



## BIOLOGY

### BOTANY AND ZOOLOGY FOR NEET AND AIIMS

## EVOLUTION

#### Exercise I Origin Of Life And Evolution Of Life Forms

1. The branch of biology that deals with the origin of life and its gradual modification through ages is

- A. Systematic
- B. Organic evolution
- C. Palaeontology

D. Genetics

**Answer: B**



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2. This theory states that living organisms on the earth were created by Divine Power

- A. Cosmozoic theory
- B. Theory of spontaneous generation
- C. Theory of catastrophism
- D. Theory of special creation

**Answer: D**



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3. Life is distributed all over cosmos in the form of resistant spores as per this concept

- A. Theory of Abiogenesis
- B. Theory of Biogenesis
- C. Theory of Catastrophism
- D. Theory of Panspermia

**Answer: D**



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4. This theory explained that life originated from non-living substances

- A. Theory of Spontaneous generation

- B. Cosmozoic theory
- C. Theory of Catastrophism
- D. Theory of Special creation

**Answer: A**



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5. By swan-neck flask experiment, theory of Biogenesis was confirmed by

- A. Louis Pasteur
- B. Spallanzani
- C. Francesco Redi
- D. All these

**Answer: A**



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6. This theory states that living organisms originate from pre-existing organisms

- A. Theory of Catastrophism
- B. Theory of Panspermia
- C. Biogenesis theory
- D. Theory of Spontaneous generation

**Answer: C**



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7. Age of earth is about

- A. 4.5 to 5.5 million years
- B. 45 million years
- C. 4.5 to 5 billion years
- D. 45-55 billion years Evolution

**Answer: C**



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8. "Primitive organisms evolved spontaneously from the inorganic matter as a result of formative action of physical forces like electric charges, U.V. radiations and radiations of radioactive elements" was proposed and supported respectively by

- A. Aristotle, Thales, Plato and Von Helmont
- B. Francesco Redi, Spallanzani and Louis Pasteur
- C. A.I. Oparin, J.B.S. Haldane
- D. Father Saurez and Cluvier

**Answer: C**



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**9.** Oparin and Haldane's theory of chemical evolution of life was experimentally supported by

- A. Landsteiner and Weiner
- B. Hardy and Weinberg
- C. Oparin and Sydney Fox
- D. Miller and Urey

**Answer: D**



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**10.** Origin of life on earth today is prevented due to

- A. Presence of living beings
- B. Availability of free oxygen
- C. Non-Availability of simple organic molecules
- D. Presence of U-V radiation

**Answer: B**



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**11.** Atmosphere of primordial earth lacked



A. Ammonia

B. Hydrogen

C. Methane

D. Oxygen

**Answer: D**



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**12.** According to Haldane and Oparin finally protobionts evolved into

A. Eukaryotic organisms

B. Early protists

C. Early protostomes

D. Early living organisms

**Answer: D**



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**13.** The origin of life is a phenomenon of chemical evolution that lead to biological evolution according to

- A. Pasteur and Spallanzani
- B. Haldane and Oparin
- C. Thales and Plato
- D. Aristotle and Von Helmont

**Answer: B**



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**14.** Gases used by Miller for synthesis of amino acids through heat and electric discharges are

- A. Water vapour, methane, ammonia and nitrogen
- B. Carbon dioxide, ammonia, methane and water vapour
- C. Ammonia, carbon dioxide, oxygen and water vapour
- D. Methane, ammonia, hydrogen and water vapour

**Answer: D**



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**15.** The cells that first originated are

- A. Heterotrophs
- B. Autotrophs

C. Eukaryotic

D. Aerobic

**Answer: A**



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**16.** The following gas was most likely absent from the primordial atmosphere at the time of origin of life

A. Ammonia

B. Oxygen

C. Hydrogen

D. Methane

**Answer: B**



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17. Which one of the following experiments suggests that simplest living organisms could not have originated spontaneously from nonliving matter?

- A. Larva could appear in decaying organic matter
- B. Meat was not spoiled, when heated and kept sealed in a vessel
- C. Microbes did not appear in stored meat
- D. Microbes appeared from unsterilized organic matter

**Answer: B**



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18. The concept of chemical evolution is based on

- A. Interaction of water, air and clay under intense heat
- B. Effect of solar radiation of chemicals
- C. Possible origin of life by combination of chemicals under suitable environmental conditions
- D. Crystalization of chemicals

**Answer: C**



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19. One of the possible early sources of energy were/was

- A.  $CO_2$
- B. Chlorophyll

C. Green plants

D. UV rays and lightning

**Answer: D**



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**20.** Which one of the following experiments suggests that simplest living organisms could not have originated spontaneously from nonliving matter?

A. Larvae could appear in decaying organic matter.

B. Microbes can appear on bread kept at a moist palce.

C. Microbes appear on unsterilized organic matter.

D. Meat was not spoiled, when heated and kept sealed in a vessel.

**Answer: D**



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21. According to one of the most widely accepted theories, earth's atmosphere before origin of life was

- A. oxidizing
- B. oxidizing along with H,
- C. reducing with  $O_2$ , in small amount
- D. reducing with oxygen absent in  $O_2$ , from

**Answer: D**



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22. The prebiotic atmosphere of the earth was of a reducing nature. It was transformed into an oxidizing atmosphere of present day due to the emergence of

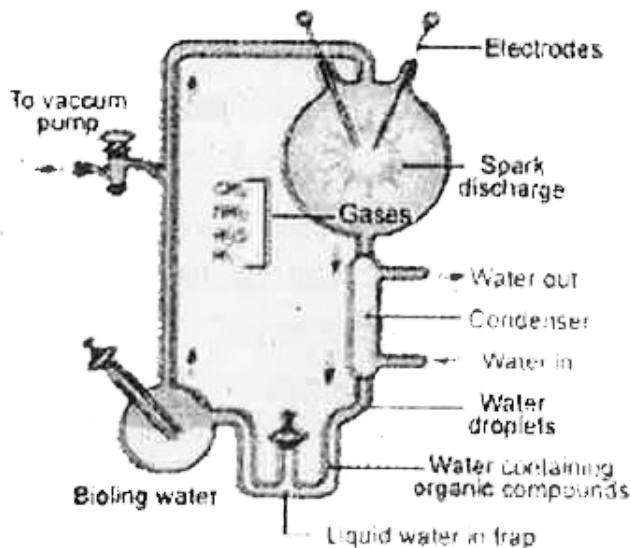
- A. cyanobacteria
- B. angiosperms
- C. photosynthetic bacteria
- D. eukaryotic algae

**Answer: A**



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23. In the experiment in given diagram which of the following groups of gases were used to simulate primitive atmosphere?



