



BIOLOGY

BOOKS - GR BATHLA & SONS BIOLOGY (HINGLISH)

ORGANIC EVOLUTION

Multiple Choice Question

1. Biologists define evolution as :

- A. heritable changes in a line of descent over generations
- B. inheritance of characteristics acquired by the individual
- C. the origin of species
- D. none of the above

Answer: a



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2. Organic evolution means :

- A. history of race
- B. development of race
- C. progressive development of race
- D. history and development of race with variations

Answer: d

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3. What is evolutions ?

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

D. None of the above

Answer: b



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4. Basic idea of evolution is :

A. cosmic evolution

B. special creation

C. spontaneous generation

D. descent with modification

Answer: d



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5. Doctrine of evolution is concerned with :

- A. biogenesis
- B. abiogenesis
- C. gradual changes
- D. special creation theory

Answer: c

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6. Process of evolution is

- A. continuous
- B. discontinuous
- C. continuous in the past but discontinuous presently
- D. discontinuous in the past but continuous presently

Answer: a

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7. Evolution will not occur will if:

- A. genes are without effect
- B. there is no environment influence
- C. somatic variation are not heritable
- D. there are no genetic variations in individuals of a population

Answer: d



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8. Concept of evolution is an excellent working hypothesis to approach the problem of :

- A. matter, energy and life
- B. environment and life
- C. prodigality in reproduction

D. diversity of organisms upon Earth

Answer: d



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9. Diversity of living organisms is due to :

A. mutation

B. gradual changes

C. long term evolutionary change

D. short term evolutionary change

Answer: c



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10. For evolution, the most important requirement is :

A. variations

B. adaptations

C. natural selection

D. development anatomy

Answer: A



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11. Who said "Nothing in biology makes sense except in the light of evolution " ?

A. Hugo de Vries

B. Charles Darwin

C. Theodosius Dobzhansky

D. Jean Baptiste de Lamarck

Answer: c

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12. Who propounded the theory of aquatic or marine origin of life ?

- A. Bonnet
- B. Thales
- C. Aristotle
- D. Erasmus Darwin

Answer: b

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13. Great Chain of Being' was proposed by :

- A. Aristotle
- B. Confucius
- C. Anaxogorus

D. Empedocles

Answer: a



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14. Which of the following deals with the ancient Indian thought on evolution ?

A. Manu Samhita

B. Susruta Samhita

C. Charaka Samhita

D. Taittiriya Upanishad

Answer: a



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15. Who gave the 'Theory of uniformitarianism' ?

A. John Ray

B. William Smith

C. James Hutton

D. Erasmus Darwin

Answer: c



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16. Which one of the following scientists is not related with organic evolution ?

A. D. D. Darlington

B. T. R. Malthus

C. Erasmus Darwin

D. Charles Darwin

Answer: a

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17. Which of the following provides evidence for evolution ?

- A. Direct observation of genetic changes in populations
- B. Shared characteristics of organisms
- C. The fossil record
- D. All of the above

Answer: d

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1. Darwin's finches provide an excellent evidence in favour of evolution.

This evidence comes from the field of :

- A. anatomy
- B. biogeography
- C. embryology
- D. paleontology

Answer: b



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2. Galapagos Islands are located in the :

- A. Pacific Ocean
- B. Atlantic Ocean
- C. Indian Ocean
- D. Mediterranean Sea

Answer: A



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3. Darwin saw that populations of Galapagos finches :

- A. are adapted to different island habitats
- B. resemble birds in South America
- C. show variation in traits
- D. all of the above

Answer: d



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4. The evolution of numerous species, such as Darwin's finches from a single ancestor is called :

- A. gradualism
- B. adaptive radiation
- C. sympatric speciation
- D. geographical isolation

Answer: b

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5. Darwin's finches discovered from the Galapagos Islands serve as a good example of :

- A. mimicry
- B. camouflage
- C. seasonal migration
- D. biogeographical evidence of evolution

Answer: d

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6. Darwin's finches represent

- A. climatic variation
- B. geographical isolation
- C. reproductive isolation
- D. morphological variation

Answer: B

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7. The classical example of adaptive radiation in development of new species is :

- A. Darwin's finches
- B. Marsupials of Australia

C. Both of these

D. None of the above

Answer: C



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8. Who has divided the whole world into six major biogeographical regions or realms for the distribution of animals and plants ?

A. Georges Cuvier

B. Charles Darwin

C. Alfred Russel Wallace

D. August Weismann

Answer: c



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9. Two zoogeographical regions separated by high mountain ranges are :

- A. Oriental and Australian
- B. Palaeartic and Oriental
- C. Nearctic and Palaeartic
- D. Neotropical and Ethiopian

Answer: b



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10. Which of the following animals is fossorial ?

- A. Dodo
- B. Archaeopteryx
- C. Both (a) and (b)
- D. None of these

Answer: d



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11. Parallelism is adaptive :

- A. divergence
- B. convergence of closely related groups
- C. divergence of widely separated species
- D. convergence of widely different species

Answer: b



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12. Tasmanian wolf is a marsupial while wolf is a placental mammal. This shows :

- A. genetic drift
- B. parallel evolution
- C. divergent evolution
- D. inheritance of acquired characters

Answer: b

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13. Egg laying mammals and marsupials are found in Australia and nowhere else. This indicates :

- A. natural barrier
- B. climatic barrier
- C. continuous distribution
- D. discontinuous distribution

Answer: D

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Homologous Organs

1. The study of functional anatomy is called :

- A. tectology
- B. analogy
- C. homology
- D. histology

Answer: A

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2. The organs of different species that are related to each other through common descent through becomes functionally different are called :

A. vestigial

B. analogous

C. homologous

D. none of these

Answer: c



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3. Structures of various animals which are similar in basic plan and development are referred to as :

A. analogous

B. homologous

C. homoplastic

D. homozygous

Answer: B

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4. The organs which look different but have the same basic structure and origin are known as :

A. homologous

B. vestigial

C. heterologous

D. analogous

Answer: A

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5. Organs which have the same fundamental structure but different in functions are called :

A. vestigial organs

B. analogous organs

C. homoplastic organs

D. homologous organs

Answer: d



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6. The term 'homologous ' was introduced by :

A. Richard Owen

B. Andreas Wagner

C. Leonardo da Vinci

D. Alfred Russel Wallace

Answer: a



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7. Homology does not refer to :

- A. divergent evolution
- B. common descent
- C. convergent evolution
- D. adaptive radiation

Answer: c



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8. Homologous organs are :

- A. similar in origin with similar or dissimilar functions
- B. similar in origin which are dissimilar in structures
- C. dissimilar in origin and dissimilar in structures
- D. dissimilar in origin but similar in functions

Answer: A



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9. The homologous organs are wings of :

- A. pigeon and bat
- B. butterfly and bat
- C. sparrow and honeybee
- D. parrot and hands of man

Answer: D



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10. Which of the following are not homologous ?

- A. Insect mouthparts

B. Insect legs

C. Vertebrate forelimbs

D. Bird and insect wings

Answer: d



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11. Which is incorrect gt?

A. Wings of insects and bats are analogous

B. Wings of bats and birds are homologous

C. Wings of insects and birds are analogous

D. Wings of insects and birds are homologous

Answer: d



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12. Which fo the following is a set of homologous organs ?

- A. Wings of grasshopper, flippers of whale
- B. Wings of birds , front feet of horse
- C. Wings of housefly, wings of birds
- D. None of the above

Answer: b



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13. Which one of the following is the correct example of homologous organs ?

- A. Bat's wings and horse's front legs
- B. Human trachea and insect tracheae
- C. Human kidney and earthworm's nephridia
- D. Tendril of cucumber and tendril of Smilax

Answer: A



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14. Below mentioned pairs of structures is considered to be homologous

:

- A. wings of a bird and wing of a moth
- B. tentacles of Hydra and arms of starfish
- C. forelimbs of a bat and forelimbs of a horse
- D. wing of a grasshopper and forelimb of a flying squirrel

Answer: C



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15. Which group includes homologous organs ?

- A. Wings of butterfly, flying fish and bird
- B. Tentacles of Hydra and arms of starfish
- C. Fins of seal, wings of birds and forelimbs of man
- D. Horns of cattle, tail of horse and teeth of mammals

Answer: C

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16. Which of the following are homologous structures ?

- A. Ginger and sweet potato
- B. Wings of bird and butterfly
- C. Nail of man and claw of cat
- D. Trunk of elephant and hand of chimpanzee

Answer: c

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17. Which of the following are homologous organs ?

- A. Hand of man, wings of bat
- B. Eyes of man, eyes of squid
- C. Gills of fish, lungs of man
- D. Leaf of moss, frond of fern

Answer: a



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18. Which one of the following pairs has homologous organs ?

- A. Air bladder of fish and lungs of frog
- B. Wings of a bat and wings of cockroach
- C. Wings of a bird and wings of a butterfly

D. Pectoral fins of a fish and forelimbs of a horse

Answer: a



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19. Which of the following sets of structures include all homologous organs ?

A. Wings of bat, pigeon and locust

B. Nemotocyst, trichocyst and sporocyst

C. Hindlegs of dog, penguin and kangaroo

D. Nephridia, Malpighian tubules and uriniferous tubules

Answer: c



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20. Thorn of Bougainvillea and tendril of Cucurbita are examples of :

- A. vestigial organs
- B. analogous organs
- C. homologous organs
- D. retrogressive evolution

Answer: c



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21. Evolution of diversified species due to environmental changes is called

:

- A. divergent evolution
- B. evolutionary inertia
- C. convergent evolution
- D. none of these

Answer: a



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22. Homologous organs exhibit `:

- A. evolution
- B. divergent evolution
- C. origin of mammals
- D. convergent evolution

Answer: b



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23. Being all mammals, whale, dolphins, bat, monkey and horse have some common character but they also show conspicuous differences. This is due to phenomenon of

A. divergence

B. genetic drift

C. convergence

D. normalization

Answer: a



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24. The evidence for the origin of birds from reptiles is the presence in them of :

A. hairs

B. claws

C. scales

D. feathers

Answer: c

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25. Which of the following are homologous organs ?

- A. Wings insects and bats
- B. Fins of fishes and flippers of whale
- C. Fins of fishes and forearms of human
- D. Forearm of human , bat's wings and whale's flippers

Answer: D

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26. Hand of man, wing of bat and flipper of seal represent :

- A. vestigial organs
- B. analogous organs
- C. evolutionary organs

D. homologous organs

Answer: D



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27. Your arm is homologous to :

A. wing of a bird

B. flipper of a seal

C. tentacle of Octopus

D. both (a) and (b)

Answer: d



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28. Flippers of seal are modified :

A. fins

B. gills

C. forelimbs of a bat and forelimbs of a horse

D. hindlimbs

Answer: c



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29. Animals that possess homologous organs probably :

A. are not related

B. are headed for extinction

C. have increased genetic diversity

D. evolved from a common ancestor

Answer: D



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30. The fact that the flipper of a whale and the arm of a human both have five digits and the same kind of bones illustrates that :

- A. humans evolved from whales
- B. whales evolved from humans
- C. genetic drift can cause the evolution of populations
- D. organisms can share characteristics simply because they share a common ancestor.

Answer: d

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Analogous Organs

1. Analogous structures are :

- A. similar in origin and function
- B. different in origin and function
- C. different in origin but similar in function
- D. similar in origin but different in function

Answer: c

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2. Analogous organs are :

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

Answer: A

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3. What are analogous ?

- A. When two organs have the same fundamental structure
- B. When two organs have the same mode of development
- C. When two organs have the same function or use
- D. None of the above

Answer: c



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4. Analogous organs are also known as :

- A. vestigial organs
- B. homoplastic organs
- C. evolutionary organs

D. underdeveloped organs

Answer: b



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5. Analogy is found between :

- A. wings of birds and bats
- B. wings of bat and butterfly
- C. hands of man and flippers of whale
- D. hands of man and forelimbs of horse

Answer: b



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6. Which of the following are analogous organs ?

- A. Wings of bird and bat
- B. Wings of insect and bird
- C. Forelegs of horse and arms of man
- D. Flippers of whale and forelimbs of man

Answer: b

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7. Which pair of organs are analogous in nature ?

- A. Gill of fish and gill of prawn
- B. Ear of frog and ear of rabbit
- C. Arm of man and limb of horse
- D. Wing of bat and flipper of seal

Answer: A

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8. Which of the following pairs is correct ?

- A. Bats wing and insect wing are analogous
- B. Seal flippers and bats paw are homologous
- C. Insect wing and bird wing are homologous
- D. Thorn of Bougainvillea and tendril of pea are analogous

Answer: a



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9. Which of the following are not analogous organs ?

- A. Stings of honeybee and scorpion
- B. Fins of fishes and flippers of whales
- C. Wings of insect and wings of pterosaur

D. Thron of Bougainvillea and tendril and Cucurbita

Answer: d



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10. Eyes of an Octopus and mammals appear quite similar, but these are different in their basic structure and origin, hence they are :

A. ancestral organs

B. analogous organs

C. homologous organs

D. both homologous and analogous organ

Answer: b



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11. Similarity in organisms with different genotypes indicates :

- A. microevolution
- B. divergent evolution
- C. macroevolution
- D. convergent evolution

Answer: d



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12. Which type of evolution is shown by wings of bat, mosquito and pigeon ?

