

D. Jurassic

Answer: D



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30. Homologous organs are

A. Tails of bird, monkey and scorpion

B. Stings of honey bee, scorpion and fangs
of snake

C. Wings of butterfly, flying fish and bird

D. Paddle of whale, front legs of horse and
arms of humans/legs of duck, hind limbs
of pig, hind limbs of kangaroo

Answer: D



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31. Analogous organs are

- A. Different origin but similar functions
- B. Common origin and common functions
- C. Different origin and different functions
- D. Common origin but different functions

Answer: A



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32. Which one is a vestigial organ in humans ?

A. Iris

B. Nasal epithelium

C. Malleus

D. Pinna muscles

Answer: D



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33. Which one is not a vestigial structure in humans ?

A. Epiglottis

B. Vermiform appendix

C. Wisdom teeth

D. Body hair

Answer: A



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34. Haeckel's recapitulation theory states

- A. Ontogeny repeats phylogeny
- B. High rate of reproduction
- C. Alternation of generations
- D. Inheritance of acquired characters

Answer: A



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35. Archaeopteryx is known as missing/connecting link because it is a fossil and has characters between

- A. Fishes and amphibians
- B. Birds and reptiles
- C. Reptiles and mammals
- D. Chordates and nonchordates

Answer: B



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36. Origin of first mammals occurred

- A. 500 million yrs ago
- B. 220 million yrs ago
- C. 1600 million yrs ago
- D. Over 1600 million yrs ago

Answer: C



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37. Analogous organs are

A. Wings of bird and butterfly

B. Wings of bird and bat

C. Limbs of horse and human

D. Teeth of human and gorilla

Answer: A



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38. Which one is vestigial in human ?

A. Extra-abdominal muscles

B. Body hair

C. Thumb

D. Conjunctiva

Answer: B



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39. Fossils indicate the evolution of

A. Monkey

B. Dinosaur

C. Horse

D. Man

Answer: C



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40. Fossil remains of Archaeopteryx, indicates that

A. It was a flying reptile from Triassic

B. It was a flying reptile from Permian

C. Reptiles gave rise to birds during Permian

D. Reptiles gave rise to birds during jurassic

Answer: D





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41. Study of the fossils comes under

A. Organic evolution

B. Palaeogeography

C. Palaeontology

D. Herpetology

Answer: C



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42. Famous palaeontologist/palaebotanist of india was

A. P. Maheshwari

B. S.R. Kashyap

C. B. Sahni

D. B.P. Pal

Answer: C



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43. Presence of gill slits in the embryos of all vertebrates supports the theory of

A. Organic evolution

B. Biogenesis

C. Metamorphosis

D. Recapitulation

Answer: D



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44. Wings of mosquito, bat and bird show evolution called

A. Divergent

B. Convergent

C. Atavism

D. Parallel

Answer: B



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45. Wings of bat and insect show

A. Analogy

B. Homology

C. Connecting link

D. Atavism

Answer: A



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46. Human hand, wings of bat and flipper of whale represent

- A. Analogous organs
- B. Vestigial organs
- C. Homologous organs
- D. Evolutionary organs

Answer: C



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47. Evolution is

- A. Development of DNA from nucleotides
- B. Development of organism through time
- C. Development of a cell from chemicals
- D. Cloning

Answer: B



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48. A connecting link between two phyla is

A. Archaeopteryx - Aves and Mammalia

B. Amphioxus - Echinodermata and
Chordata

C. Peripatus - Annelida and Arthropoda

D. Ornithorhynchus - Aves and Reptilia

Answer: C



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49. Wings of bat , locust and pigeon are

A. Vestigial organs

B. Exoskeletal structures

C. Homologous organs

D. Analogous organs

Answer: D



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50. Heart is four chambered in

A. Amphibia

B. Fishes

C. Mammals

D. Reptiles

Answer: C



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51. Which one is not vestigial in humans ?

A. Third molar

B. Coccyx

C. Segmental abdominal muscles

D. Finger nails

Answer: D



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52. Origin of life occurred in

A. Carboniferous

B. Cambrian

C. Pre-cambrian

D. Ordovician

Answer: C



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53. Evidences for evolution from fossils belongs to the domain of

A. Biogeography

B. Embryology

C. Palaeontology

D. Anatomy

Answer: C



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54. Study of plant fossils is

A. Paedology

B. Palynology

C. Palaeoinsectology

D. Palaeobotany

Answer: D



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55. Mesozoic era is known as age of

A. Fishes

B. Amphibians

C. Reptiles

D. Molluscas

Answer: C



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56. Reptilian feature of Archaeopteryx is

- A. U-shaped furcula
- B. Beak
- C. Abdominal ribs
- D. Feathers

Answer: C



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57. Which is not vestigial in man ?

A. Tail vertebrae

B. Nails

C. Nictitating membrane

D. Vermiform appendix

Answer: B



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58. Wings of bird and bat are

- A. Homologous with no analogy
- B. Analogous with no homology
- C. Neither homologous nor analogous
- D. Both homologous and analogous

Answer: D



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59. Which one is correct homologous pair ?