A.  $N_2$ ,  $H_2$ ,  $CH_4$ ,  $C_2H_6$

B.  $NH_3$ ,  $H_2O$ ,  $CH_4$ ,  $H_2$

C.  $N_2O$ ,  $H_2O$ ,  $NO_2$ ,  $SO_2$

D.  $CH_4$ ,  $H_2$ ,  $NO_2$ ,  $SO_2$

**Answer: B**



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24. The sequence of origin of life may be

A. Inorganic materials - Organic materials → Colloidal aggregate Eobiont Cell

B. Organic materials Inorganic materials → Colloidal aggregate Eobiont Cell

C. Inorganic materials Organic materials Eobiont cell  
Colloidal aggregate

D. Organic materials Inorganic materials Eobiont cell  
Colloidal aggregate

**Answer: C**



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25. Early atmosphere contained methane and other hydrocarbons. They have been now replaced by

- A. nitrogen
- B. oxygen
- C. carbon dioxide
- D. hydrogen

**Answer: D**



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26. In 1953, S.L. Miller created primitive earth conditions in the laboratory and gave experimental evidence for origin of first form of life from pre-existing non-living organic molecules. The primitive earth conditions created include

- A. low temperature, volcanic storms, atmosphere rich in oxygen
- B. low temperature, volcanic storms, reducing atmosphere.
- C. high temperature, volcanic storms, non reducing atmosphere
- D. high, temperature, volcanic storms, reducing atmosphere containing  $CH_4$ ,  $NH_3$ , etc.

**Answer: C**



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**27. The theory of spontaneous generation stated**

- A. life arose from living forms only

B. life can arise from both living and non living

C. life can arise from non-living things only

D. life arises spontaneously, neither from living nor from the non-living.

**Answer: B**



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## Exercise I Evidences For Evolution

1. Organs that are common in embryonic origin and have the same fundamental structure but perform different functions are called

A. Homogenous organs

B. Homologous organs

C. Analogous organs

D. Vestigial organs

**Answer: B**



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2. Flipper of whale, paw of a cat, foreleg of a horse, and hand of a human being are example for

A. Vestigial organs

B. Homologous organs

C. Analogous organs

D. Over specialised organs

**Answer: D**



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**3. Homologous organs explain**

- A. Divergent evolution
- B. Adaptive radiation
- C. Common evolutionary origin of animals
- D. All these

**Answer: C**



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4. Organs which differ in their origin and development but perform similar function are

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

**Answer: B**



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5. Wing of an insect and the wing of a bird are

- A. Homologous organs
- B. Analogous organs

C. Vestigial organs

D. Over specialised organs

**Answer: B**



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6. What is the supportive evidences for evolution from comparative anatomy

A. All antelopes have four legs

B. Most vertebrates have a head

C. Similar gene sequences code for similar proteins

D. Diverse species have homologous structures

**Answer: D**



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7. Convergent evolution is shown by

- A. Homologous organs
- B. Analogous organs
- C. Vestigial organs
- D. All these

**Answer: B**



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8. Zygote may be compared to

- A. Single celled ancestor of some animals

- B. Prokaryotic ancestor of all organisms
- C. Single celled ancestor of all animals
- D. Colonial protozoan ancestor of metazoans

**Answer: C**



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**9. The fossils include**

- A. Whole bodies and skeletons
- B. Coprolites
- C. Impressions, casts and moulds
- D. All these

**Answer: D**



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10. From fossil records, it may be concluded that evolution has taken place from

- A. Simple to complex in a sudden way
- B. Complex to simple in a gradual way
- C. Simple to complex in a gradual way.
- D. Complex to simple in a sudden way

**Answer: C**



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11. Fossil X is older than fossil Y because

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

**Answer: A**



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**12.** In evolution the studies can be made at molecular level. For example, the protein present in the blood of man and ape are similar. The base sequence in nucleic acids and amino acids the examples which are specifically referred in

- A. Convergent evolution
- B. Molecular analogy

C. Molecular homology

D. Homoplastic appearance

**Answer: C**



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**13.** Wings of butterfly and that of birds are good examples of

A. Convergent evolution

B. Divergent evolution

C. Homologous structures

D. Caumouflage

**Answer: A**



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

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

**Answer: A**



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



- A. Organs with anatomical similarities, but performing different functions.
- B. Organs with anatomical dissimilarities, but performing same function.
- C. Organs that have no function now, but had an important function in ancestors.
- D. Organs appearing only in embryonic stage and disappearing later in the adult.

**Answer: A**



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**16.** Which one of the following groups of structures/organs have similar function?

- A. Typhlosole in earthworm, intestinal villi in rat and contractile vacuole in Amoeba.
- B. Nephridia in earthworm, Malpighian tubules in cockroach and urinary tubules in rat.
- C. Antennae of cockroach, tympanum of frog and clitellum of earthworm.
- D. Incisors of rat, gizzard (proventriculus) of cockroach and tube feet of starfish.

**Answer: B**



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**17.** In evolution the studies can be made at molecular level. For example, the proteins present in the blood of man and ape are

similar. The base sequence in nucleic acids and amino acids sequence in proteins of related organism is alike. These are the examples which are specifically referred to in

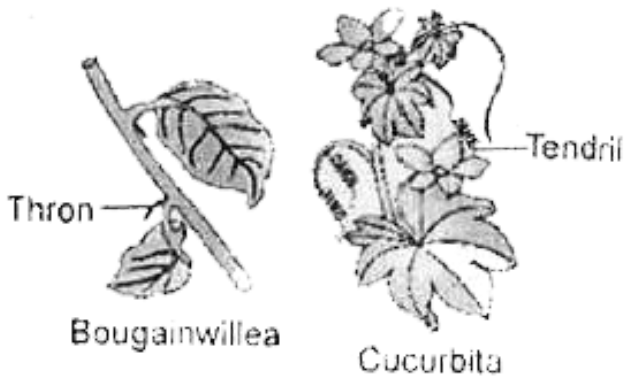
- A. convergent evolution
- B. molecular analogy
- C. molecular homology
- D. homoplastic appearance

**Answer: C**



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18. The given figure shows an example of -



- A. homologous organs
- B. convergent evolution
- C. divergent evolution
- D. both (1) and (3)

**Answer: D**



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

- A. Eye of octopus and mammals
- B. Wings of butterfly and birds
- C. Flippers of penguins and dolphins.
- D. Thorns of Bougainvillea and tendril of Cucurbita.

**Answer: D**



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

Convergent evolution      Divergent evolution

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| A. Eyes of octopus and of mammals | Bones of forelimbs of vertebrates |
|-----------------------------------|-----------------------------------|

- |    |                               |                      |
|----|-------------------------------|----------------------|
|    | Thorns of                     | Wings of butterflies |
| B. | of mammals                    | vertebrates          |
|    | and tendrils of Cucurbita     |                      |
| C. | Bones of forelimbs            | Wings of butterfly   |
|    | and vertebrates               | birds                |
|    | Thorns of                     | Eyes of octopus      |
| D. | and bougainvillea and mammals |                      |
|    | tendrills of Cucurbita        |                      |

**Answer: A**



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21. Refer the given figure. What does it represent?



A. Convergent evolution

B. Adaptive radiation

C. Divergent evolution

D. Both (2) and (3)

**Answer: D**



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22. The preserved fossil remains of Archaeopteryx show that

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

**Answer: B**



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23. What can you infer about the strcutures shown in figure ?