- A. divergent evolution
- B. Atavism
- C. convergent evolution
- D. Vestigial organs

Answer: C



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13. Convergent evolution of two species is associated with :

- A. different habitat
- B. analogous organs
- C. homologous organs
- D. recent common ancestor

Answer: b



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14. Evolutionary convergence is the development of :

- A. common set of characters in groups of different ancestry

B. common set of character in closely related groups

C. dissimilar characters in closely related groups

D. random mating

Answer: A



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15. In evolution, the resemblance between widely different animals due to common adaptation may referred to as an example of :

A. molecular analogy

B. convergent evolution

C. molecular homology

D. homoplastic appearance

Answer: b



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16. Convergent evolution is shown by :

- A. rabbit and dog
- B. starfish and jellyfish
- C. fish and whale
- D. bacteria and Amoeba

Answer: C



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17. Morphological convergence may lead to :

- A. divergent structures
- B. analogous structures
- C. homologous structures
- D. both (a) and (c)

Answer: b



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18. Which one of the following options gives one correct example each of convergent evolution and divergent evolution ?

A.

Convergent evolution

Thorns of Bougainvillea and tendrils of Cucurbita

Divergent evolution

Wings of butterfly and birds

B.

Convergent evolution

Bones of forelimbs of vertebrates

Divergent evolution

Wings of butterfly and birds

C.

Convergent evolution

Eyes of Octopus and mammals

Divergent evolution

Bones of forelimbs of vertebrates

D.

Convergent evolution

Thorns of Bougainvillea and tendrils of Cucurbita

Divergent evolution

Eyes of Octopus and mammals

Answer: c



Vestigial Organs

1. What are vestigial organs ?

- A. Organs of many uses
- B. Organs of no use to the possessor
- C. Organs present in the ancestors but absent now
- D. Present in the recent origins but absent in ancestors

Answer: B

2. Vestigial organs are all :

- A. analogous

B. homologous

C. rudimentary

D. physiologically important organs

Answer: c



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3. The credit for listing over 100 vestigial organs in man goes to :

A. Huxley

B. Darwin

C. Lamarck

D. Weidershim

Answer: d



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4. Which of the following is a vestigial structure in man ?

A. Intestine

B. Ear pinna

C. Wisdom tooth

D. Muscle of glottis

Answer: c



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5. Which one is vestigial in humans ?

A. Pinna

B. Nails

C. Eyelids

D. Canine teeth

Answer: D



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6. Which one is vestigial in humans ?

- A. Thumb
- B. Body hairs
- C. Conjunctiva
- D. Extra-abdominal muscles

Answer: b



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7. Which set includes all vestigial structures of man ?

- A. Ear muscle, atlas, body hair

- B. Coccyx, wisdom tooth, patella
- C. Coccyx, wisdom tooth, ear muscle
- D. Vermiform appendix, body hairs, cochlea

Answer: c



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8. Examples of vestigial organs in the human body are :

- A. wisdom tooth, coccyx, vermiform appendix, nail
- B. coccyx, wisdom tooth, vermiform appendix, auricular muscles
- C. coccyx, vermiform appendix, wisdom tooth, pancreas
- D. auricular muscles, coccyx, nail, wisdom tooth

Answer: b



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9. Which of the following sets are vestigial structures in man ?

- A. Hair, olecranon process, coccyx and vermiform appendix
- B. Wisdom tooth, mammary glands, coccyx and patella
- C. Coccyx, nictitating membrane, appendix and ear muscles
- D. Hair, ear ossicles, patella and atlas

Answer: c



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10. Which one of the following is not a vestigial structure in Homo sapiens ?

- A. Epiglottis
- B. Third molar
- C. Plica semilunaris
- D. Pyramidalis muscle

Answer: a



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11. This is not an example of vestigial organ in humans :

- A. External ear
- B. Intesting
- C. Wisdom teeth
- D. Pyramidalis muscle

Answer: b



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12. Which of the following is not a vestigial organ in man ?

- A. Nail

B. Tial vertebra

C. Wisdom tooth

D. Vermiform appendix

Answer: A



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13. An example of vestigial organ is :

A. ear of cow

B. hair of bear

C. nail of monkey

D. nictitating membrane of man

Answer: D



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14. Which of the following is examples of vestigial structure ?

- A. Your kneecap
- B. Your tail tail bone
- C. Your ear pinna
- D. Sixth finger found in some humans

Answer: B



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15. Which one of the following is a vestigial organ in man ?

- A. Pinna
- B. Eyelid
- C. Cochlea
- D. Vermiform appendix

Answer: d



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16. Which one is a vestigial organ in humans ?

A. Iris

B. Malleus

C. Pinna muscles

D. Nasal epithelium

Answer: c



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17. Vestigial organ of python is :

A. nose

B. teeth

C. scales

D. girdle

Answer: d



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18. Snakes do not possess legs because :

A. its ancestors have no legs

B. lizards do not possess legs

C. legs were lost when snakes burrow

D. legs were degenerated during evolution

Answer: d



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19. Which is a set of evidences of evolution ?

- A. Homologous and analogous organs
- B. Homologous and vestigial organs
- C. Analogous and vestigial organs
- D. All of the above

Answer: d



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Connecting Links

1. Which protozoan resembles the ancestral form from which the plants and animals evolved ?

- A. Amoeba
- B. Euglena

C. Plasmodium

D. Paramecium

Answer: B



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2. A connecting link between Protozoa and Porifera is :

A. Euglena

B. Protopterus

C. Proterospongia

D. Chlamydomonas

Answer: c



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3. Which of the following is a connecting link between two phyla ?

- A. Echidna
- B. Peripatus
- C. Chameleon
- D. Archaeopteryx

Answer: b



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4. Peripatus is a connecting link between :

- A. annelids and molluscs
- B. reptiles and mammals
- C. annelids and arthropods
- D. annelids and helminthes

Answer: c



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5. Peripatus resembles an arthropod in having :

- A. paired appendages
- B. dorsal ostiated heart
- C. ciliated reproductive tract
- D. segmented metanephridia

Answer: B



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6. Connecting link between annelids and molluscs is :

- A. Limulus

B. Peripatus

C. Neopilina

D. Periplaneta

Answer: c



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7. Connecting link between Echinodermata and Chordata is :

A. Peripatus

B. Archaeopteryx

C. Balanoglossus

D. None of these

Answer: C



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8. Eusthenopteron connects :

- A. reptiles and birds
- B. birds and mammals
- C. fishes and amphibians
- D. amphibians and reptiles

Answer: c



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9. Assertion (A) : Amphibians have evolved from fishes .

Reason (R) : Archaeopteryx is a fossil linking fishes and amphibians :

- A. Both (A) and (R) are true and (R) is the correct explanation of (A).
- B. Both (A) and (R) are true but (R) is not the correct explanation of (A)
- C. (A) is true statement but (R) is false

D. Both (A) and (R) are false

Answer: c



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10. Missing link in evolution is :

A. Limulus

B. Peripatus

C. Pheretima

D. Archaeopteryx

Answer: D



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11. Fossil remains of Archaeopteryx indicates that :

- A. it was a flying reptile from Permian period
- B. it was a flying reptile from Triassic period
- C. reptiles gave rise to birds during Jurassic period
- D. reptiles gave rise to birds during Permian period

Answer: C

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12. Archaeopteryx is a connecting link between :

- A. reptiles and birds
- B. fish and amphibian
- C. birds and mammals
- D. amphibians and birds

Answer: A

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13. Which is not true of Archaeopteryx ?

- A. Tail is bony and long
- B. Jaws are modified into beak
- C. Forelimbs are modified into wings
- D. Connecting link between birds and mammals

Answer: D



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14. Reptilian feature of Archaeopteryx :

- A. V-shaped furucula
- B. Presence of beak
- C. Feathers with barbules

D. Presence of abdominal ribs

Answer: D



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15. Which one is not a connecting link ?

A. Peripatus

B. Kangaroo

C. Neopilina

D. Archaeopteryx

Answer: B



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16. Which one represents a connecting link as an evidence from comparative anatomy in a favour of organic evolution ?

- A. Whale between fishes and mammals
- B. Archaeopteryx between birds and mammals
- C. Duck-billed platypus between reptiles and mammals
- D. Java apeman between modern man and Peking man

Answer: c



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17. Which living connecting link is an evidence of organic evolution ?

- A. Lung fishes between fishes and reptiles
- B. Archaeopteryx between reptiles and birds
- C. Coelacanth between pisces and amphibians
- D. Tachyglossus between reptiles and mammals

Answer: d



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18. During the course of evolution the prototherians have evolved from :

- A. birds
- B. reptiles
- C. eutherians
- D. amphibians

Answer: B



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Living Fossils

1. Which of the following is a living fossil ?

- A. Frog
- B. Rabbit
- C. Sphenodond
- D. Heloderma

Answer: C

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2. Which is a living fossil ?

- A. Limulus
- B. Sphenodon
- C. Coelacanth
- D. All of these

Answer: d

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3. Which of the following is known as living fossil ?

- A. Lepidosiren
- B. Latimeria
- C. Lepidosteus
- D. Neoceratodus

Answer: B



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4. Which of the following is a living fossil ?

- A. Nautilus
- B. Cheetah
- C. Trilobites

D. Archaeopteryx

Answer: a



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Atavism

1. Appearance of some ancestral traits in certain individuals of a species is called :

- A. analogy
- B. reversion
- C. homology
- D. recapitulation

Answer: b



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2. Atavism in man means :

- A. appearance of new characters
- B. evolution of existing characters
- C. appearance of ancestral characters
- D. loss of some pre-existing characters

Answer: c



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3. Which of the following is not an atavistic character ?

- A. Dense body hairs
- B. Enlarged canines
- C. Presence of six fingers
- D. Presence of tail in some babies

Answer: c



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4. A baby has been born with a small tail. It is case exhibiting :

- A. atavism
- B. mutation
- C. metamorphosis
- D. retrogressive evolution

Answer: A



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5. Appearance of profuse hairs on the body and face of iris dogman is an example of :

- A. atavism
- B. mutation
- C. recapitulation theory
- D. retrogressive metamorphosis

Answer: A

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Embryology

1. Evolutionary history of a group of organisms is called :

- A. ontogeny
- B. taxonomy
- C. systematics
- D. phylogeny

Answer: d



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2. The rules of embryonic development were given by :

A. Mendel

B. Haeckel

C. Von Baer

D. Darwin

Answer: C



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3. Recapitulation theory was proposed by :

A. Wallace

B. Cuvier

C. Weismann

D. Haeckel

Answer: d



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4. Haeckel's theory of recapitulation states that :

A. regeneration

B. ontogeny repeats phylogeny

C. progeny of an organism resembles its parents

D. all organisms begin their life with a single cell

Answer: b



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5. "Ontogeny recapitulated phylogen" is the brief definition of :

- A. Darwinism
- B. Ambio genesis
- C. Biogenetic law
- D. Mutation theory

Answer: c



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6. During embryonic period, animals repeat embryonic stages of their ancestors. This law is called :

- A. Florkin's law
- B. Biogenetic law
- C. Anaximander's law
- D. Hardy-Weinberg's law

Answer: B



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7. The biogenetic law was proposed by :

- A. F. Redi
- B. Richter
- C. Weismann
- D. Haeckel

Answer: d



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8. The biogenetic law is based on :

- A. fossils evidences

B. genetic evidences

C. biochemical evidences

D. embryological evidences

Answer: d



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9. The biogenetic law is no longer acceptable because it holds among other things that :

A. recapitulation of phylogeny in ontogeny is never complete

B. embryos resemble the ancestral adults of evolutionary stages

C. resemblances, if any, are between embryos and not between embryos

and adults of evolutionary stages

D. pharyngeal pouches and aortic arches are notable examples of

recapitulation in the vertebrate series

Answer: C



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10. Which one of the following characters provides a strong evidence in support of organic evolution ?

- A. Gill clefts in vertebrate embryos
- B. Wings in insects, birds and bats
- C. Excretory organs of earthworm and frog
- D. Jointed legs in arthropods and in mammals

Answer: a



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11. The presence of gill slits in the embryos of all vertebrates supports the theory of :

- A. biogenesis
- B. metamorphosis
- C. recapitulation
- D. organic evolution

Answer: c

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12. The theory of recapitulation means that :

- A. all animals start as an egg
- B. body parts once lost are regenerated
- C. progeny of an organism resembles its parents
- D. life history of an animal reflects its evolutionary history

Answer: d

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13. A good example of recapitulation theory is :

- A. canine teeth of dog
- B. tadpole larva of frog
- C. placenta of mammals
- D. embryonic membrane of reptiles

Answer: b



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14. Presence of gills in the tadpole of frog indicates that :

- A. frogs evolved from gilled ancestors
- B. fishes were amphibious in the past
- C. fishes evolved from frog-like ancestors

D. frogs will have gills in future

Answer: a



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Physiology And Biochemistry

1. Cytochrome-x was used as an evidence for organic evolution by :

A. Krebs

B. Nutall

C. Calvin

D. Dickerson

Answer: D



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2. Antiserum is a serum containing :

- A. antigens
- B. antibodies
- C. leucocytes
- D. none of these

Answer: b



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3. The precipitation method of blood test for finding out the interrelationship among different animals was conducted by :

- A. Nutall
- B. Cuvier
- C. Haeckel
- D. Landsteiner

Answer: a



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4. In mammals, melanocyte stimulating hormone is a :

- A. steroid hormone
- B. vestigial hormone
- C. effective hormone
- D. none of these

Answer: b



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5. All organisms share the same genetic code. This supports that :

- A. evolution occurs gradually

B. evolution is occurring now

C. life began a long time ago

D. all organisms are descended from a common ancestor

Answer: d



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Palaeontology

1. The most direct evidence of organic evolution is :

A. fossils

B. embryos

C. morphology

D. vestigial organs

Answer: A



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2. Fossils are of great value in support of :

- A. mutation
- B. use and disuse
- C. organic evolution
- D. inheritance of acquired characters

Answer: C



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3. Fossils are remnants of :

- A. dead organisms
- B. extinct organisms
- C. connecting links

D. present organisms

Answer: b



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4. Fossil evidence of evolution is called :

A. anatomy

B. embryology

C. palaeontology

D. biogeography

Answer: c



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5. Palaeontology is the science that deals with :

- A. extinct life
- B. developing embryo
- C. evolution of life
- D. pollen development

Answer: A

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6. Study of palaeontology is associated with :

- A. fossils evidences
- B. birds and mammals
- C. primates
- D. bones

Answer: a

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7. Fossil are studied for

- A. tracing evolutionary history of organisms
- B. studying extinct organisms
- C. providing jobs to scientist
- D. both (a) and (b)

Answer: d



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8. Which one provides direct and solid evidence in favour of organic evolution through ages ?