A. Wings of bat and butterfly

B. Wings of birds and bat

C. Wings of bird and pectoral fins of fish

D. Eyes of cows and cockroach

Answer: B



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60. Flippers of seal are modified

A. Hind limbs

B. Fore limbs

C. Fins

D. Gills

Answer: B



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61. Potato and sweet potato have edible parts which are

A. Homologous

B. Analogous

C. Recent introductions

D. Two species of the same genus

Answer: B



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62. An important evidence in favour of organic evolution is the occurrence of

- A. Homologous and analogous organs
- B. Homologous and vestigial organ
- C. Analogous and vestigial organs
- D. Homologous organs only

Answer: A



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63. Which is correct ?

A. Wings of birds and insects are homologous

B. *Archaeopteryx lithographica* is connecting link between birds and mammals

C. Paired fins of fish and flippers of whale are analogous

D. Caecum and appendix in rabbit and man
are analogous

Answer: C



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64. *Survival of Fittest* was used by

A. Charles Darwin

B. Herbert Spencer

C. Jean Baptiste Lamarck

D. Hugo de Vries

Answer: A



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65. Neo-Darwinism believes that new species develop through

A. Mutations with natural selection

B. Continuous variations with natural selection

C. Hybridisation

D. Mutations

Answer: A



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66. Theory of Natural selection dwells on

A. Role of environment in evolution

B. Natural selection acting on favourable variations

C. Changes in gene complex resulting in heritable variations

D. Inheritance of acquired characters

Answer: B



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67. Major defect of Darwinism was

A. Nondescription of survival of fittest

B. Nondescription of inheritance of fittest

C. Nondescription of overproduction of young ones

D. Nondescription of reason for variations

Answer: D



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68. Which book was written by Charles Darwin

?

A. Origin of species

B. Species Plantarum

C. Genera Plantarum

D. De Naturien Familien

Answer: A



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69. Darwin is associated with

A. Natural selection

B. Mutations

C. Inorganic evolution

D. All of above

Answer: A



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70. Darwin's Natural selection is based on

A. Use and disuse

B. Inheritance of acquired characters

C. Variations

D. Prodigality, struggle for existence and survival of fittest

Answer: D



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71. Modern theory of organic evolution stresses on

A. Mutation

B. Isolation

C. Population

D. All the above

Answer: D



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72. Darwin wrote *Orig \in of Species* in

A. 1530

B. 1795

C. 1859

D. 1895

Answer: C



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73. Darwin's theory states that

A. Characters are acquired through

inheritance

B. Species change morphologically with

time

C. Nature selects organisms which can adapt

D. Evolution is due to effect of environment

Answer: C



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74. Who proposed that the first form of life could have come from pre-existing non-living organic molecules ?

A. Oparin and Haldane

B. S.L. Miller

C. Hugo de Vries

D. Charles Darwin

Answer: A



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75. Which one among the following is an example for homology ?

A. Tuber of sweet potato

B. Eye of Octopus and mammals

C. Flippers of butterfly and birds

D. Thorn of tendrils of Bougainvillea and Cucurbita.

Answer: D



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Choose More Than One Correct Answer For The Following

1. Which of the following scientists were proposers of chemicals evolution of life ?

A. Miller

B. Oparin

C. Darwin

D. Wagner

Answer: ab



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2. Who among the following are the propounders of theory of spontaneous generations ?

A. Oparin

B. Ritcher

C. Anaximander

D. Aristotle

Answer: cd



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3. Which of the following epochs are part of coenozoic era ?

A. Eocene

B. Mississippian

C. Oligocene

D. Pliocene

Answer: acd



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4. Among the following periods, which of the following belong to palaeozoic era ?

A. Carboniferous

B. Permian

C. Jurassic

D. Triassic

Answer: ab



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5. Which are the evolutionary forms of down horse ?

A. Mesohippus

B. Eohippus

C. Eocene

D. Pliohippus

Answer: abd



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6. Mention the reptilian characters found in Archaeopteryx

A. Claws on the digits

B. Homodont teeth

C. Presence of long tail

D. Crawling movement

Answer: abc



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7. Which of the following are the isotopes of Carbon used in dating of rocks ?



Answer: acd



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8. Which organisms have four chambered heart ?

A. Fishes

B. Reptiles

C. Mammals

D. Birds

Answer: cd



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9. Some vestigial organs of human are

A. Appendix

B. Ear muscle

C. Metacarpals

D. Coccyx

Answer: abd



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10. Scientists who modified the Modern Synthetic Theory are

A. Darwin

B. Huxley

C. Wright

D. mayr

Answer: bcd



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Fill In The Blanks

1. Charles Darwin considered evolution as _____.



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2. _____ proved that living world is divided into many classes.



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3. Oparin and _____ proposed the chemical evolution of life.



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4. Cosmozoic theory was proposed by_____.