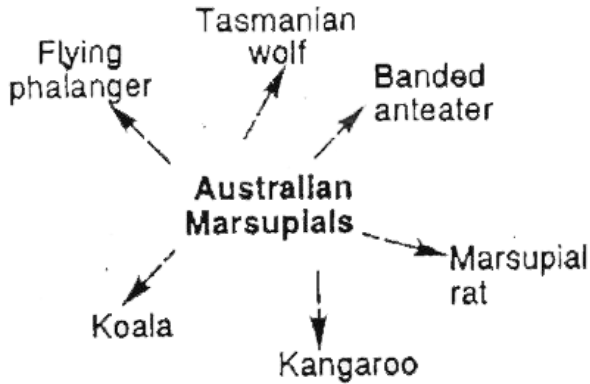
- A. They are homologous structures
- B. They are vestigial structures
- C. They are analogous structure.
- D. They have nothing to do with each other .

**Answer: A**



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24. Following diagram provides an example of



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

Answer: D



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25. Palaentological evidences for evolution form to the .

- A. development of embryo
- B. homologous organs
- C. fossils
- D. analogous organs

**Answer: C**



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26. The bones of forelimbs of whale , bat , cheetah and man are similar in structure , because .

- A. One organism has given rise to another
- B. they share a common ancestor

- C. they perform the same function
- D. they have biochemical similarities

**Answer: B**



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**27. Analogous organs arise due to**

- A. divergent evolution
- B. artificial selection
- C. genetic drift
- D. convergent evolution

**Answer: D**



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**28.** Fossils are generally found in

- A. sedimentary rocks
- B. igneous rocks
- C. metamorphic rocks
- D. any type of rock

**Answer: A**



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## Exercise I Adaptive Radiation

**1.** Darwin finches are found in

A. Galapagos Island

B. Tahiti

C. Tundra

D. None of these

**Answer: A**



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**2. Pouched mammals attained diversity in**

A. New Zealand

B. South Africa

C. Australia

D. South America

**Answer: C**



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3. The ape fossil which is supposed to be on the direct line of human evolution

A. Dryopithecus

B. Homo habilis

C. Ramapithecus

D. Homo neanderthalensis

**Answer: C**



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4. The first true hominid in the fossil record has been placed in the following genus

- A. Homo
- B. Dryopithecus
- C. Ramapithecus
- D. Australopithecus

**Answer: A**



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5. Human evolution occurred in

- A. Asia
- B. Africa



C. America

D. Europe

**Answer: B**



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**6. Potato and sweet potato**

A. Have edible parts which are analogous

B. Have edible parts which are homologous

C. Are two species of the same genus

D. None of the above three

**Answer: A**



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7. The cluster of species formed on Galapagos island are clear example of all except

- A. Adaptive radiation
- B. Sympatric speciation
- C. Founders effects
- D. Microevolution leading to macroevolution

**Answer: B**



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8. The variety of beaks of finches that Darwn found in Galapagous island is a clear indication of the following evolution procces .

- A. Parallel adaptation
- B. Convergent evolution
- C. Adaptive radiation
- D. Adaptive convergene

**Answer: C**



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**9. Similarities in organism with different genotype indicates**

- A. Microevoltuion
- B. Macroevolution
- C. Converge evolution
- D. Divergent evolution

**Answer: C**



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**10.** Darwins thoery of inheritance of acquired characters than what shall be correct according to it

- A. Useful organs beocmes strong and developed while useless organs becomes extinct
- B. Size of organs increase with aging
- C. Development of organs is due to will power
- D. There should be some physical baise of inheritance

**Answer: D**



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

- A. Seasonal isolation
- B. Reproductive isolation
- C. Behavioural isolation
- D. Tropical isolation

**Answer: B**



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12. Which one of the following sequence as proposed by Darwin and Wallace for organic evolution ?

- A. Overproduction , variation , constancy of population size,  
natural selection

B. Variation , constancy of population size overproduction ,  
natural selection

C. Overproduction , constancy of population size, variations ,  
natural selection

D. Over - production , constancy of population size , natural ,  
selection

**Answer: C**



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**13.** The most likely reason for the development of resistance  
against pesticides in insects damaging a crop is

A. Random mutations

B. Genetic recombination

C. Directed mutations

D. Acquired heritable changes

**Answer: A**



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

A. Development of transgenic animals

B. Production of Dolly the sheep by cloning

C. Prevalence of pesticide resistance insects

D. Development of organs from stem cells for organ transplantation.

**Answer: C**



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**15.** Praying mantis is a good example of

- A. Camouflage
- B. Mullerian mimicry
- C. Warning colouration
- D. Social insects

**Answer: A**



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16. Industrial melanism as observed in peppered moth proves that

- A. The melanic form of the moth has no selective advantage over lighter form in industrial area
- B. The lighter -form moth has no selective advantage either in polluted industrial area or non-polluted area
- C. Melanism is a pollution -generated feature
- D. The true black melanic forms arise by a recurring random mutation

**Answer: D**



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

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

**Answer: C**



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18. Example of Industrial Melanism

- A. Peppered moth
- B. Darwin

C. Finches Archaeopterys

D. Neopilina

**Answer: A**



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## Exercise I Biological Evolution Theories Of Evolution Mechanism Of Evolution

1. Species originate discontinuously without intermediate forms according to

A. Lamarck

B. de Vries

C. Darwin

D. Haeckel

**Answer: B**



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2. Lamarck cited the example of giraffe to explain

A. Disuse of an organ

B. Misuse of an organ

C. Use of an organ

D. Vestigial organs

**Answer: C**



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3. In organisms vestigial organs are formed because of

- A. Internal forces of life
- B. Use of organs
- C. Inheritance of acquired characters
- D. Disuse of organs

**Answer: D**



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4. According to Darwin during the struggle for existence, these organisms alone will survive

- A. Organisms with discontinuous variations
- B. Organisms with acquired variations

- C. Organisms with useless variations
- D. Organisms with beneficial variations

**Answer: D**



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**5. A sudden, random, discontinuous and heritable change is**

- A. Genetic drift
- B. Mutation
- C. Genetic load
- D. Bottle neck

**Answer: B**



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6. Hugo de Vries stressed on

- A. The adaptiveness of variation in evolution
- B. The randomness of variation in evolution
- C. The inheritance of acquired variation in evolution
- D. The inheritance of fluctuating variation in evolution

**Answer: B**



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7. New species arise by sudden jump according to

- A. Hugo de Vries
- B. Lamarck

C. Darwin

D. Sewall Wright

**Answer: A**



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**8.** There are no intermediate stages in the course of evolution according to

A. Use and disuse theory

B. Natural selection theory

C. Mutation theory

D. Modern synthetic theory

**Answer: C**





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9. According to Darwin, if new variations are to be inherited they should be:

- A. Selected by the nature through competition and adaption
- B. Arised through saltations
- C. Defeated in the struggle for existence
- D. Rejected by the nature

**Answer: A**



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10. de Vries gave his mutation theory on organic cvolution while working on

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

**Answer: A**



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**11.** The most likely reason for the development of resistance against pesticides in insects damaging a crop is

- A. Random mutations
- B. Genetic recombination
- C. Directed mutations
- D. Acquired heritable changes

**Answer: A**



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

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

**Answer: C**



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13. Which of the following evidences does not favour the Lamarckian concept of inheritance of acquired characters ?