- A. Atavism
- B. Palaeontology
- C. Vestigial organs

D. Galapagos Island fauna

Answer: B



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9. Geology and Zoology are intimately connected in :

A. archaeology

B. sociology

C. palaeontology

D. zoogeography

Answer: c



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10. Fossilization refers to :

- A. organisms eaten by predators
- B. organisms destroyed by calamities
- C. organisms destroyed by scavengers
- D. animals buried and preserved by natural process

Answer: d

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11. Fossilization would occur when flora and fauna are buried by :

- A. natural processes
- B. industrial processes
- C. Both (a) and (b)
- D. none of the above

Answer: a

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12. Existence of coal or petroleum can be known from the study of :

- A. ecology
- B. bacteriology
- C. economic botany
- D. palaeobotany

Answer: D



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13. The study of plant fossil is called :

- A. palynology
- B. paedology
- C. palaeobotany

D. palaeoinsectology

Answer: c



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14. Birbal Sahni was a :

A. zoologist

B. ornithologist

C. palaeobotanist

D. founder of Central Drug Research Institute (CDRI)

Answer: C



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15. BirBal Sahni worked on :

A. algae

B. bryophytes

C. fossil plants

D. angiosperms

Answer: C



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16. Birbal Sahni Institute of Palaeobotany is situated in :

A. Kolkata

B. Kanpur

C. New Delhi

D. Lucknow

Answer: d



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17. Founder of modern palaeontology is :

- A. Th. Dobzhansky
- B. Julian Huxley
- C. Georges Cuvier
- D. Ernst Haeckel

Answer: c



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18. The fossils are preserved in :

- A. sedimentary rocks
- B. igneous rocks
- C. metamorphic rocks

D. none of these

Answer: A



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19. Fossils contents of the alimentary canal are known as :

A. casts

B. trails

C. coprolites

D. impressions

Answer: C



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20. In the history of animal science, the person who for the first time recognized the importance of fossils as evidence of evolution was :

- A. Leonardo da Vinci (1452-1519)
- B. Baron Georges Cuvier (1769-1832)
- C. Charles Robert Darwin (1809-1882)
- D. Jean Baptiste de Lamarck (1744-1829)

Answer: a



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21. What conclusion is drawn about stratification of a fossil ?

- A. Upper strata are recent and lower are older
- B. Reverse of (a)
- C. No stratification takes place
- D. None of the above

Answer: a



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22. Which of the following best describes strata ?

- A. Sedimentary rock layers that contain fossils
- B. Sedimentary rock layers that all date from the same historical time
- C. Molten rock that contains radioactive material and is dangerous to the health of humans
- D. All of the above are correct

Answer: a



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23. Fossil X is older than fossil Y because :

- A. fossil Y was found in deeper sedimentation
- B. fossil X was found in deeper sedimentation
- C. fossil Y has some vestigial organs functional in X
- D. fossil Y has homologous and analogous organs of X

Answer: b

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24. The oldest fossils usually :

- A. have the longest half-lives
- B. are found in the deepest strata
- C. are found above younger fossils
- D. contain more radioactive isotopes than younger fossils

Answer: b

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25. The type of fossil where hard parts like bones, teeth or trunk of trees are preserved :

- A. mould
- B. petrification
- C. compression
- D. pseudofossil

Answer: b



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26. Ammonites fossil shell remains of

- A. gastropods
- B. scaphopods
- C. pelecypods

D. cephalopods

Answer: D



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27. The fossil record :

A. is not complete

B. documents the history of life

C. provides examples of the evolution of major new groups of organisms

D. all of the above

Answer: d



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28. Match the terms listed under column I with the description given under column II, choose the answer which give the correct combination of the alphabets of the two columns :

(GRB_OBJ_BIO_IIND_C56E01₁₇₁ – Q01)

A. A=s,B=q,C=r,D=p

B. A=r,B=s,C=p,D=q

C. A=s,B=r,C=q,D=p

D. A=r,B=q,C=s,D=p

Answer: b



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29. After the extinction of the dinosaurs, mammals evolved rapidly into many new forms because of :

A. genetic drift

- B. founder effect
- C. a genetic bottleneck
- D. adaptive radiation

Answer: d

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30. We know much about fossil fishes, snails and corals, but not much about ancient seaweeds. Why do you suppose this is the case ?

- A. Seaweeds were too soft to fossilize well
- B. There were no seaweeds in the ancient oceans
- C. Plants moved onto land leaving only animals in the sea
- D. A mass extinction wiped out the seaweeds, but animals survived

Answer: a

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31. The history of life shows that :

A. extinctions have little effect on the diversity of life

B. the diversity of life has remained constant for about 400 million years

C. macroevolution can be understood solely in terms of the evolution of populations

D. macroevolution is greatly influenced by mass extinctions and evolutionary radiations

Answer: d



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1. The materials used in determining the age of fossil is :

- A. iodine
- B. sulphur
- C. carbon
- D. radioactive carbon

Answer: d



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2. Fossils are dated by :

- A. amount of calcium
- B. stratigraphic age
- C. association with mammals
- D. radioactive carbon content

Answer: d



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3. Nobel Prize winner for 'Radioactive Carbon method' I :

A. Boltwood

B. W.F. Libby

C. C. Fuhlrott

D. Richard Leakey

Answer: b



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4. Which of the following is used for dating fossils ?

A. H^5

B. C^{14}

C. Sr^{90}

D. I^{125}

Answer: b



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5. Half-life of ^{14}C is :

A. 5568 years

B. 10,050 years

C. 1000 years

D. 50,000 years

Answer: A



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6. Carbon dating is best suited for determining the age of fossils of their age in years is of the order of

A. 10^3

B. 10^4

C. 10^5

D. 10^6

Answer: C



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7. Our best estimate for the age of Earth, 4.5 billion years, is supported by :

A. Gradualism

B. Big Bang theory

C. Assumption of uniformitarianism

D. Radioactive dating of the oldest rocks found

Answer: D



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8. Age of fossils in the past was generally determined by radiocarbon method and other methods involving radioactive elements found in the rocks. More precise methods, which were used recently and led to the revision of the evolutionary periods for different groups of organisms, includes

- A. study of the conditions of fossilization
- B. study of carbohydrates / proteins in rocks
- C. study of carbohydrates / proteins in fossils
- D. electron-spin resonance (ESR) and fossil DNA

Answer: d



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9. Which of the following is the relatively most accurate method for dating of fossils ?

- A. Uranium - lead method
- B. Radio - carbon method
- C. Potassium - argon method
- D. Electron - spin resonance method

Answer: D

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Geological Time Scale

1. Correct order is :

A. Palaeozoic → Mesozoic → Coenozoic

B. Mesozoic → Archaeozoic → Proterozoic

C. Palaeozoic → Archaeozoic → Coenozoic

D. Archaeozoic → Palaeozoic → Proterozoic

Answer: A



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2. The largest subdivision in geological time - scale is :

A. era

B. period

C. epoch

D. century

Answer: A



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3. As evident from fossil records which era has no life ?

- A. Azoic
- B. Palaeozoic
- C. Coenozoic
- D. Proterozoic

Answer: a



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4. Both prokaryotic and eukaryotic fossils are found in :

- A. azoic
- B. coenozoic
- C. proterozoic
- D. archaeozoic

Answer: D



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5. Archaeozoic era is considered as the age of :

- A. fishes
- B. protists
- C. marine life
- D. amphibians

Answer: b



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6. Which of the is mismatched ?

- A. Coenozoic — grasses and humans

- B. Mesozoic – Cycads and dinosaurs
- C. Palaeozoic – prokaryotes and unicellular eukaryotes
- D. Cambrian – marine organisms with external skeletons

Answer: c



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7. Which era is dubbed as the age of prokaryotic microbes ?

- A. Archean
- B. Proterozoic
- C. Phanerozoic
- D. Precambrian

Answer: b



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8. Trilobites evolved during :

- A. silurian
- B. cambrian
- C. ordovician
- D. precambrian

Answer: b



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9. Trilobites became extinct in :

- A. permian
- B. jurassic
- C. carboniferous
- D. devonian

Answer: a



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10. Eurypterids were extinct :

- A. birds
- B. reptiles
- C. mammals
- D. arthropods

Answer: d



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11. First developed vertebrates on the Earth were :

- A. placoderms

B. ostracoderms

C. cyclostomates

D. chondrichthyes

Answer: b



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12. The earliest known jawless fossil vertebrates with heavy armour or dermal plates are collectively called the :

A. arthrodira

B. placoderms

C. acanthodii

D. ostracoderms

Answer: D



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13. First vertebrates appeared in :

A. permian

B. silurian

C. ordovician

D. cambrian

Answer: C



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14. Palaeozoic era is the era of :

A. fishes

B. birds

C. mammals

D. reptiles

Answer: a



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15. Which of the following is called 'age of fish' ?

- A. silurian
- B. Permian
- C. Devonian
- D. Cretaceous

Answer: c



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16. The fossil record of placoderms is found in the era :

- A. mesozoic

B. coenozoic

C. archaeozoic

D. palaeozoic

Answer: D



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17. Ancestral amphibians were tetrapods that evolved during :

A. devonian period

B. jurassic period

C. carboniferous period

D. cretaceous period

Answer: A



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18. Present day amphibians originated from :

- A. Cotylosaurs
- B. Dinosaurs
- C. Stegocephalia
- D. Ostracoderms

Answer: C



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19. Carboniferous period of coal deposition was :

- A. 50 million years ago
- B. 300 million years ago
- C. 500 million years ago
- D. 2000 million years ago

Answer: b



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20. The coal beds of the present time were formed during :

A. devonian

B. triassic

C. carboniferous

D. permian

Answer: c



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21. Stem replies were :

A. Ichthyosaurs

B. Pterosaurs

C. Amphibians

D. Cotylosaurs

Answer: d



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22. The greatest evolutionary change enabling the land vertebrates to be completely free from water , was the development of

A. lungs

B. four legs

C. four chambered heart

D. cleidoic eggs and internal fertilization

Answer: d



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23. Mesozoic era is the age of :

A. birds

B. fishes were amphibious in the past

C. reptiles gave rise to birds during Jurassic period

D. mammals

Answer: C



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24. Dinosaurs were :

A. first mammals

B. extinct reptiles

C. giant mammals

D. first amphibians

Answer: B



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25. Dinosaurs originated :

- A. long before mammals
- B. some time after mammals
- C. in the same period along with mammals
- D. before mammals and gave rise to them

Answer: c



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26. If you want to see a dinosaur, it would be best to set the controls of your time machine for the :

- A. mesozoic era
- B. precambrian era
- C. palaeozoic era
- D. pleistocene period

Answer: a

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27. The dinosaurs were maximum during the period :

- A. triassic
- B. Jurassic
- C. cretaceous
- D. palaeocene

Answer: b

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28. In which of the following periods dinosaurs were maximum developed ?

- A. mesozoic
- B. coenozoic
- C. palaeozoic era
- D. proterozoic

Answer: A



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29. Dinosaurs became extinct in

- A. jurassic
- B. triassic
- C. permian

D. cretaceous

Answer: D



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30. Living organism with oldest history is :

A. Man

B. Horse

C. Dinosaur

D. Archaeopteryx

Answer: C



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31. In which era reptiles were dominated ?

- A. Mesozoic era
- B. Coenozoic era
- C. palaeozoic era
- D. Archaeozoic era

Answer: A

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32. Golden age of reptile was :

- A. mesozoic era
- B. Coenozoic era
- C. palaeozoic era
- D. proterozoic era

Answer: A

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33. The Jurassic period belongs to the era :

- A. cenozoic
- B. mesozoic
- C. palaeozoic
- D. archaeozoic

Answer: b



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34. The late Mesozoic era (Cretaceous period) was characterized by :

- A. rise of dinosaurs, arise of toothed birds and rise to flowing plants
- B. extreme specialization of reptiles, extinction of great reptiles and extinction of toothed birds

C. rise of archaic mammals, rise of dinosaurs and appearance of toothed birds

D. extinction of archaic mammals, rise of birds and appearance of first dinosaurs

Answer: b

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35. The cause of the extinction of Mesozoic reptiles were :

A. loss of tropical and subtropical vegetation

B. decline of herbivorous stock

C. climatic changes

D. all of the above

Answer: D

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36. The extreme specialization and extinction of great reptiles occurred in

:

A. permian

B. triassic

C. jurassic

D. cretaceous

Answer: d



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37. A flying reptile was :

A. Pterosaur

B. Plesiosaur

C. Bronotosaurus

D. Ichthyosaur

Answer: a



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38. Which one of the these was a flying dinosaur ?

A. Triceratops

B. Stegosaurus

C. Pteranodon

D. Tyrannosaurus

Answer: d



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39. Fossil evidence for mammal-like reptiles date to :

A. triassic

B. permian

C. cretaceous

D. carboniferous

Answer: A

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40. Rocky mountain revolution was succeeded by :

A. azoic era

B. mesozoic era

C. coenozoic era

D. proterozoic era

Answer: c

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41. Which era could be called the "age of mammals and birds " ?