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5. Periods are further divided into _____ in the geological time scale.



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6. Eohippus was a small ungulate also called as _____.



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7. Archaeopteryx has both the character of _____ and _____.



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8. _____ is the father of palaeontology.



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9. Theory of Natural Selection was proposed by _____ and _____.



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10. Wagner and _____ believed in geographic isolation as source of variation.



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Mention True Or False

1. Sewall Wright postulated the concept of genetic drift.



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2. de Vries supported the theory of Natural Selection as the prime source of variation.



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3. Evolution is a sudden process.



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4. Oparin opained that coacervate was the first cellular organism.



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5. theory of special creation states that protoplasm was introduced in Earth from outer space.



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6. Microsphere model was proposed by Fox.



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7. Reptiles emerged in the Triassic period.



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8. Amphibians originated in the Devonian.



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9. Runcaria is the missing link in plants.



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10. Cuvier is the father of modern palaeontology.



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Very Short Answer Type Questions

1. Who first discovered fossils and proved the prevalent ideas to be false ?



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2. What did Charles Darwin consider evolution as ?



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3. When did Oparin proposed the concept on origin of life ?



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4. Earth has originated about how many years ago ?



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5. Who had proposed the theory of spontaneous Generation ?



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6. What did Juan Oro produce by mixing hydrogen cyanide and ammonia ?



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7. Give the chemical formula of Glycolic acid ?



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8. Who proposed Microsphere model ?



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9. Era is divided into period but what are periods again divided into ?



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10. Modern man is a part of which era ?



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11. Man emerged in which epoch ?



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12. Which period is called age of gymnosperms ?



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13. Which Era is also known as *Era of dawn of life* ?



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14. Which organism is called the missing link among plants ?



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15. From where was the first fossils of Archaeopteryx discovered ?



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16. What is the study of fossils also known as ?





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17. Who is regarded as the father of paleontology ?



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18. What kind of fossils is the petrified excrete of organisms ?



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19. Name an unusual fossil.



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20. Name a vestigial organ present in human body.



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21. Who proposed recapitulation theory



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22. What kind of protein is cytochromo-C?



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23. How many amino acids are there in the α chain of haemoglobin?



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24. Who, along with Darwin, did propose the theory of natural selection?



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25. What is the phenomenon of survival of the fittest called?



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26. Who postulated the concept of genetic drift?



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27. Who opposed the role of natural selection as the main contributor of evolution?



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28. Name the book written by Charles Darwin explaining Natural selection?



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29. When was Origin of Species published?





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30. What percent of chromosome bands do humans differ from orangutans?



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Short Answer Type Question

1. Define evolution.



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2. What was the ancient belief about the earth and the living world?



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3. What is proposed in the theory of special creation?



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4. Who proposed cosmozoic theory and what does it say about origin of life?



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5. What is meant by Chemosynthetic theory of origin of life ?



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6. Briefly describe the coacervate model.



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7. Name the periods in the paleozoic era (starting from recent) ?



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8. Under how many eons, the time period of earth up to the recent have been divided ?



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9. What kind of flora and fauna was observed in the Jurassic period ?



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10. Name the periods which are also known as : (a) Carboniferous (b) Devonian, (c) Silurian, Ordovician, cambrian (d) Jurassic.



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11. What are the important sources of evidence in favour of biological evolution ?



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12. Mention two features of Archaeopteryx ?



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13. What are trace fossils ?



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14. What are pseudofossils ?



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15. What are analogous organs ?



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16. Give at least two evidences that support the recapitulation theory.



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17. What does the Modern Synthetic theory proposes as the cause of evolution ?



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18. Write an account to describe the atmosphere that prevailed on the earth when first life arose.



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19. Mention the possible steps that has led to the origin of life.



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20. Write the reptilian and avian features of Archaeopteryx.



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21. What are homologous organs ? Describe with examples.



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22. Describe the Recapitulation theory with the help of flowchart.



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23. How can it be stated that

$DN_{Aisthemo} \leq \underline{carl}$ if e ?



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24. What according to Darwin, led to the origin

of new species ?



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25. Describe the microspore model as proposed by Fox.



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26. Describe mould cast and gastrolith fossils.



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27. What are vestigial organs ? Give at least three examples.



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28. What are the reasons of similarity in the embryonic stages of different vertebrates ?



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29. What is meant by uniqueness of protoplasm among all the forms of life present on earth ?



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Long Answer Type Questions

1. Describe the experiment performed by Miller and Urey along with a proper diagram.



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2. Describe the evolution of horse on the basis of paleontological of evidences.



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3. Describe the process of formation of fossils.



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4. How can the age of a rock be determined using radioactive properties of rocks ?



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5. Write an account on how evidences an comparative anatomy can prove the fact of

biological evolution.



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6. Mention the limitations of Darwin's theory of natural selection.



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7. How does modern views contradict the recapitulation theory ?



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8. Give at least five evidences in favour of biological evolution.



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9. State the Hardy Weinberg principle and mention the conditions on which the principle depends.



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