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

**Answer: B**



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14. 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 competition
- B. interspecific competition
- C. origin of species by natural selection
- D. origin of species by mutation.

**Answer: C**



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**15.** Drawinism explains all the following except

- A. offspring with better trails that overcome competiton are  
best suited for the environment
- B. variations may or may not be inherited from parents to  
offspring through genes

C. within each species, there are variations

D. organisms tend to produce more number of offspring than can survive.

**Answer: B**



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**16.** Given below are four statements (A-D) each with one or two blanks. Select the option which correctly fills up the blanks in two statements.

(A) Wings of butterfly and bird look alike and are the results of (i), evolution.

(B) Miller showed that  $CH_4$ ,  $H_2$ ,  $NH_3$ , and (1) when exposed to electric discharge in a flask resulted in formation of (ii)

(C) Veriform appendix is a (i) organ and an (ii) evidence of

evolution.

(D) According to Darwin evolution took place due to (i) and (ii) of the fittest.

A. (A)-(i) convergent, (D)-(i) small variations, (ii) survival

B. (A)-(i) convergent, (B)-(i) oxygen, (ii) nucleosides

C. (B)-(i) water vapour, (ii) amino acids, (C)-(i) homologous, (ii) anatomical

D. (C)-(i) vestigial, (ii) anatomical , (D)-(i) mutations, (ii) multiplication.

**Answer: A**



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**17.** Single step large mutation leading to speciation is also called

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

**Answer: B**



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**18.** By the statement 'survival of the fittest', Darwin meant that

- A. the strongest of all species survives
- B. the most intelligent of the species survives
- C. the cleaverest of the species survives
- D. the species most adaptable to changes survives.



**Answer: D**



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**19.** Which of the following are the two key concepts of Darwinian theory of evolution?

- A. Genetic drift and mutation.
- B. Adaptive radiation and homology.
- C. Mutation and natural selection.
- D. Branching descent and natural selection.

**Answer: D**



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20. According to 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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21. 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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**22.** Which of the following statements about natural selection are correct?

( i) Tends to increase the characters that enhance survival and reproduction

(ii) Causes adaptation

(iii) Acts on an organism's phenotype

(iv) Was considered as mechanism of evolution by Darwin

A. (i), (ii), (iii) and (iv)

B. (i) and (ii)

C. (iii) and (iv)

D. (i), (iii) and (iv)

**Answer: A**



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23. Replacement of the lighter-coloured variety of peppered moth (*Biston betularia*) to its darker variety (*Biston carbonaria*) in England is the example of

- A. natural selection
- B. regeneration
- C. genetic isolation
- D. temporal isolation

**Answer: A**



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24. Appearance of antibiotic-resistant bacteria is an example of

- A. adaptive radiation

B. transduction

C. pre-existing variation in the population

D. divergent evolution.

**Answer: C**



**Watch Video Solution**

**25.** Which of the following is an example for link species?

A. Lobe fish

B. Dodo bird

C. Sea weed

D. Chimpanzee

**Answer: A**



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**26.** Variations during mutations of meiotic recombinations are

- A. random and directionless
- B. random and directional
- C. random and small
- D. random, small and directional

**Answer: A**



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**Exercise I Hardy Weinberg**

1. 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. 0.16

C. 0.24

D. 0.48

**Answer: D**



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2.  $(p + q)^2 = p^2 + 2pq + q^2 = 1$  represents an equation used in

A. population genetics



B. mendelian genetics

C. biometrics

D. molecular genetics

**Answer: A**



**Watch Video Solution**

3. For the MN-blood group system, the frequencies of M and N alleles are 0.7 and 0.3, respectively. The expected frequency of MN-blood group bearing organisms is likely to be

A. 0.42

B. 0.49

C. 0.09

D. 0.58

**Answer: A**



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## Exercise I Evolutionary Forces

1. Random change in gene/allelic frequency occurring by chance but not under the control of natural selection is called

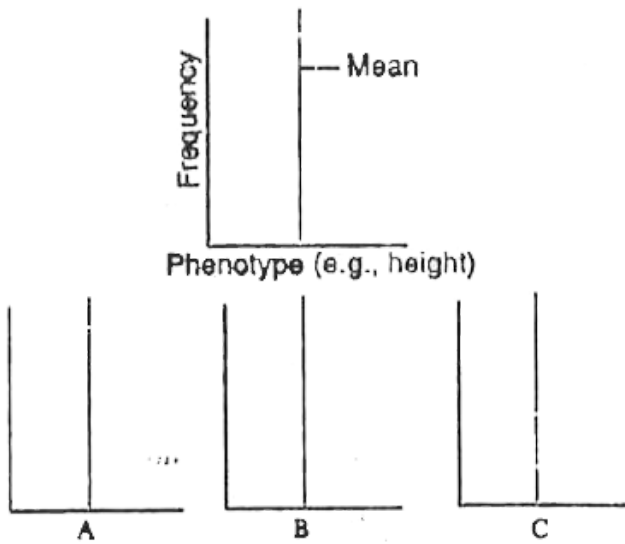
- A. Genetic drift
- B. Natural selection
- C. Isolation
- D. Adaptive radiation

**Answer: A**



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2. Following is the diagrammatic representation of the operation of natural selection on different traits. Which of the following options correctly identifies all the three graphs A, B and C.



- |    |             |             |             |
|----|-------------|-------------|-------------|
|    | A           | B           | C           |
| A. | Directional | Stabilizing | Disruptive  |
| B. | Stabilizing | Directional | Disruptive  |
| C. | Disruptive  | Stabilizing | Directional |

- |    |             |            |             |
|----|-------------|------------|-------------|
|    | A           | B          | C           |
| D. | Directional | Disruptive | Stabilizing |

**Answer: B**



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

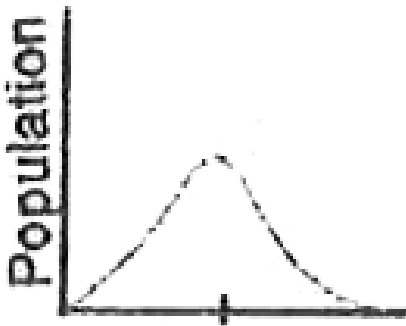
- A. evolution
- B. limiting factors
- C. saltation
- D. natural selection

**Answer: D**

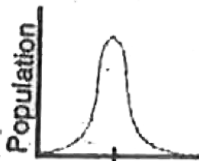


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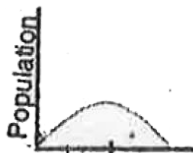
4. The given graph shows the range of variation among population members for a trait determined by multiple genes. If this population is subjected to disruptive selection for several generations, Which of the following distributions is most likely to result?