- A. Palaeozoic
- B. Mesozoic
- C. Cretaceous
- D. Coenozoic

Answer: d



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42. The scientist, who described the birds as glorified reptiles was :

- A. Romer
- B. Huxley
- C. Medel

D. Robert Hooke

Answer: B



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43. Fossil reptile having mammalian traits was :

A. Peripatus

B. Pelycosaurus

C. Tyrannosaurus

D. Archaeopteryx

Answer: B



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44. Ancestors of mammals belongs to :

A. chelonia

B. silusidea

C. therapsida

D. ornithischia

Answer: c



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45. The first mammal appeared in :

A. jurassic period

B. triassic period

C. permian period

D. cretaceous period

Answer: b



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46. Origin of first mammals occurred :

- A. 200 million years ago
- B. 1000 million years ago
- C. over 500 million years ago
- D. over 1600 milion years ago

Answer: A



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47. Prototherians have evolved from

- A. birds
- B. reptiles
- C. eutherians

D. all of these

Answer: b



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48. A recently extinct animal :

A. Dodo

B. Dinosaur

C. Mammoth

D. Pterodactyl

Answer: a



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49. Which animal has become extinct recently ?

A. Draco

B. Dinosaur

C. Mammoth

D. Pteridosperms

Answer: c



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50. Mommoths were the extinct :

A. camels

B. horses

C. dinosaurs

D. elephants

Answer: d



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51. Hoofed animals like horse originated in :

- A. Eocene epoch
- B. Oligocene epoch
- C. Miocene epoch
- D. Pleistocene epoch

Answer: a



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52. Hyracotherium refers to the ancestral :

- A. ape
- B. man
- C. horse

D. elephant

Answer: c



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53. Fossil record is most complete in :

A. Man

B. apes

C. primates

D. horse

Answer: d



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54. Birth palce of horse was :

A. Africa

B. Australia

C. New Zealand

D. North America

Answer: d



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55. The earliest known ancestor of the present day horse was :

A. Equus

B. Eohippus

C. Mesohippus

D. Merychippus

Answer: b



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56. Which of the following is the correct order of evolution ?

- A. Amoeba- Leucosolenia- Hydra -Ascaris
- B. Leucosolenis- Hydra-Amoeba-Ascaris
- C. Ascaris-Amoeba-Leucosolenia-Hydra
- D. None of the above

Answer: a



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57. Age of man' in geology is :

- A. mesozoic
- B. proterozoic
- C. coenozoic

D. psychozic

Answer: d



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58. Which of the following matches an event in the history of life with the correct geological era ?

A. First mammal – Precambrian

B. Appearance of humans – Mesozoic

C. Dominance of dinosaurs – Cenozoic

D. Movement of plants and animals onto land – Palaeozoic

Answer: d



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59. Match the Era listed under column I with the events given under column II, choose the answer which gives the correct combination of the alphabets of the two columns :

(GRB_OBJ_BIO_IIND_C56E₀₁242 – Q01)

A. A=s,B=q,C=r,D=p

B. A=r,B=s,C=p,D=q

C. A=s,B=r,C=q,D=p

D. A=r,B=q,C=s,D=p

Answer: c



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Continental Drift

1. Continental drift :

A. no longer occurs to day

B. can occur when liquid rock rises to the surface and pushes the continents apart

C. has led to the geographic isolation of many populations, thus promoting speciation

D. both (c) and (d)

Answer: d



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2. The theory of continent drift us to explain all of the following except :

A. Earthquakes

B. Locations of volcanoes

C. Formation of river systems

D. Distribution of animals and plants

Answer: C



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3. Evolution of unique groups of mammals in South America, Africa and Australia is an evidence for :

- A. continental drift
- B. glaciation
- C. crustal movement
- D. geographical juxtaposition

Answer: a



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4. Occurrence of endemic species in South America and Australia is due to :

- A. Progressive evolution
- B. continental separation
- C. absence of terrestrial route to these places
- D. extinction of these species in other regions

Answer: B

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5. The first mammals evolved 220 million years ago. The supercontinent Pangea began to break apart 200 million years ago. Therefore, fossils of the first mammals should be found :

- A. on most or all of the current continents
- B. only on one or a few continents
- C. only in Antarctica
- D. none of the above

Answer: A



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Lamarck S Theory

1. The pioneers in the field of 'organic evolution' are `

- A. Darwin, Hugo de Vries, Lamarck, Huxley
- B. Darwin, Lamarck , Karl Landsteiner, Hugo de Vries
- C. Lamarck, Karl Landsteiner, Malthus, Hugo de Vries
- D. Karl Landsteiner, Hugo de Vries, Malthus, Darwin

Answer: A



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2. The first attempt to solve of mechanism of organic evolution was made by :

- A. Oparin
- B. Darwin
- C. Wallace
- D. Lamarck

Answer: D



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3. Lamarck was a :

- A. French naturalist
- B. German biologist
- C. British evolutionist
- D. Americal biochemist

Answer: a



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4. The book "Philosophie Zoologique" was written by :

A. Hugo de Vries

B. Lamarck

C. Mendel

D. Haeckel

Answer: b



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5. The basis of Lamarckism is :

A. reduction of organ

- B. effect of metabolism
- C. effect of environment
- D. development of organ

Answer: C



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6. Lamarck's theory of evolution is called :

- A. inheritance of acquired characters
- B. theory of special creation
- C. survival of fittest
- D. none of the above

Answer: a



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7. Which of the following is true statement about Lamarck ?

- A. He was first to realize that Earth is billion of years old
- B. He worked out the principles of population genetics
- C. He based his theory on the inheritance of acquired characters
- D. He proposed natural selectionas mechanism of evolution

Answer: c



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8. The theory of use and disuse of organs was given by :

- A. Lamarck
- B. Darwin
- C. Weismann
- D. Hogo de Vries

Answer: a



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9. The presence of vestigial organs in man supports :

A. synthetic theory

B. germplasm theory

C. natural selection theory

D. the theory of evolution, but not Lamarck's theory of inheritance of acquired characters

Answer: D



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10. Which of the following evidences does not favour the lamarckian concept of inheritance of acquired characters?

- A. Absence of limbs in snakes
- B. Lack of pigment in cave dwellers
- C. Presence of webbed toes in aquatic birds
- D. Melanisation of peppered moth in industrial areas

Answer: d

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11. Lamarck's theory was most severely criticized by :

- A. Cuvier
- B. Darwin
- C. Hogo de Vries
- D. Mendel

Answer: a

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12. A young couple lost their lower limbs in an accident, their children will be having :

- A. normal and well developed limbs
- B. well developed lower limbs
- C. undeveloped lower limbs
- D. none of the above

Answer: A



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13. Which of the following biologists supported Lamarckism ?

- A. Tower
- B. Sumner
- C. Kammerer

D. All of them

Answer: d



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14. The present day giraffe has a longer neck as a compared to its ancestors. It could be due to :

A. isolation

B. speciation

C. natural selection

D. inheritance of acquired characters

Answer: b



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15. Indian tradition of boring ears and nostrils :

- A. neither supports nor disproves Lamarckism
- B. supports Lamarckism
- C. disproves Lamarckism
- D. None of the above

Answer: c



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16. Who said that acquired characters are not inherited ?

- A. Muller
- B. Morgan
- C. Weismann
- D. Hogo de Vries

Answer: c



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17. A scientist cut the tails of mice but their young ones had tails. He disproved the theory of :

A. Darwin

B. Lamarck

C. Wallace

D. Hugo de Vries

Answer: b



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18. "Theory of Continuity of Germplasm" was propounded by :

A. Darwin

B. Lamarck

C. Gregor Mendel

D. August Weismann

Answer: d



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19. Weismann cut off tails of mice generation after generation but tails neither disappeared nor shortened showing that :

A. Darwin was correct

B. Mutation theory is wrong

C. Tail is an essential organ

D. Lamarckism was wrong in inheritance of acquired characters

Answer: D

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20. Lamarckism fails to explain :

- A. long neck of giraffe
- B. loss of limbs in snake
- C. presence of tail in mouse
- D. webbed feet of swimming birds

Answer: c

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21. Accordance of Lamarckism, long necked giraffes evolved because :

- A. nature selected only long necked ones
- B. humans preferred only long necked ones
- C. short necks suddenly changed into long necks

D. of stretching of necks over many generations by short necked ones

Answer: d



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22. Giraffe has long neck because :

A. of evolution and adaption

B. their ancestors were long necked

C. environments is suitable for its long neck

D. they have become long due to their need from past

Answer: a



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23. Lamarckian evolution could occur :

- A. if each gene had only one allele
- B. if individuals had different phenotypes
- C. if the phenotype was altered by the environment
- D. if the genotype was altered by the same environmental changes that altered the phenotype

Answer: d



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24. Which of the following evidences does not favour the lamarckian concept of inheritance of acquired characters?

- A. Absence of limbs in snakes
- B. Melanization in peppered moth
- C. Presence of webbed toes in aquatic birds
- D. Lack of pigment in cave-dwelling animals

Answer: b



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Darwin G Theory

1. The most important theory of general biology was proposed by :

- A. Beadle and Tatum
- B. Watson and Crick
- C. Darwin and Wallace
- D. Mendel and Morgan

Answer: c



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2. Natural selection theory was proposed by Darwin along with :

A. Wallace

B. Mendel

C. Morgan

D. Lamarck

Answer: a



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3. The concepts of natural selection in evolution was proposed by :

A. Hugo de Vries

B. Charles Darwin

C. August Weismann

D. Jean Baptiste de Lamarck

Answer: b



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4. Darwin travelled in which ship ?

A. H.N.S. Eagle

B. Titanic

C. H.M.S. Beagle

D. D. Matrica

Answer: C



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5. The main point of Darwin's theory is :

A. variation

B. mutation

C. enormous fertility

D. natural selection

Answer: D



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6. The Galapagos Islands were associated with :

A. Jean Lamarck

B. Charles Darwin

C. Alfred Wallace

D. Gregor Mendel

Answer: b



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7. According to Darwinism fossil of organisms found in south America resembles most, the fossil of

Or

Most primitive living mammals which provided an evidence or organic evolution from geographical distribution are found in

A. Northe America

B. Africa

C. Australia

D. Both (a) and (b)

Answer: c



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8. Which of the following is not a part of Darwin's theory of evolution ?

A. Genetic drift

B. Natural selection

C. Survival of the fittest

D. Struggle for existence

Answer: a



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9. Survival of fittest is possible due to :

A. overproduction

B. favourable variations

C. environmental changes

D. inheritance of acquired characters

Answer: B



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10. The idea of "survival of the fittest" was given by

A. Malthus

B. Lyell

C. Spencer

D. Darwin

Answer: c



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11. The theory of natural selection of Darwin :

A. does not explain fossils

B. is completely changed

C. has the first of organic evolution

D. has been failed in explaining origin of variations

Answer: D

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12. In forming the theory of evolution by natural selection, Darwin was greatly influenced by

- A. Wallace
- B. Spencer
- C. Mendel
- D. Malthus

Answer: d

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13. The concept that 'population tends to increase geometrically while food supply increases arithmetically' was put forward by :

A. Stuart Mill

B. Adam Smith

C. T.R. Malthus

D. Charles Darwin

Answer: c



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14. T. R.Malthus was famous for his essays on :

A. genetics

B. geography

C. popolution

D. mathematics

Answer: C



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15. "Human population grows in geometric ratio while food materials increase in arithmetic proportion." It is a statement from

- A. Amartya Sen
- B. Charles Darwin
- C. William Bateson
- D. Thomas Rev. Malthus

Answer: d



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16. Who wrote the book 'The Origin of Species' ?

- A. Mendel
- B. Wallace
- C. Lamarck

D. Darwin

Answer: d



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17. The book 'The Origin of Species' was published in :

A. 1809

B. 1859

C. 1858

D. 1956

Answer: B



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18. One of the several objections to natural selection theory of Darwin is :

- A. struggle for existence
- B. continuity of germplasm
- C. inheritance of acquired characters
- D. many animals possess characteristics without utility and those that are positively harmful

Answer: d



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19. In which case Darwin theory is wrong

- A. Arrival of fittest
- B. Survival of fittest
- C. Origin of species

D. High efficiency of reproduction

Answer: a



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20. Which one provides correct sequence of events in origin of species according to Darwinism ?

1. Natural selection
2. Variations and their inheritance ?
3. Survival of fittest
4. Struggle for existence

A. 1,2,3,4

B. 2,4,3,1

C. 4,2,3,1,

D. 2,3,1,4

Answer: C



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21. As per Neo-Darwinism, which is mainly responsible for evolution ?

- A. Mutation
- B. Natural selection
- C. Both (a) and (b)
- D. None of these

Answer: c



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22. Neo-Darwinism is

- A. population theory
- B. natural selection theory
- C. modern mutation theory

D. modern synthetic theory

Answer: D



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23. Struggle for existence and survival of fittest are related to :

A. Darwinism

B. Mendelism

C. Lamarckism

D. Operin's theory

Answer: A



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24. The diversity in the type of beaks of finches adapted to different feeding habits on the galapagos islands, as observed by Darwin provides evidence for

- A. intraspecific variations
- B. interspecific competition
- C. intraspecific competition
- D. origin of species by natural selection

Answer: D



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25. Prodigality of reproduction in darwinism refers to

- A. successful organisms produce numerous offspring
- B. every organism produces numerous offspring
- C. only a few individuals are able to reproduce

D. only a few individuals are able to survive

Answer: a



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26. Theory of pangenesis' was proposed by :

A. Darwin

B. Hugo de Vries

C. Lamarck

D. Weismann

Answer: A



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27. Darwin gave the theory of evolution was based on

- A. mutation
- B. environment and life
- C. natural selection
- D. chromososome pairing

Answer: C

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28. Charles Darwin's evolutionary theory is :

- A. origin of species
- B. mutation theory
- C. theory of natural selection
- D. theory of inheritance of acquried characters

Answer: C

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29. Which of the following could not be explained by the 'Darwin's Natural Selection Theory' ?