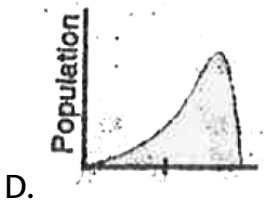
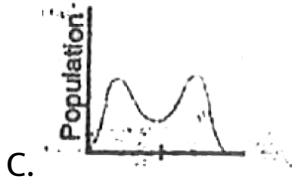


A.



B.





**Answer: C**



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**5. Match Column-I with Column-II and select the correct option from the codes given below.**

Column-I	Column-II
A) Mutation	i) Changes in population's allele frequencies due to chance alone
B) Gene flow	ii) Differences in survival and reproduction among variant individuals
C) Natural selection	iii) Immigration, emigration change allele frequencies
D) Genetic drift	iv) Source of new alleles

A. A-(i), B-(ii), C-(iii), D-(iv)

B. A-(iv), B-(ii), C-(iii), D-(i)

C. A-(iv), B-(i), C-(iv), D-(ii)

D. A-(iv), B-(iii), C-(ii), D-(i)

**Answer: D**



**Watch Video Solution**

6. Which type of selection is industrial melanism observed in moth, *Biston betularia*

A. stabilizing

B. directional

C. disruptive

D. artificial

**Answer: B**



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## Exercise I Brief Account Of Evolution

1. The periods of Mesozoic era

A. Triassic, Jurassic and Cretaceous



- B. Cambrian, Ordovician and Silurian
- C. Devonian, Carboniferous and Permian
- D. Tertiary and Quaternary

**Answer: A**



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**2. The correct chronological sequence of Eras is**

- A. Mesozoic → Coenozoic → Archaeozoic
- B. Coenozoic → Proterozoic → Mesozoic
- C. Palaeozoic → Mesozoic → Coenozoic
- D. Palaeozoic → Archaeozoic → Coenozoic

**Answer: C**



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3. Type of natural selection that leads to splitting of population in a species leading to formation of new species is

- A. Normalizing selection
- B. Directional selection
- C. Disruptive selection
- D. Mass selection

**Answer: C**



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4. Genetic drift occurring when a few individuals of a species colonizing an island causes

- A. Founder effect
- B. Bottleneck effect
- C. Assortative mating
- D. Bohr effect

**Answer: A**



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**5. The first cellular forms of life' appeared about**

- A. 3000 mya
- B. 2000 mya
- C. 500 mya
- D. 350 mya

**Answer: B**



**Watch Video Solution**

**6. Dinosaurs are**

- A. Extinct amphibians
- B. Extinct reptiles
- C. Primitive mammals
- D. Living reptiles

**Answer: B**



**Watch Video Solution**

7. The first noncellular forms of life on earth have originated about

- A. Two million years ago
- B. Three billion years ago
- C. Two billion years ago
- D. Three million years ago

**Answer: B**



**Watch Video Solution**

8. The first cellular forms of life' appeared about

- A. 2000 million years ago
- B. 200 million years ago

C. 4.5 million years ago

D. 3 million years ago

**Answer: A**



**Watch Video Solution**

**9. The ancestors of Dinosaurs were**

A. Thecodonts

B. Synapsids

C. Therapsids

D. Pelycosaurs

**Answer: A**



**Watch Video Solution**

10. An extinct reptile with huge fearsome dagger like teeth and grown to enormous height

- A. Ichthyosaur
- B. Tyrannosaurus
- C. Dryopithecus
- D. Triceratops

**Answer: B**



**Watch Video Solution**

11. Fish like giant reptile that existed about 200mya

- A. Tyrannosaurus

B. Ichthyosaur

C. Triceratops

D. Pteranodon

**Answer: B**



**Watch Video Solution**

**12. The organisms that invaded land first**

A. Fishes

B. Insects

C. Bacteria

D. Plants

**Answer: D**





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**13.** Select the correctly matched pair with reference to the organisms and their probable time of evolution

- A. Lower invertebrates - 700 mya
- B. Jawless fishes - 200 mya
- C. Lobe finned fishes - 300 mya
- D. Fish like giant reptiles - 65 mya

**Answer: C**



[Watch Video Solution](#)

**14.** The first mammals that evolved were

- A. Large sized and aquatic
- B. Large sized and terrestrial
- C. Small sized and fast running terrestrial forms
- D. Vestigial organs

**Answer: D**



**Watch Video Solution**

**15.** The probable ancestors of modern day frogs and salamanders are

- A. Pelycosaurs
- B. Dipnoi fishes
- C. Cartilaginous fishes
- D. Coelacanth fishes

**Answer: D**



**Watch Video Solution**

**16.** Jurassic period of the Mesozoic era characterized 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 angiosperme appear
- D. Flowering plants and first dinosaurs appear

**Answer: A**



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17. Ancient mammals enjoyed a release from competition when the dinosaurs became extinct. Should humans work to ensure that such releases from competition continue to occur for us or for other species?

A. No, because it is impossible to predict which species will become dominant if other species become extinct will cause the extinction of humans.

B. No, because the species that become dominant will cause the extinction of humans.

C. Yes, because the organisms that are released from competition will always form more new species than the number that went extinct

D. Yes, because new species that evolve are always better organisms than those that went extinct

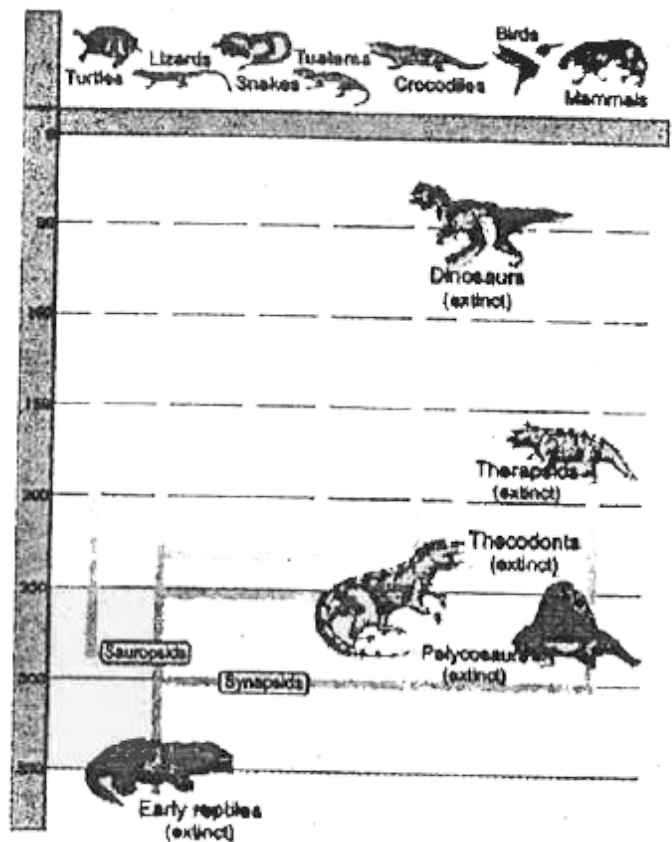
**Answer: A**



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**18.** Following is given the diagrammatic representation of evolutionary history of vertebrates through geological periods. Identify the geological periods (A, B, C and D) and select the

correct option.