- A. Giraffe has long neck and long legs
- B. Retention of characters of no use or vestigial organs
- C. In a forest, numerous young trees grow below the parent trees but many of them perish
- D. Presence of Tasmanian wolf only in Tasmania having become extinct from the Australian mainland

Answer: B



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30. Match List I (Theories of evolution / inheritance) with List II (Proposed by) and select the correct answer using the codes given below

the lists :

$(GRB_OBJ_{IO}IND_C56E01_{301} - Q01)$

A. A=1,B=2,C=3,D=4

B. A=4,B=3,C=2,D=1

C. A=3,B=1,C=4,D=2

D. A=4,B=2,C=3,D=1

Answer: C



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31. When organisms survive and increase the number in next generation then which of the following explain it ?

A. Gene flow

B. Mutation

C. Genetic drift

D. Natural selection

Answer: D



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32. Which of the following is not under Darwin's theory of natural selection ?

A. Over production

B. Survival of fittest

C. Causes of variation

D. Struggle for existence

Answer: c



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33. Match List I (Scientists) with List II (Proposed ideas) and select the correct answer using the codes given below the lists :

(GRB_OBJ_BIO_IIND_C56_E01_304_Q01)

A. A=1,B=2,C=3,D=4

B. A=4,B=2,C=3,D=1

C. A=3,B=1,C=4,D=2

D. A=4,B=3,C=2,D=1

Answer: d



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34. Match the following and choose the correct combination from the options given :

(GRB_OBJ_BIO_IIND_C56_E01_305 - Q01)

A. A=3,B=4,C=1,D=2

B. $A=2, B=1, C=3, D=4$

C. $A=1, B=2, C=3, D=4$

D. $A=4, B=3, C=1, D=2$

Answer: d



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35. During his voyage around the world, Charles Darwin was inspired to think about evolution by :

A. fossils he collected

B. the books that he read

C. unique organisms he saw

D. all of the above

Answer: d



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36. Which one of the following phenomena supports Darwin's concept of natural selection in organic evolution?

- A. Development of transgenic animals
- B. Prevalence of pesticide resistant insects
- C. Production of 'Dolly' the sheep by cloning
- D. Development of organs from 'stem cells' for organ transplantation

Answer: b



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37. The Darwinian fitness of an organism is a measure of

- A. its life-span
- B. its ability, relative to others in the population to pass its genes to the next generation

C. the number of offspring it produces

D. its physical vigour

Answer: D



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38. Improved race of pigeons have been developed by :

A. natural selection

B. artificial selection

C. protective selection

D. environment selection

Answer: B



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39. Most modern breed of the domestic dog have evolved as a result of

- A. isolation
- B. sexual selection
- C. artificial selection
- D. natural selection

Answer: c



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Mutation Theory

1. Mutation theory explaining organic evolution was proposed by :

- A. E. Darwin
- B. W. Harvey
- C. Hugo de Vries

D. Louis Pasteur

Answer: C



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2. Match the evolution concepts and their proposers and select the right option :

(GRB_OBJ_BIO_IIND_C56_E01₃₁₂ – Q01)

A. A=3,B=4,C=1,D=2

B. A=4,B=3,C=2,D=1

C. A=4,B=2,C=3,D=1

D. A=1,B=4,C=3,D=2

Answer: a



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3. Hugo de Vries pioneered the theory of mutations to explain the mechanism of evolution on which he had experimented was :

- A. Fruitfly
- B. China rose
- C. Garden pea
- D. Evening primrose

Answer: D

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4. Mutation theory does not explain :

- A. mimicry
- B. connecting link
- C. adaptive radiation
- D. origin of new species

Answer: a



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5. Hogo de Vries gave his mutation theory on organic evolution while working on :

- A. *Althea rosea*
- B. *Pisum sativum*
- C. *Oenothera lamarckiana*
- D. *Drosophila melanogaster*

Answer: c



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6. To be a successful event for evolution, a mutation must occur in :

- A. somatic RNA
- B. plasma proteins
- C. germplasm DNA
- D. somatoplasm DNA

Answer: C

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7. The possibilities of hereditary and evolutionary changes are greater in species that are reproduced by :

- A. fission
- B. budding
- C. sexual means
- D. spore formation

Answer: C

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Synthetic Theory

1. The most accepted and recent theory of organic evolution is :

- A. Lamarckism
- B. Darwinism
- C. Theory of isolation
- D. Synthetic theory

Answer: D

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2. Modern synthetic theory of evolution' was designated by :

- A. Huxley

B. Darwin

C. Haldane

D. Stebbins

Answer: a



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3. Modern theory of organic evolution is based on :

A. mutation

B. population

C. isolation

D. all of these

Answer: d



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4. The modern synthetic theory of evolution is based on :

- A. genetic and chromosomal mutation
- B. genetic recombination and natural selection
- C. reproductive isolation
- D. all of the above

Answer: d



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5. Who wrote the book 'Genetics and Origin of Species' ?

- A. Hugo de Vries
- B. J. Huxley
- C. R.A. Fisher
- D. Th. Dobzhansky

Answer: d



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Sources Of Variation

1. Discovery of which of the following in 1980 predicted the existence of RNA world during early stage in evolution ?

- A. RNA is not found in all cells
- B. RNA has enzymatic properties
- C. In some viruses RNA is genetic material
- D. m-RNA, t-RNA and r-RNA synthesize proteins

Answer: B



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2. Goldschmidt has classified evolution into micro, macro, and mega evolution. Which one of the following is referred to as micro-evolution

- A. Evolution at family level
- B. Evolution at variety level
- C. Evolution at subspecies level
- D. Evolution at species and genus level

Answer: D



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3. Specific diversification represents :

- A. mutation
- B. megaevolution
- C. microevolution

D. macroevolution is greatly influenced by mass extinctions and evolutionary radiations

Answer: C



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4. For natural selection the important factor is :

A. disuse

B. variation

C. catastrophe

D. special creation

Answer: B



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5. A potential danger to a population that has been greatly reduced in number is the

- A. reduced gene flow
- B. Hardy-Winberg disequilibrium
- C. tendency towards assortative mating
- D. loss of genetic variability

Answer: d



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6. In which condition the gene ratio remains constant for any species ?

- A. Mutation
- B. Gene flow
- C. Sexual selection
- D. Random mating

Answer: D



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7. Initiating force of evolution is :

A. variation

B. adaptation

C. competition

D. Natural selection

Answer: A



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8. Which of the following natural process is likely to hasten organic evolution ?

- A. Overproduction
- B. Reproductive isolation
- C. Favourable environment
- D. Abundant genotypic variations

Answer: D

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Mutation

1. The raw material for organic evolution is :

- A. asexual reproduction
- B. mutation
- C. nutritive substances
- D. effect of hormones

Answer: b



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2. Ultimate source of organic variation is :

- A. mutation
- B. natural selection
- C. asexual reproduction
- D. hormonal action

Answer: A



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3. The ultimate source of genetic variation is :

- A. natural selection

B. mutation

C. sexual recombination

D. genetic drift

Answer: b



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4. Each of us is part of the ongoing evolution of the species which of the following occurrences would have the greatest impact on the future biological evolution of the human population?

A. A mutation occurs in one of your sperm or egg cells

B. You do exercise every day so that you stay physically fit and healthy

C. You move to Kerala, the state of highest medical facilities and literacy

D. You encourage your children to develop their intellectual abilities

Answer: a



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5. A mutation is most likely to have a selective advantage in evolution if

- A. if affects dominant genes
- B. it affects recessive genes
- C. it affects whole chromosomes
- D. the environment remains stable

Answer: b



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Replica Plate Experiment

1. Who provided experimental evidence for 'selection' in bacteria using replica plating technique ?

- A. Lederberg
- B. Louis Paster
- C. Joseph Lister
- D. Charles Darwin

Answer: A



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2. Lederberg replica experiment explains :

- A. Mutation theory
- B. Darwin's theory
- C. Lamarck's theory
- D. None of these

Answer: b



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3. In Lederberg's replica what shall be used to obtain streptomycin resistant strain ?

- A. Only minimal medium
- B. Only complete medium
- C. Minimal medium and streptomycin
- D. Complete medium and streptomycin

Answer: d



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4. Some bacteria are able to grow in streptomycin containing medium due to :

- A. Genetic drift
- B. natural selection
- C. induced mutation
- D. reproductive isolation

Answer: B



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5. Using imprints from a plate with complete medmm and carrying bacterial colonies, you can select streptomycin resistant mutants and prove that such mutations do not originate as adaptation. These imprints need to be used

- A. on plates with minimal medium
- B. only on plates with streptomycin
- C. only on plates without strptomycin
- D. on plates with and without streptomycin

Answer: D



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Gene Pool

1. A collection of all the alleles of all the genes of a crop plant is called

- A. genome
- B. gene pool
- C. germplasm
- D. gene bank

Answer: B



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2. The relationship of genome to organism is the same as to population.

- A. gene
- B. species
- C. gene pool
- D. Mutation

Answer: C



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3. In evolutionary terms, an organisms fitness is measured by its :

- A. health
- B. mutation rate
- C. genetic variability
- D. contribution to the gene pool of the next generation

Answer: d



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4. At a particular locus, frequency of allele A is 0.6 and that of allele a is 0.4. what would be the frequency of heterozygotes in a random mating population at equilibrium?

A. 0.36

B. 0.48

C. 0.16

D. 0.24

Answer: b



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5. Genetic drift operates in :

- A. large isolated population
- B. small isolated population
- C. fast reproductive population
- D. slow reproductive population

Answer: B

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6. Match following evolution concepts in List I with List II and select the correct answer using the codes given below the lists :

(GRB_OBJ_BIO_IIND_C56E01₃₄₆ – Q01)

- A. A=1,B=2,C=3,D=4
- B. A=4,B=2,C=3,D=1
- C. A=3,B=1,C=4,D=2
- D. A=4,B=3,C=2,D=1

Answer: D



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7. Genetic drift is a process

- A. random
- B. directed
- C. coevolutionary
- D. uniformitarian

Answer: a



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8. A small isolated population is more likely to undergo speciation than a large one, because a small population :

- A. is more susceptible to gene flow
- B. is more affected by genetic drift
- C. contains a greater amount of genetic diversity
- D. is more likely to survive in a new environment

Answer: b

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9. One of the following is called Sewall Wright effect :

- A. Genetic drift
- B. isolation
- C. gene pool
- D. gene flow

Answer: a

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Founder Effect

1. In terms of gene frequencies, founder effect result in :

- A. polyploidy
- B. hybridization
- C. large, rapid changes
- D. mechanical incompatibility

Answer: C



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Natural Selection

1. The unit of natural selection is :

- A. family
- B. species
- C. individual
- D. population

Answer: c

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2. In natural selection :

- A. new mutations are generated over time
- B. the genetic composition of the population changes at random over time
- C. all individuals in a population particular are equally likely to contribute offspring to the next generation

D. individuals that possess particular heritable characteristics survive and reproduce at a higher rate than other individuals

Answer: D



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3. Which of the following would stop evolution by natural selection from occurring ?

- A. If humans became extinct because of a disease epidemic
- B. If ozone depletion led to increased ultraviolet radiation which caused the environment drastically
- C. If genetic recombination, sexual reproduction and mutation stopped so that all offspring of all organisms were exact copies of their parents
- D.

Answer: d



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4. Natural selection is sometimes described as "Survival of the Fittest".

Which of the following most accurately measures an organism's fitness ?

- A. Its mutation rate
- B. How many fertile offspring it produces
- C. How much food it is able to make or obtain
- D. Its ability to withstand environment extremes

Answer: b



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5. In a population of frogs which would be considered the fittest ?

- A. The biggest frog
- B. The strongest which can eat maximum
- C. The frog that leaves the most descendants
- D. The frog having largest number of mutations

Answer: c



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6. Which of the following changes in the gene pool results in adaptation to the environment ?

- A. Mutation
- B. Gene flow
- C. Natural selection
- D. Genetic drift

Answer: c

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7. "Differential reproduction" is just another way of saying :

- A. variation
- B. mutation
- C. genetic drift
- D. natural selection

Answer: d

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8. Assertion (A) : Natural selection is the outcome of difference in survival and reproduction among individuals that show variation in one or more traits.

Reason (R) : Adaptive forms of a given trait tend to become more common, less adaptive ones become less common or disappear.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A).
- B. Both (A) and (R) are true but (R) is not the correct explanation of (A)
- C. (A) is true statement but (R) is false
- D. Both (A) and (R) are false

Answer: A



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9. Which of the following is correct ?

- A. Natural selection is not the basis for evolutionary change
- B. Natural selection discriminates variations
- C. Natural selection is essential for evolution
- D. none of the above

Answer: c



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Types Of Selection

1. Darwinian fitness is lowered from minimum to zero, to check the undue accumulation of deleterious mutations by :

- A. cladogenesis
- B. directional selection
- C. phyletic change
- D. normalising selection

Answer: d



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2. Directional selection :

- A. works against adaptive traits
- B. favours intermediate forms of a trait
- C. eliminates uncommon forms of alleles
- D. shifts allele frequencies in a steady, consistent direction

Answer: D

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3. Disruptive selection :

- A. eliminates uncommon forms of alleles
- B. does not favour intermediate forms of a trait
- C. shifts allele frequencies in a steady, consistent direction
- D. all of the above

Answer: b

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4. Birds with average-sized wings survived a severe storm more successfully than with longer or shorter wings. This illustrates :

- A. stabilizine selection
- B. gene flow
- C. diversifying selection
- D. founder effect

Answer: a



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5. In a population where competition between individuals is severe then the distribution is said to be :

- A. uniform
- B. random

C. irregular

D. non-random

Answer: d



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Adaptation

1. Adaptation of a species is its :

A. acquired character

B. ecdysis

C. hereditary character

D. metamorphosis

Answer: C



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2. Successful adaptation simply means :

- A. producing offspring
- B. an increase in fitness
- C. moving to a new place
- D. evolving new characteristics

Answer: b



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3. Adaptations :

- A. are not common
- B. result from genetic drift
- C. result from natural selection

D. are features of the organism that hinder its performance in its environment

Answer: c

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4. Adaptations :

A. have the appearance of a close match between the organism and its environment

B. help the organism accomplish important functions

C. are often complex

D. all of the above

Answer: d

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5. Bacteria can adapt to changes in the environment by means of mutation alone because :

- A. they multiply so rapidly
- B. they are so small in size
- C. their populations are so large
- D. their populations are very isolated from one another

Answer: a



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6. The processes of and generate variation and produces adaptation to the environment .

- A. sexual selection, natural selection, mutation
- B. mutation, sexual recombination, genetic drift

C. genetical drift, mutation, sexual recombination

D. mutation, sexual recombination, natural selection

Answer: d



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Industrial Melanism

1. Industrial melanism was highlighted by

A. Polar bear

B. Rock python

C. *Mimosa pudica*

D. *Biston betularia*

Answer: d



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2. Phenomenon of industrial melanism demonstrates

- A. natural selection
- B. induced mutation
- C. reproductive isolation
- D. geographical isolation

Answer: a



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3. The change of the lighter coloured variety of peppered moth, *Biston betularia*, to its darker variety (*carbonaria*) is due to :

- A. deletion of a segment of genes due to industrial pollution
- B. mutation of single Mendelian gene for survival in smoke laden industrial environment

C. industrial carbon deposited on the wings of the moth resulting in darker variety

D. translocation of a block of genes in chromosomes in response to heavy carbons

Answer: B

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Mimicry

1. Some organisms resemble other organisms and thus escape from enemies. This phenomenon is known as :

A. mimicry

B. homology

C. natural selection

D. artificial selection

Answer: a



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2. Cause of mimicry is

- A. attack (offence)
- B. isolation
- C. protection (defence)
- D. all of these

Answer: c



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Speciation

1. Geographic and reproductive isolation are most closely associated with

Or

The origin of species from pre-existing species is

A. mutation

B. isolation

C. polyploidy

D. speciation

Answer: D



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2. Speciation occurs when :

A. population are isolated by geographical barrier

B. population are reproductively isolated

C. both of the above

D. none of the above

Answer: B



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3. Which of the following is most important for speciation?

A. Seasonal isolation

B. Tropical isolation

C. Behavioural isolation

D. reproductive isolation

Answer: d



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4. Speciation is caused by :

- A. isolation
- B. ecological isolation
- C. geographical isolation
- D. reproductive isolation

Answer: D

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5. Species is

- A. population of one type
- B. a group of interbreeding populations
- C. a group of individuals inhabiting a geographical area
- D. population of individual having same genotypes and phenotypes

Answer: b

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6. Two animals are considered different species if they :

- A. cannot interbreed
- B. look different
- C. live in different habitats
- D. are geographically isolated

Answer: A



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7. Speciation usually occurs :

- A. suddenly
- B. by genetic drift
- C. when populations are geographically isolated

D. when populations are not geographically isolated

Answer: c



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8. Geographic and reproductive isolation are most closely associated with

Or

The origin of species from pre-existing species is

A. speciation

B. extinction

C. succession

D. competition

Answer: a



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9. Now unit of evolution is called

- A. family
- B. species
- C. individual
- D. population

Answer: d



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10. Which is basis of evolution

- A. Cell
- B. Species
- C. individual
- D. Population

Answer: B



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11. The organisms separated by geographical barriers are termed :

- A. allopatric
- B. sibling
- C. neotpatric
- D. sympatric

Answer: a



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12. Same species found in different geographical areas are called :

- A. allopatric

B. sibling

C. sympatric

D. none of these

Answer: A



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13. Allopatric speciation occurs when

A. genetically related population inhabit same geographical area

B. genetically unrelated population inhabit same geographical area

C. genetically related population inhabit widely separated geographical area

D. genetically unrelated population inhabit widely separated geographical area

Answer: c



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14. Which of the following is the first step in allopatric speciation ?

- A. Genetic drift
- B. hybridization
- C. geographical isolation
- D. Formation of reproductive barrier

Answer: c



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15. Choose the correct sequence of evolutionary events in one form of allopatric speciation, using the codes given below :

- (i) Geographical isolation
- (ii) Ecological isolation
- (iii) Increased pre-mating reproductive isolation

(iv) Increased genetic divergence

(v) Selection completed

A. iii,iv,ii,v

B. I,iv,iii,v

C. iii,ii,iv,v

D. i,ii,iii,v

Answer: d



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16. The concept of "Biological species " was proposed by :

A. Darwin was correct

B. Mayr

C. von Baer

D. Linnaeous

Answer: B



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17. The population dynamics of a species is basically regulated by :

- A. climate
- B. food supply
- C. competition within and between species
- D. all of the above

Answer: D



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18. The time required populations to diverge to form new species :

- A. is rarely more than 1000 years

- B. is never less than 100,000 years
- C. is always greater in plants than in animals
- D. varies from a single generation to millions of years

Answer: D

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19. Sexually reproducing individuals of a species :

- A. can interbreed under natural conditions
- B. have a shared genetic history
- C. can produce fertile offspring
- D. all of the above

Answer: d

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20. Sympatric speciation is :

- A. the appearance of a new species in the same areas as the parent population
- B. emergence of many species from a single ancestor
- C. initiated by the appearance of a geographical barrier
- D. the process by which most animal species have evolved

Answer: a



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21. A new species can arise in a single generation :

- A. if allopatric speciation occurs
- B. through geographical isolation
- C. in a very large population that is spread over a large area

D. if a change in chromosome number creates a reproductive barrier

Answer: d



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22. Most of the time, species are identified by their appearance. Why?

A. Most organisms reproduce asexually

B. This is the most convenient way of identifying species

C. This is the criterion used to define a biological species

D. If two organisms look different, they must be different species.

Answer: b



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1. Species that do not interbreed in nature are said to be ,

- A. sterile
- B. hybrids
- C. reproductively isolated
- D. geographically isolated

Answer: c



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2. Which of the following evolutionary mechanisms acts to slow down or prevent the evolution of reproductive isolation ?

- A. Mutation
- B. Gene flow
- C. Genetic drift
- D. Natural selection

Answer: B



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3. Reproductive isolating mechanisms :

- A. reinforce genetic divergence
- B. prevent interbreeding
- C. prevent gene flow
- D. all of the above

Answer: d



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4. In many species of fireflies, males flash to attract females. Each species has a different flashing pattern. This probably an example of :

- A. ecological isolation
- B. permating isolating
- C. geographical isolation
- D. postmating isolating

Answer: b

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5. When potential mates occupy overlapping ranges but reproduce at different times, This is a case of isolation

- A. temporal
- B. gametic
- C. mechanical
- D. post zygotic

Answer: a

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6. Two species of water lilies in the same pond do not interbreed because one blooms at night and the other during the day. The reproductive barrier between them is an example of :

- A. temporal isolation
- B. gametic isolation
- C. ecological isolation
- D. mechanical isolation

Answer: a

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7. Individuals of different species living in the same area may be prevented from interbreeding by responding to different mating dances.

This is called :

- A. temporal isolation
- B. ecological isolation
- C. Behavioural isolation
- D. mechanical isolation

Answer: c

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8. Which of the following reproductive barriers actually prevents individual of different species from mating with each other ?

- A. Gametic isolation
- B. Hybrid sterility
- C. Behavioural isolation
- D. Hybrid inviability

Answer: c

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9. Which of the following is an example of postzygotic reproductive barrier ?

- A. Pollen of one kind of tobacco cannot fertilize another kind
- B. Two species of bullfrogs have different mating calls
- C. Mallard and pintail ducks mate at different times of year
- D. Hybrid offspring of two species of jimsonweeds always die before reproducing

Answer: d

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10. Which of the following is an example of postzygotic reproductive barrier ?

- A. One species of Rana mates in April, another mates in May
- B. Two pheasant species perform different courtship dances
- C. One species of flower grows in forested areas and another in meadows
- D. Two Drosophila of different species produce offspring that are sterile

Answer: d



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11. To Cuvier, the difference in fossils from different strata were evidences for :

- A. local catastrophic events such as droughts or floods
- B. evolution by natural selection
- C. continental drift

D. diving creation

Answer: a



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12. Darwin proposed that new species evolve from ancestral forms by the :

A. accumulation of mutations

B. struggle for limited resources

C. inheritance of acquired adaptation to the environment

D. gradual accumulation of adaptations to changing environment

Answer: d



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13. The best description of natural selection is :

- A. the survival of the fittest
- B. the struggle for existence
- C. a change in the proportion of variation within a population
- D. the reproduction success of the members of a population best adapted to the environment

Answer: D



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14. The evolution of similar characters in genetically unrelated species as they are subjected to similar environmental selective pressure is :

- A. adaptation
- B. homoplasy
- C. heteroplasy

D. adaptive radiation

Answer: d



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15. The classical example of adaptive radiation in development of new species is

- A. Darwin finches
- B. Marsupials of Australia
- C. Giant turtles
- D. All of these

Answer: A



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16. the chance of elimination of genes from a small population is an example of:

- A. speciation
- B. adaptation
- C. genetic drift
- D. selection pressure

Answer: C



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17. The spread of genes from one breeding population to another by migration which may result in change in gene frequency is :

- A. gene flow
- B. genetic drift
- C. gene frequency

D. none of these

Answer: A



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18. Two organs which are similar in structure and origin, but not necessarily in function are called

Or

The organs of different species that are related to each other through common descent though becomes functionally different are called

A. apocrine

B. analogous

C. homologous

D. none of these

Answer: C



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

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

Answer: B



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20. Which of the following is vestigial organ in human?

- A. Wings
- B. Coccyx

C. Splint bone

D. Pelvic girdle

Answer: B



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21. Hardy -Weinberg equilibrium operates in absence of :

A. recombination

B. mutation

C. natural selection

D. all of these

Answer: D



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22. Hardy-Weinberg principle explains :

- A. genetic equilibrium
- B. non-random mating
- C. evolutionary force
- D. all of these

Answer: A



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23. The non- directional force that alters Hardy-Weinberg equilibrium is :

- A. gene flow
- B. mutation
- C. genetic drift
- D. gene recombination

Answer: C



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24. Fossil bird having reptilian character evolved during which period ?

- A. Triassic
- B. Jurassic
- C. Cretaceous
- D. Carboniferous

Answer: b



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25. Jurassic period of the Mesozoic era is characterised by

- A. gymnosperms are dominant plants and first birds appear

B. radiation of reptiles and origin of mammal like reptiles

C. dinosaurs become extinct and angiosperms appear

D. flowering plants and first dinosaurs appear

Answer: a



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26. Which one of the following is not a living fossil

Or

Missing link in evolution is

A. Peripatus

B. King crab

C. Sphenodond

D. Archaeopteryx

Answer: D



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27. Adaptation is a type of :

- A. speciation
- B. adaptive radiation
- C. convergent evolution
- D. divergent evolution

Answer: C



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28. The mutation (mechanism of origin of variations) was suggested by :

- A. Mendel
- B. Darwin
- C. Larmarck

D. De Vries

Answer: D



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29. Match the following

$(GRB_OBJ_BIO_IIND_C56_E01_{426} - Q01)$

A. A=5,B=1,C=4,D=2

B. A=5,B=4,C=3,D=2

C. A=3,B=1,C=2,D=5

D. A=5,B=1,C=4,D=3

Answer: A



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30. When the members of one population do not breed at the same time of the year as the members of another population it is called :

- A. sexual isolation
- B. habitat isolation
- C. seasonal isolation
- D. geographic isolation

Answer: c



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31. The unit of natural selection is :

- A. genus
- B. species
- C. individual
- D. population

Answer: C



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32. Major radiation of mammals, birds and pollinating insects took place in which epoch ?

- A. Eocene epoch
- B. Pliocene
- C. Miocene epoch
- D. Palaeocene

Answer: D



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33. Directional selection favour :

- A. one extreme form over the other extreme form and over intermediate form of a trait
- B. both extreme forms of a trait
- C. intermediate form of a trait
- D. environment differences

Answer: a



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34. Which is the correct Aristotle's ladder of nature ?

- A. inanimate matter → lower plants → higher plants → malacostraca → entoma → ostracoderma → malacia → cetacea → birds → viviparous quadrupeds → humans
- B. inanimate matter → lower plants → higher plants → zoophyta → malacia → malacostraca → ostracoderma → fish →

oviparous quadrupeds → cetacea → birds → viviparous

quadrupeds → humans

C. inanimate matter → lower plants → higher plants →

zoophyta → entoma → ostracoderma → malacostraca →

malacia → fish → cetacea → oviparous quadrupeds → birds

→ viviparous quadrupeds → humans

D. inanimate matter → lower plants → higher plants →

zoophyta → entoma → malacia → malacostraca →

ostracoderma → fish → oviparous quadrupeds → cetacea →

birds → viviparous quadrupeds → humans

Answer: c



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35. In evolution, the resemblance between widely different animals due to common adaptation may be referred to as an example of :

- A. parallel evolution
- B. divergent evolution
- C. convergent evolution
- D. retrogressive evolution

Answer: C

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36. Which is not explained by Lamarckism ?