A.

- |               |          |            |            |
|---------------|----------|------------|------------|
| A             | B        | C          | D          |
| Carboniferous | Triassic | Cretaceous | Quaternary |

B.

- |          |         |          |            |
|----------|---------|----------|------------|
| A        | B       | C        | D          |
| Jurassic | Premian | Tertiary | Cretaceous |

C.

- |         |          |            |          |
|---------|----------|------------|----------|
| A       | B        | C          | D        |
| Premian | Jurassic | Quaternary | Tertiary |

D.	A	B	C	D
	Cretaceous	Quaternary	Carboniferous	Jurassic

**Answer: A**



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**19.** Evolution of life shows that life forms had a trend of moving from

- A. land to water
- B. dryland to wet land
- C. fresh water to sea water
- D. water to land

**Answer: D**



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## Exercise I Evolution Of Man

1. The country, where most of the primitive men have been discovered is

- A. India
- B. China
- C. America
- D. Africa

**Answer: D**



**Watch Video Solution**

2. Homo erectus was probably a



A. Meat eating

B. Autograph

C. parasite

D. Symbiont

**Answer: A**



**Watch Video Solution**

**3. Australopithecus lived in**

A. Asia

B. West Africa

C. East African grass lands

D. Europe

**Answer: C**



**Watch Video Solution**

**4. In the evolution of man which was more ape like form?**

A. Dryopithecus

B. Ramapithecus

C. Australopithecus

D. Vestigial organs

**Answer: A**



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5. In the evolution of man which of the following forms spread through Africa and were the first to leave Africa?

- A. Dryopithecus and Ramapithecus
- B. Homo erectus and Homo ergaster
- C. Homo habilis
- D. Australopithecus

**Answer: B**



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6. In the evolution of man, the first cave paintings were made by

- A. Neanderthal man
- B. Java man

C. Peking man

D. Cro-Magnon man

**Answer: D**



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7. The first human like being was

A. Australopithecus

B. Homo habilis

C. Homo erectus

D. Drypethecus

**Answer: B**



**Watch Video Solution**

8. Which of the following form used hides to protect their body and buried their dead?

A. Homo neanderthalensis

B. Homo erectus

C. Australopithecus

D. Homo habilis

**Answer: A**



**Watch Video Solution**

9. The cranial capacity of Homo erectus was

A. Around 1400 cc

B. Around 900 cc

C. 650-800 cc

D. more than 1400 cc

**Answer: B**



**Watch Video Solution**

**10. Who was the first civilised man?**

A. Cro-Magnon man

B. Neanderthal man

C. Heidelberg man

D. Ternifier man

**Answer: B**



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11. Who discovered the use of the weapon and tools first?

- A. Homo habilis
- B. Handy man
- C. Both (1) and (2)
- D. Homo erectus

**Answer: C**



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12. The most accepted line of descent in human evolution is

- A. Australopithecus → Ramapithecus → Homo sapiens  
Homo habilis
- B. Homo erectus → Homo habilis → Homo sapiens
- C. Ramapithecus → Homo habilis → Homo erectus Homo sapiens
- D. Australopithecus → Ramapithecus → Homo erectus  
→ Homo habilis → Homo sapiens.

**Answer: C**



**Watch Video Solution**

**13. Dryopithecus has**

- A. semi-erect posture



B. rounded head

C. side large jaw

D. all of these

**Answer: D**



**Watch Video Solution**

**14.** Pre-historic man who gave a proper burial to the dead for the first time was

A. Peking man

B. Java man

C. Neanderthal man

D. Cro-Magnon man

**Answer: C**



**Watch Video Solution**

**15.** Which of the following statements is correct regarding evolution of mankind?

- A. Homo erectus was preceded by Homo habilis
- B. Australopithecus lived in Australia
- C. Neanderthal man and Vro-magnon man lived together
- D. none of the above

**Answer: A**



**Watch Video Solution**

16. One of the following trait distinguishes hominids from apes

- A. The use of tools
- B. Walking upright
- C. Absence of tail
- D. Use of fire

**Answer: B**



**Watch Video Solution**

17. The hominid primate, whose fossil bones were discovered along with Australopithecus, but with different features and existed about 2 million years ago

- A. Homo erectus

B. Homo sapiens

C. Cro-Magnon man

D. Homo habilis

**Answer: D**



**Watch Video Solution**

**18.** The ancestor of man who used hides to protect their body were

A. Homo habilis

B. Homo neanderthalensis

C. Homo erectus

D. Australopithecus

**Answer: B**



**Watch Video Solution**

**19.** Cranial capacity of Neanderthal man was

A. 1600cc

B. 650-800cc

C. 900cc

D. 1400cc

**Answer: D**



**Watch Video Solution**

**20.** Which of the following fact is not true for Homo habilis?

- A. They showed hominid features
- B. They were the first human like beings.
- C. They had a brain capacity of 1400cc
- D. They probably did not eat meat

**Answer: C**



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**21.** The extinct human ancestor, who ate only fruits and hunted with stone weapons was

- A. Ramapithecus
- B. Dryopithecus
- C. Homo erectus
- D. Homo habilis ,

**Answer: D**



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**22.** Which of the following statements is correct regarding evolution of mankind?

- A. Homo erectus is preceded by Homo habilis
- B. Neanderthal man and co-magnon man were living at the same time
- C. Australopithecus was living in Australia
- D. None of the above

**Answer: A**



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**23.** Which one of the following statement is correct?

- A. Australopithecus is the real ancestor of modern man
- B. Naeanderthal man is the direct ancestor of Homo spaiens
- C. Homo erectus is the ancestor of man
- D. Cro-magnon man's fossil has been found in Ethiopia

**Answer: C**



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**24.** Which of the following statements is incorrect?

- A. Jawless fish probably evolved around 350 mya.
- B. Tyrannosaurus rex was biggest dinosaur, about 20 feet in height and had huge fearsome dagger like teeth.



C. About 15 mya, primates called Dryopithecus and Ramapithecus existed.

D. Australopithecus with a brain size of 1400 cc lived in east and central Asia between 100000-40000 years back.

**Answer: D**

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**25.** The diagram given here shows the skulls of two different mammals.



Which of the following accurately describes the differences between these skulls?

- A. Skull A has more teeth than skull B
- B. Skull A has more brain capacity than skull B
- C. Skull A is of a human and skull B is of an ape
- D. Skull A is of an ape and skull B is of human

**Answer: D**



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**26.** Complete the following paragraph by selecting the correct sequence of words from the options given below. The Neanderthal man with a brain size of I lived near east and central (ii) between (iii) years back. They used (iv) to protect their body and duried their dead.