- A. Weak progeny of a Nobel laureate
- B. Elongation of neck of giraffe
- C. Loss of tail in human being
- D. None of the above

Answer: a

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37. Statement (S): Species are groups of potentially interbreeding natural populations that are isolated from other such groups

Reason (R): Reproductive isolation brings about distinctive morphological characters

- A. Both (A) and (R) are true and (R) is the correct explanation of (A).
- B. Both (A) and (R) are true but (R) is not the correct explanation of (A)
- C. (A) is true statement but (R) is false
- D. Both (A) and (R) are false

Answer: B



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38. Assertion (A) : The long neck of giraffe is due to centripetal selection.

Reason (R) : During directional selection when the mean value of

phenotype coincide with new optimum environmental conditions.

Centripetal selection takes over.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A).
- B. Both (A) and (R) are true but (R) is not the correct explanation of (A)
- C. (A) is true statement but (R) is false
- D. Both (A) and (R) are false

Answer: A



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39. Arrange the periods of palaeozoic era in ascending order in a geological time scale :

A. Cambrian → Ordovician → Silurian → Devonian →
Carboniferous → Permian

B. Cambrian → Devonian → Ordovician → Silurian →

Carboniferous → Permian

C. Cambrian → Ordovician → Devonian → Silurian →

Carboniferous → Permian

D. Silurian → Devonian → Cambrian → Ordovician → Permian

→ Carboniferous

Answer: A



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40. The natural selection that acts against change in form and keeps the population constant through the time is :

A. Disruptive

B. None acting

C. Stabilizing

D. Directional

Answer: C



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41. The formation of two species from one ancestral species is known as

A. allopatry

B. phyletic evolution

C. convergent evolution

D. divergent evolution

Answer: d



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42. Which of the following have not left any evidence of organic evolution ?

A. Cow

B. Peripatus

C. Neopilina

D. Archaeopteryx

Answer: A



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43. The presence of recessive trait in a large population is be 16% the frequency of dominant trait in that population is :-

A. 0.6

B. 0.32

C. 0.84

D. 0.92

Answer: A



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44. Frequency of an autosomal recessive lethal gene is 0.4. Frequency of carrier in a population of 200 individuals is

A. 72

B. 96

C. 104

D. 36

Answer: b



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45. Where there is sustained directional change in the average characters of a population due to adaptation to a shifting environment is called :

- A. quantum evolution
- B. phyletic evolution
- C. Both (a) and (b)
- D. none of these

Answer: b



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46. Plants from the Galapagos Islands resemble most closely to the plants of :

- A. South America
- B. North America
- C. Asia

D. Australia

Answer: A



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47. Inclusive fitness theory is proposed by

A. Darwin

B. Hamilton

C. Lamarck

D. Weismann

Answer: b



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48. Prototherians are connecting link between :

- A. amphibian and aves
- B. reptiles and mammals
- C. fishes and amphibians
- D. reptiles and amphibians

Answer: b

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49. Darwin finches are related to which of the following evidences ?

- A. Fossils
- B. Anatomy
- C. Embryology
- D. Geographical distribution

Answer: D

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50. Allopatric speciation is due to

- A. migration of the members of species from one to other population
- B. hybridization between closely related species
- C. geographical separation of population
- D. both (a) and (b)

Answer: C



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51. Which one is linked to evolution ?

- A. variation
- B. Extinction
- C. Competition

D. Reproduction

Answer: A



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52. Which of the following is not a concept of Lamarck ?

- A. Inheritance of acquired character
- B. Environmental pressure causes variation
- C. Rate and survival of organism is different due to variation
- D. If an organ is used constantly it will continuously increase its size

Answer: C



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53. Competition of species leads to :

- A. mutation
- B. extinction
- C. symbiosis
- D. greater number of niches are formed

Answer: B

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54. The idea of "survival of the fittest" was given by

- A. Darwin
- B. Mendel
- C. Lamarck
- D. de Vries

Answer: A

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55. Vestigial organs present in an adult individual are example of basis of evidences of evolution :

- A. anatomical
- B. embryological
- C. morphological
- D. palaeontological

Answer: C



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56. The theory of random genetic drift was proposed by :

- A. Ernt Mayr
- B. R.A. Fischer
- C. Sewall Wright

D. Hardy-Weinberg

Answer: C



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57. The idea of Natural Selection as the fundamental process of evolutionary changes was reached

A. independently by Charles Darwin and Alfred Russel Wallace in 1859

B. by Charles Darwin in 1866

C. by Alfred Russel Wallace in 1901

D. independently by Charles Darwin and Alfred Russel Wallace in 1900

Answer: a



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58. Fossil found in Mandla district of MP is

- A. 50 million years old
- B. 20 million years old
- C. 260 million years old
- D. 100 million years old

Answer: d



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59. Darwin finches are found in :

- A. Tahiti
- B. Tundra
- C. Galapagos Islands
- D. None of these

Answer: c



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60. The factors involved in the formation of new species are

- A. competition and variation
- B. isolation and competition
- C. competition and mutation
- D. isolation and mutation

Answer: a



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61. Gene flow is the transfer of genes :

- A. from sperms to eggs

B. from outside to chromosomes

C. from females to males of an organisms

D. between genetically distinct but inbreeding population

Answer: D



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62. In the developmental history of mammalian heart. It is observed that it passes through a two chambered fish like heart, three chambered frog like heart and finally four chambered stage. To which hypothesis can this above cited statement be approximated?

A. Biogenetic law

B. Lamarck's principle

C. Hardy-Winberg law

D. Mendelian principles

Answer: A



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63. Assertion (A) : Gene flow increase genetic variations.

Reason (R) : The random introduction of new alleles into recipient population and their removal from the donor population affects allele frequency.

- A. Both (A) and (R) are true and (R) is the correct explanation of (A).
- B. Both (A) and (R) are true but (R) is not the correct explanation of (A)
- C. (A) is true statement but (R) is false
- D. Both (A) and (R) are false

Answer: B



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64. Which of the following animals is not only a living fossil but also considered as connecting link ?

A. Limulus

B. Latimeria

C. Neopilina

D. Sphenodo

Answer: C



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65. Protylopus was the ancestor of :

A. Horse

B. Giraffe

C. Camel

D. Elephant

Answer: C



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66. Mammals evolved from therapsid reptiles in Triassic period. The type of skull in these reptiles is :

- A. diapsie skull
- B. anapsid skull
- C. parapside skull
- D. synapsid skull

Answer: d



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67. Match the following :

(*GRB_OBJ_BIO_IIND_C56_E01₄₆₄ – Q01*)

A. $A=3, B=2, C=5, D=4, E=1$

B. $A=3, B=4, C=2, D=5, E=1$

C. $A=3, B=4, C=5, D=2, E=1$

D. $A=3, B=5, C=4, D=1, E=2$

Answer: C

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68. Myrmecobius and Myrmeocophaga are closely related and have similar adaptations for the same habitat. This phenomenon is :

A. homoplasy

B. parallel evolution

C. divergent evolution

D. convergent evolution

Answer: b

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69. Which one of the following scientist's name is correctly matched with the theory put forth by him?

- A. Mendel - Theory of Pangenesis
- B. Weismann - Theory of continuity of germplasm
- C. Pasteur - Inheritance of acquired characters
- D. de Vries - Natural selection

Answer: B

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70. Darwin's Finches are an excellent example of

- A. connecting links
- B. brood parasitism

C. adaptive radiation

D. seasonal migration

Answer: c



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71. Which one of the following pairs of items correctly belongs to the category of organs mentioned against it

A. Wings of honeybee and - Homologous organs wings of crow

B. Thorn of Bougainvillea - Analogous organs and tendrils of Cucurbita

C. Nictitating membrane and blindspot in human eye - Vestigial organs

D. Nephridia of earthworm and Malpighian tubules of cockroach - Excretory organs

Answer: D

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

- A. homologous organs only
- B. analogous and vestigial organs
- C. homologous and vestigial organs
- D. homologous and analogous organs

Answer: c

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73. An evolutionary process giving rise to new species adapted to new habitats and ways of life is called

- A. adaptation

B. microevolution

C. adaptive radiation

D. convergent evolution

Answer: C



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74. Sweet potato and potato are example of :

A. homologous structures

B. analogous structures

C. Both (a) and (b)

D. none of these

Answer: D



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75. Appearance of teeth in the embryos of birds is an example of :

- A. atavism
- B. speciation
- C. vestigial organs
- D. ontogeny repeats phylogeny

Answer: D



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76. Which of the following is not a concept of Lamarck ?

- A. Environment pessure causes variation
- B. Rate and survival of organism is different due to variation
- C. Inheritance of acquired character
- D. If an organ is used constantly it will continuously increase its size

Answer: b



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77. The theory of panogenesis was rejected due to the acceptance of :

- A. Richter theory of cosmozoic
- B. Cuvier theory of catastrophism
- C. Weismann theory of germplasm
- D. Spallanzani theory of biogenesis

Answer: C



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78. Match the scientists and their contributions in the field of evolution

Name of the Scientist		Contributions	
A.	Charles Darwin	1.	Mutation theory
B.	Lamarck	2.	Germ plasm theory
C.	Hugo de Vries	3.	Philosophie Zoologique
D.	Ernst Haeckel	4.	The Origin of species
E.	August Weismann	5.	Biogenetic law
		6.	Essay on population

A. A=4,B=3,C=5,D=1,E=6

B. A=4,B=4,C=5,D=3,E=1

C. A=4,B=3,C=1,D=5,E=2

D. A=2,B=3,C=1,D=5,E=2

Answer: C



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79. The principle that gives the geneticists a tool to determine when evolution is occurring is

A. Hardy-Weinberg principle

B. Chemiosmotic theory

C. Malthusian principle

D. Cloning theory

Answer: A



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80. Change of frequency of alleles in a population results in evolution is proposed in :

A. de Vries theory

B. Darwin's theory

C. Lamarck's theory

D. Hardy-Weinberg principle

Answer: D

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81. Which of the following defines Hardy-Weinberg's law?

A. $p^2 + 2pq + q^2 = 0$

B. $q^2 + p^2 + 2pq = 0$

C. $p^2 + 2pq + q^2 = 1$

D. $p^2 + 3pq + q^2 = 1$

Answer: C

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82. Hardy-Weinberg equilibrium is known to be affected by gene flow, genetic drift, mutation, genetic recombination and

A. saltation

B. evolution

C. limiting factors

D. natural selection

Answer: d



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83. Which of the following is the earliest era

A. Coenozoic

B. Mesozoic

C. Palaeozoic

D. Pre-Cambrian

Answer: c



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84. First mammal occur in which era -period ?

- A. Triassic - Mesozoic
- B. Tertiary -Coenozoic
- C. Permian-Palaeozoic
- D. None of the above

Answer: A



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85. Transfer of genes from one gene pool to another is called :

- A. gene flow
- B. mutation
- C. speciation
- D. genetic drift

Answer: A



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86. Higher frequency of melanic British moths and DDT resistance in mosquitoes are cited as examples for :

- A. Genetic drift
- B. Point mutation
- C. Natural selection
- D. Arrival of the fittest

Answer: C



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87. Closely related varying different in trait expresses

A. convergent evolution

B. divergent evolution

C. parallel evolution

D. none of these

Answer: C



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88. Which one of the following is not important for evolution

A. Mutation

B. Genetic drift

C. somatic variation are not heritable

D. Recombination

Answer: C



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89. Which is not a pre-zygotic isolation mechanism

- A. Seasonal isolation
- B. Hybrid sterility
- C. ecological isolation
- D. geographical isolation

Answer: B



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90. In the case of peppered moth (*Biston betularia*) the black-coloured form became dominant over the light-coloured form in England during industrial revolution. This is an example of

- A. inheritance of darker colour character individuals due to the darker environment

- B. appearance of the darker coloured individuals due to very poor sunlight
- C. natural selection whereby the darker forms were selected
- D. protective mimicry

Answer: C

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91. Peripatus is a connecting link between :

- A. Coelenterata and Porifera
- B. Annelida and Arthropoda
- C. Mollusca and Echinodermata
- D. Ctenophora and Platyhelminthes

Answer: B

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92. Which of the following is a connecting link between mammals and reptiles

- A. Peripatus
- B. Balanoglossus
- C. Ornithorhynchus
- D. Archaeopteryx

Answer: C



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93. A living connective link which provides evidence for organic evolution

- A. Sphenodon between reptiles and birds
- B. Lung fishes between pisces and reptiles
- C. Archaeopteryx between reptiles and birds

D. Duck billed platypus between reptiles and mammals

Answer: d



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94. Ontogeny recapitulates phylogeny is narrated in which of the evidences for organic evolution ?

- A. Anatomical evidence
- B. Physiological evidence
- C. Embryological evidence
- D. Palaeontological evidence

Answer: c



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95. Amphibians were dominant during ____ period.

- A. silurian
- B. Jurassic
- C. Cambrian
- D. Carboniferous

Answer: D



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96. Origin of first toothed birds and gymnoperms took place during

- A. Triassic
- B. Jurassic
- C. Permian
- D. Cretaceous

Answer: B

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97. Which one of the following periods is largely associated with extinction of dinosaurs and the increase in flowering plants and reptiles

A. Jurassic

B. Triassic

C. Permian

D. Cretaceous

Answer: D

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98. Mass extinction at the end of Mesozoic era was probably due to

- A. continental drift
- B. Massic glaciations
- C. Change in earth's orbit
- D. The collision of Earth with learge meteorites

Answer: D

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99. Who was the first to discard the idea of fixity of species

- A. Robert Hooke
- B. Stanley Cohen
- C. Charles Darwin
- D. Jean Baptiste de Lamarck

Answer: D

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100. Whose bicentenary is the year 2009

- A. Darin
- B. Stanley Miller
- C. T.H. Morgan
- D. Edward Jenner

Answer: a



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101. Darwin could not properly explain the theory of evolution due to lack of

- A. genetics
- B. evidences
- C. variations

D. speciation

Answer: A



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102. Darwin judged the fitness of an individual by

- A. number of offspring
- B. ability to defend itself
- C. strategy to obtain food
- D. dominance over other individuals

Answer: A



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103. Darwinism explains all the following except

- A. within each species, there are variations
- B. variations are inherited from parents to offspring through genes
- C. organisms tend to produce more number of offspring that can survive
- D. offspring with better traits that overcome competition are best suited for the environment

Answer: B



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104. According to the theory of mutation by Hugo de Vries

- A. both small and large mutations cause variation in species
- B. only small mutation takes part in variation
- C. only large mutation takes part in variation
- D. none of the above

Answer: a



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105. Industrial melanism is an example of

- A. drug resistance
- B. darkening of skin due to industries
- C. protective resemblance with the surrounding
- D. defensive adaptation of skin against UV- radiations

Answer: C



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106. Which one of these is not a case of artificial selection

- A. Broccoli

B. Shetland pony

C. Great dane dog

D. Peppered moth

Answer: D



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107. Which one of the following correctly describes the homologous structures?

A. Organs with anatomical dissimilarities, but performing same function

B. Organs that have no function now, but had important functions in ancestors

C. Organs with anatomical similarities, but performing different functions

D. Organs appearing only in embryonic stage and disappearing later in the adult

Answer: c

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108. Statement (S) : The concept of survival of the fittest is central to natural selection.

Reason (R) : Individuals who possess advantageous characters to adapt to the environment have better potential for survival.

- A. Only (S) is true but not (R)
- B. Both (S) and (R) are true but (R) does not explain (S)
- C. Both (S) and (R) are true and (R) is the correct explanation of (S)
- D. Both (S) and (R) are not true.

Answer: C

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109. According to Darwin, evolution is

- A. a sudden but discontinuous process
- B. a slow, gradual and continuous process
- C. a slow, sudden and discontinuous process
- D. a slow and discontinuous process

Answer: B



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110. Statement (S) : Populations of a species inhabiting different geographical areas are in a continuous process of adaptation to their surrounding environments and this leads to the evolution of species.

Reason (R) : Geographical barriers obstruct interbreeding of

populations of a species leading to reproductive isolation and evolution of new species.

- A. Both (S) and (R) are not true
- B. Only (S) is true but not (R)
- C. Both (S) and (R) are true but (R) does not explain (S)
- D. Both (S) and (R) are true and (R) is the correct explanation of (S)

Answer: D



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111. Single step large mutation leading to speciation is also called

- A. saltation
- B. founder effect
- C. branching descent
- D. natural selection

Answer: A



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112. Analogous structures are :

- A. anatomically different but performing similar functions
- B. anatomically similar but performing different functions
- C. anatomically similar and functioning similarly
- D. anatomically different and functioning differently

Answer: A



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113. Fitness according to Darwin refers to

- A. Physical strength

- B. High aggressiveness
- C. Healthy appearance
- D. The ability to survive and reproduce

Answer: D



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114. Balancing selection ' promotes :

- A. Homozygotes
- B. Heterozygotes
- C. Polyploids
- D. Recessive traits

Answer: B



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115. How many biogeographical regions are present in India ?

- A. 3
- B. 4
- C. 7
- D. 10

Answer: D



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116. Which is the correct order of increasing geological time scale for a hypothetical vertebrate evolution?

- A. Cenozoic, Mesozoic, Paleozoic, Precambrian
- B. Cenozoic, Palaeozoic, Mesozoic, Cenozoic
- C. Precambrian, Palaeozoic, Mesozoic, Cenozoic
- D. Precambrian, Cenozoic, Palaeozoic, Mesozoic

Answer: C



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117. Example of homologous structure is / are :

- A. optic lobes of brain
- B. cerebrum of brain
- C. heart of vertebrates
- D. all of these

Answer: D



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118. According to Darwin, diversity in Australian marsupials is an example of :

- A. parallel evolution
- B. parallel radiation
- C. adaptive radiation
- D. convergent evolution

Answer: A

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119. Evolution is experimentally demonstrated by :

- A. rapid mutation-Neo-Lamarckism
- B. survival of the fittest - Wallace
- C. ancon sheep- Neo-Darwinism
- D. replica plating- Lederberg

Answer: D

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120. Besides radio dating which method can be used to find out whether a fossil is of older era ?

- A. Lava deposits
- B. Igneous rocks
- C. metamorphic rocks
- D. Sedimentation strata

Answer: d



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121. Darwin failed to notice the importance of :

- A. variation
- B. mutations
- C. competition

D. biotic potential

Answer: b



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122. A study of white winged and melanised moths made in England before and after industrialisation in 1850 and 1920 respectively , supporting evolution by :

- A. Natural selection
- B. adaptive radiation
- C. Parallel evolution
- D. divergent evolution

Answer: a



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123. A major source of speciation is :

- A. Gene flow
- B. Mutation
- C. Geographical isolation
- D. Hybrid breakdown

Answer: C



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124. A theory of explain the mechanism of evolutino based on change in the structure of gene was put forth by :

- A. De Vries
- B. Darwin
- C. Larmark
- D. Wallace

Answer: a



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125. Evolution of different species in a given area starting from a point and spreading to other geographical areas is known as

- A. migration of the members of species from one to other population
- B. natural selection
- C. adaptive radiation
- D. divergent evolution

Answer: c



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126. Read the following statements and choose the correct option

- A. Increase in melanized moths after industrialization in Great Britain is a

proof for natural selection

B. When more individuals of a population acquire a mean character value, it is called disruption

C. Changes in allelic frequency in a population will lead to Hardy Weinberg equilibrium

D. Genetic drift changes the existing gene or allelic frequency in future generations

A. B alone is correct

B. D alone is correct

C. A and D alone are correct

D. A and C alone are correct

Answer: C



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127. The idea of mutations was brought forth by

- A. Hardy-Weinberg, who worked on allele frequencies in population
- B. Charles Darwin who observed a wide variety of organisms during sea voyage
- C. Hugo de Vries who worked on evening primrose
- D. Gregor Mendel who worked on *Pisum sativum*

Answer: c



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128. The Hardy-Weinberg principle cannot operate if

- A. the population is very large
- B. frequent mutations occur in the population
- C. free interbreeding occurs among all members of the population
- D. the population has no chance of interaction with other populations

Answer: B



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129. An isolated population of humans with approximately equal numbers of blue-eyed and brown-eyed individuals was decimated by an earthquake. Only a few brown-eyed people remained to form the next generation. This kind of change in the gene pool is called a

- A. founder effect
- B. bottleneck effect
- C. blocked gene flow
- D. Hardy-Weinberg equilibrium

Answer: B



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130. The eye of octopus and eye of cat show different patterns of structure, yet they perform similar function. This is an example of

- A. Homologous organs that have evolve due to divergent evolution
- B. Analogous organs that have evolved due to convergent evolution.
- C. Analogous organs that have evolved due to divergent evolution
- D. Homologous organs that have evolved due to convergent evolution.

Answer: B

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131. The process by which organisms with different evolutionary history evolve similar phenotypic adaptations in response to a common environmental challenge is called :

- A. Natural selection
- B. Adaptive radiation
- C. convergent evolution
- D. Non- random evolution

Answer: c



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132. Variation in gene frequencies within populations can occur by chance rather than by natural selection. This is referred to as

Or

Random unidirectional change in allele frequencies that occur by chance in all population and especially in small populations is known as

- A. Genetic load
- B. Genetic flow
- C. Genetic drift
- D. Random mating

Answer: C



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133. According of Darwin, the organic evolution is due to

- A. Interspecific competition
- B. Intraspecific competition
- C. Competition within closely related species
- D. Reduced feeding efficiency in one species due to the presence of interfering species

Answer: A



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134. Which of the following is not vestigial organ in human beings ?

- A. Ear pinna, patella, olecranon process
- B. Rudimentary ear muscles and third molars
- C. Coccygeal tail vertebrae and scalp muscles
- D. Vermiform appendix and nictitating membrane of the eye

Answer: A



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135. Wing of pigeon is homologous to the :

- A. ear of bat
- B. tail of rabbit
- C. wing of butterfly
- D. foreleg of horse

Answer: D



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136. Which one of the following are analogous structures

- A. Gills of prawn and lungs of man

B. Wings of bat and wings of pigeon

C. Flippers of dolphin and legs of horse

D. Thorns of Bougainvillea and tendrils of Cucurbita

Answer: A



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137. In a population of 1000 individuals 360 belong to genotype AA, 480 to Aa and the remaining 160 to aa. Based on this data, the frequency of allele A in the population is

A. 0.7

B. 0.4

C. 0.5

D. 0.6

Answer: D



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138. Forelimbs of cat, lizard used in walking, forelimbs of whale used in swimming and forelimbs of bats used in flying are an example of

- A. Analogous organs
- B. adaptive radiation
- C. Homologous organs
- D. convergent evolution

Answer: C



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139. Match Column I with Column II and choose the right option.

(*GRB_OBJ_BIO_IIND_C56_E01₅₃₆ – Q01*)

- A. A-4,B-1,C-3,D-2

B. A-2,B-4,C-1,D-3

C. A-2,B-4,C-3,D-1

D. A-3,B-2,C-1,D-4

Answer: B



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140. Which mechanism of evolution affects the genetic make-up in a population ?

A. Adaptin

B. Genetic drift

C. Gene mutation

D. natural selection

Answer: c



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141. Thorn of Bougainvillea and tendril of Cucurbita are examples of :

- A. co-evolution
- B. adaptive radiation
- C. convergent evolution
- D. divergent evolution

Answer: D



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142. Industrial melanism is an :

- A. evidence in favour of natural selection
- B. evidence of survival of fittest
- C. effect of industrial pollution
- D. effect of mutation

Answer: a



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143. Which one is an example of living fossil?

- A. Coral
- B. Ascidia
- C. King crab
- D. Octopus

Answer: c



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144. A population will not exist in Hardy-Weinberg equilibrium if

- A. there is no migration

- B. the population is larg
- C. there are no mutations
- D. individuals mate selectively

Answer: D



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145. Choose the wrong pair :

- A. Adaptive radiation - Darwin's finches
- B. Divergent evolution - Forelembes of whales bats, cheetah and human
- C. Convergent evolution - Flippers of penguins and dolphins
- D. Analogous structures - Tndril of Bougainvillea and Cucurbita

Answer: D



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146. Fossils act as evidence of organic evolution. Which one of these features does not justify feature of fossils ?

- A. They are remains of hard parts of life forms that existed in the past
- B. They are the remains of decayed and decomposed body parts
- C. Fossils present in the lower strata of the earth are older than those present in the upper strata
- D. Study of fossils in different sedentary layers indicates the geological period in which they existed.

Answer: B

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147. Evolution of different species in a given area starting from a point and spreadig to other geographical areas is known as

- A. migration

B. natural selection

C. adaptive radiation

D. convergent evolution

Answer: c



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148. The idea of Natural Selection as the fundamental process of evolutionary changes was reached

A. by Charles Darwin in 1866

B. by Alfred Russel Wallace in 1901

C. independently by Charles Darwin and Alfred Russel Wallace in 1990

D. independently by Charles Darwin and Alfred Russel Wallace in 1859

Answer: d



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149. The ancestors of modern day frogs and salamanders are

- A. Amphioxus
- B. Coelacanth
- C. Ichthyophis
- D. Jawless fish

Answer: B



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150. The dinosaurs were maximum during the period of

- A. Jurassic
- B. Tertiary
- C. Triassic
- D. Cretaceous

Answer: A



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151. Darwin's theory of evolution cannot explain :

- A. natural selection
- B. arrival of fittest
- C. struggle for existence
- D. prodigality of production

Answer: b



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152. Select the correct pair :

- A. Adaptive radiation - Darwin's finches

B. Connecting link - Sewall Wright effect

C. Genetic drift - Peppered moth

D. Industrial - Archaeopteryx

Answer: A



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153. The wings of a bird and the wings of an insect are

A. homologous structures and represent divergent evolution

B. analogous structures and represent convergent evolution

C. phylogenetic structures and represent divergent evolution

D. homologous structures and represent convergent evolution

Answer: B



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154. Industrial melanism is an example of

- A. Mutation
- B. Neo-Darwinism
- C. Natural selection
- D. Neo-Lamarckism

Answer: C



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155. This is believed to have evolved in cenozoic period :

- A. Ferns
- B. Cycads
- C. Conifers
- D. Bryophytes

Answer: d



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156. Which of the following structures is homologous to the wing of a bird?

A. Wing of the Moth

B. Flipper of Whale

C. Hindlimb of Rabbit

D. Dorsal fin of a Shark

Answer: B



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157. Analogous structures are a result of

- A. Shared ancestry
- B. Stabilizing selection
- C. Divergent evolution
- D. convergent evolution

Answer: D

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158. Genetic drift operates only in

- A. Small isolated population
- B. Large isolated population
- C. Non-reproductive population
- D. slow reproductive population

Answer: A

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159. In Hardy-Weinberg equation, the frequency of heterozygous individual is represented by

A. pq

B. q^2

C. $2pq$

D. p^2

Answer: C



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