- |    |               |                   |                            |                 |
|----|---------------|-------------------|----------------------------|-----------------|
| A. | (i)<br>500cc  | (ii)<br>Australia | (iii)<br>2,00,000-1,40,000 | (iv)<br>clothes |
| B. | (i)<br>900cc  | (ii)<br>Africa    | (iii)<br>40,000-80,000     | (iv)<br>twigs   |
| C. | (i)<br>1400cc | (ii)<br>Asia      | (iii)<br>1,00,000-40,000   | (iv)<br>hides   |
| D. | (i)<br>650cc  | (ii)<br>Africa    | (iii)<br>75,000-10,000     | (iv)<br>leaves  |

**Answer: C**



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**27.** If the Neanderthals are not the direct ancestors of humans, is it still possible for humans, is it still possible for humans and Neanderthals to be related?

A. Yes, because we share a common ancestor.

B. Yes, but only if humans and Neanderthals could have interbred.

C. No, because the human evolutionary tree is strictly linear and without branches.

D. No, because this means that Neanderthals evolved from an entirely different branch of organisms than humans did.

**Answer: A**



**Watch Video Solution**

## Exercise II Origin Of Life And Evolution Of Life Forms

1. The word organic evolution was coined by

A. Darwin

B. Dobzhansky

C. Herbert Spencer

D. Lamarck

**Answer: C**



**Watch Video Solution**

**2. Theory of Abiogenesis was believed by**

A. Aristotle

B. Thales and Plato

C. Von Helmont

D. All these

**Answer: D**



**Watch Video Solution**

3. Catastrophes destroyed the life from time to time and created new and special form of life after each destruction according to

A. Saurez

B. Cuvier

C. Pasteur

D. Spallanzani

**Answer: B**



**Watch Video Solution**

4. Molecules with limited metabolic activity are called

A. Protocells

B. Protists

C. Protobionts

D. Protostomes

**Answer: C**



**Watch Video Solution**

**5. The atmosphere of primitive earth was**

A. Reducing atmosphere

B. Oxidising atmosphere

C. Condensing atmosphere

D. Vestigial organs

**Answer: A**



**Watch Video Solution**

6. The conditions required for the origin of life

- A. Free genes formation
- B. lipid membrane formation
- C. proteins acquired the property of enzymes
- D. All the above

**Answer: D**



**Watch Video Solution**

7. The free genes started absorbing the organic compounds from the prebiotic soup and evolved into

- A. Anaerobic autotrophs



- B. Aerobic heterotrophs
- C. Aerobic protobionts
- D. Anaerobic heterotrophs

**Answer: D**



**Watch Video Solution**

**8.** These organisms use inorganic molecules for their energy and  $CO_2$  as the source of carbon

- A. Chemo-heterotrophs
- B. Photo-heterotrophs
- C. Photo-autotrophs
- D. Chemo-autotrophs

**Answer: D**



**Watch Video Solution**

**9. Blue green algae are**

- A. Photo-autotrophs
- B. Chemo-autotrophs
- C. Photo-heterotrophs
- D. Chemo heterotrophs

**Answer: A**



**Watch Video Solution**

**10. First  $O_2$ , was released into the atmosphere by**

A. Anaerobic heterotrophs

B. Chemoheterotrophs

C. Plants

D. Blue green algae

**Answer: D**



**Watch Video Solution**

**11.** Endomembrane system of eukaryotes including nuclear membrane might have evolved by.

A. Out folding of the plasma membrane of ancestral prokaryotes

B. Infolding of the cell wall of ancestral prokaryotes

C. Infolding of the plasma membrane of ancestral prokaryotes

D. Infolding of the plasma membrane of ancestral eukaryotes

**Answer: C**



**Watch Video Solution**

**12.** Symbiotically prokaryotes lived in the ancestral eukaryotes and evolved into organelles like

A. Mitochondria and plasmids

B. Mitochondria and phasmids

C. Centrosomes and plastids

D. Mitochondria and plastids

**Answer: D**



**Watch Video Solution**

**13.** Life cannot originate from inorganic materials at present, because

- A. Absence of raw materials
- B. Very high atmospheric temperature
- C. High degree of environmental pollution
- D. A very high amount of  $O_2$  in atmosphere

**Answer: D**



**Watch Video Solution**

14. The scientist who conducted experiment on killed yeast to disprove the theory of spontaneous generation of life was

A. Stanley Miller

B. J.B.S Haldane

C. Louis Pasteur

D. A.I. Oparin

**Answer: C**



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15. Among the following, which theory was not connected with the origin of life?

A. Big Bang theory

- B. Theory of Panspermia
- C. Theory of spontaneous generation
- D. Theory of chemical evolution

**Answer: A**



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**16.** Select the correct statement from the following

- A. Big Bang theory attempts to explain us the origin of life
- B. Earth was supposed to be formed 3 billion years back
- C. Life appeared 500 million years after the formation of earth

D. Formation of life on earth was succeeded by chemical evolution

**Answer: C**



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17. Which one of the following amino acids was not found to be synthesized in Miller's experiment?

A. Glycine

B. Aspartic acid

C. Glutamic acid

D. Alanine

**Answer: C**





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18. Which one of the following is incorrect about the characteristic of protobionts (coacervates and microspheres) as envisaged in the abiogenic origin of life.

- A. They were partially isolated from the surroundings
- B. They could maintain an internal environment
- C. They were able to reproduce
- D. They could separate combination of molecules from the surroundings

**Answer: D**



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19. Which of these are considered most essential in the origin of life?

- A. Enzymes
- B. Nucleic acids
- C. Carbohydrates
- D. Proteins

**Answer: B**



**Watch Video Solution**

## Exercise II Evidences For Evolution

1. The mouth parts of all insects contain the similar structures and so they are

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

**Answer: B**



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**2. Sting of honey bee and sting of scorpion are example of**

- A. Analogous organs
- B. Over specialised organs
- C. Homologous organs
- D. Vestigial organs

**Answer: A**



**Watch Video Solution**

**3.** The reduced or rudimentary and non functional organs in the organisms are known

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

**Answer: C**



**Watch Video Solution**

4. This scientist who observed that human being has more than 180 vestigial organs

- A. Weismann
- B. Weidersheim
- C. Weinberg
- D. Wallace

**Answer: B**



**Watch Video Solution**

5. Which one is not a vestigial organ in man?

- A. Vermiform appendix
- B. Plica semilunaris

C. Ear muscles

D. Epiglottis

**Answer: D**



**Watch Video Solution**

6. Which one of the following terms would most correctly describe the relationship between the flight organs of animals like Locust, bat and flying fish

A. Atavism

B. Analogous

C. Homologous

D. Vestigial

**Answer: B**



**Watch Video Solution**

7. Appearance of ancestral characters in the new borns, such as tail, gill slits, etc. are known as

- A. Homologous
- B. Analogous
- C. Vestigial
- D. Atavism

**Answer: D**



**Watch Video Solution**

8. Peripatus is a connecting link between

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

**Answer: C**



**Watch Video Solution**

9. The organisms that exhibit the characters of two different groups are

- A. The fossils
- B. The living fossils



C. The connecting links

D. The extinct organisms

**Answer: C**



**Watch Video Solution**

**10.** These explain the evolution of Mammalia from Reptilia

A. Seymouria

B. Prototherians

C. metatherians

D. Eutherians

**Answer: B**



**Watch Video Solution**

11. Atavistic organs indicate

- A. Convergent evolution
- B. Parallel evolution
- C. The evolution from remote ancestors
- D. Homoplasy

**Answer: C**



**Watch Video Solution**

12. This states that an organisms during its development tends to repeat the evolutionary history of its ancestors

- A. Biogenetic law

B. Biogenetic theory

C. Abiogenesis theory

D. Cosmozoic theory

**Answer: A**



**Watch Video Solution**

**13.** This stage of animals that can be compared to a colonial protozoan ancestor

A. Blastula

B. Two layered gastrula

C. Three layered gastrula

D. Zygote

**Answer: A**



**Watch Video Solution**

**14.** This stage of animals can be compared to cnidarian (diploblastic) ancestor

- A. Morula
- B. Two layered gastrula
- C. Blastula
- D. Three layered gastrula

**Answer: B**



**Watch Video Solution**

15. Among the metazoans the embryonic divergence begins from

- A. Zygote
- B. Morula
- C. Blastula
- D. Gastrula

**Answer: D**



**Watch Video Solution**

16. Two chambered heart in the development of human being indicate the fundamental

- A. Chordate character
- B. Vertebrate character

C. Pisces character

D. Amphibian character

**Answer: C**



**Watch Video Solution**

**17.** This stage of butterflies which is similar to a developmental stage of an annelid indicates the origin of Arthropods from Annelids

A. Peripatus

B. Pupa

C. Caterpillar

D. Chrysalis

**Answer: C**



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**18.** The serum collected from rabbit containing antibodies formed against human serum is called

A. Human antibodies serum

B. Human serum

C. Anti rabbit serum

D. Anti human serum

**Answer: D**



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**19.** In the serological tests of Nuttal with human antiserum a thick precipitate is formed with the serum of

- A. Anthropoid ape
- B. Monkey
- C. Rabbit
- D. Dog

**Answer: A**



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**20.** Fossilized faecal matter

- A. Moulds
- B. Casts



C. Imprints

D. Coprolites

**Answer: D**



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**21.** The age of rock is calculated on the basis of

A. Type of fossils-present

B. Number of strata present

C. Amount of thorium present

D. Amount of lead present

**Answer: D**



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**22.** Fossils are dated by

- A. Stratigraphic position
- B. Amount of calcium residue
- C. Association with other animals
- D. Radio-active carbon content

**Answer: D**



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**23.** Which of the following would be easily fossilized?

- A. Heart
- B. Tooth

C. Skin

D. Liver

**Answer: B**



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**24.** In absolute dating of the rock/fossil is determined by

A. Depth of rock

B. Exposure of rock

C. Decay of a radioisotope

D. Rate of surface erosion of rock

**Answer: C**



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25. Which one is palaeontological evidence of evolution?

- A. Biston betularia
- B. Archaeopteryx
- C. Darwin's finches
- D. Duck billed platypus

**Answer: D**



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26. A major side effect of continental drift was

- A. Fossilization and evolutionary radiation
- B. Climatic change and extinction of many species

C. Climatic change and micro evolution

D. Mass extinction due to reduction in the amount of atmospheric oxygen

**Answer: B**



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**27.** Due to continental drift, the South American mammals were over ridden by

A. Australian marsupials

B. Sauropsids

C. Synapsids

D. North American fauna

**Answer: D**



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**28.** Which one of the following is not a living fossil?

A. King crab

B. Sphenodon

C. Archaeopteryx

D. Peripatus

**Answer: C**



**Watch Video Solution**

**29.** Evolutionary history of an organism is known as

- A. Phylogeny
- B. Ancestry
- C. Palaeontology
- D. Ontogeny

**Answer: A**



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**30. Connecting link.**

- A. link between two classes
- B. link between two groups
- C. link between two kingdoms
- D. all of the above

**Answer: D**



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## Exercise II Adaptive Radiation

1. These are considered as living laboratories of evolution

- A. Andaman and Nicobar islands
- B. Malayan Archipelago
- C. Galapagos Islands
- D. Maldives

**Answer: C**



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2. Plants and animals of Galapagos Island resemble most closely plants and animals of

- A. North America
- B. South America
- C. North Africa
- D. South Africa

**Answer: B**



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3. The epoch of human civilization is

- A. Pliocene
- B. Holocene

C. Pleistocene

D. Palaeocene

**Answer: B**



**Watch Video Solution**

4. The most recent ancestor of living modern man, that emerged about 34,000 years ago

A. Cro-Magnon man

B. Java ape man

C. Neanderthal man

D. Peking man

**Answer: A**



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5. The scientific name of Java ape man

- A. Homo sapiens fossilis
- B. Pithecanthropus erectus
- C. Homo neanderthalensis
- D. Homo habilis

**Answer: B**



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**Exercise II Biological Evolution Theories Of Evolution Mechanism Of Evolution**

1. Which of the following is not a principle of Lamarckism?

- A. use and Disuse
- B. Survival of Fittest
- C. Influence of environment
- D. Inheritance of Acquired characters

**Answer: B**



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2. Augustus Weismann conducted decaudali sation experiments on rat and disproved

- A. Lamarckism and theory of panspermia
- B. Lamarckism and germplasm theory

C. Lamarckism and abiogenesis theory

D. Lamarckism and biogenesis theory

**Answer: C**



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**3. Natural selection results in**

A. Inheritance of acquired characters

B. Survival of fittest

C. Genetic drift

D. Hardy-Weinberg equilibrium

**Answer: B**



**Watch Video Solution**

4. New species are evolved due to cumulative effect of fluctuating variations according to

A. Natural selection theory

B. Mutation theory

C. Lamarckism

D. Neolamarckism

**Answer: A**



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5. Natural selection cannot explain

A. The occurrence of vestigial organs

B. Over specialisation of some organs

C. Arrival of the fittest

D. All these

**Answer: D**



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**6.** This is the most severe check on the rate of reproduction

A. Struggle with the environment

B. Interspecific struggle

C. Intergeneric struggle

D. Intraspecific struggle

**Answer: D**



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7. Lederberg and Lederberg demonstrated that mutations are preadaptive. They used the following technique for the purpose

- A. Replica plating
- B. Gene sequencing
- C. Transduction
- D. Transformation

**Answer: A**



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8. Using imprints from a plate with complete medium 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 and without streptomycin
- B. Only on plates with streptomycin
- C. On plates with minimal medium
- D. Only on plates without streptomycin

**Answer: B**



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**9. Match the scientists listed under Column'A' with ideas listed under column'B'**

- A. A-(i), B-(iv), C-(ii), D-(iii)
- B. A-(iv), B-(i), C-(ii), D-(iii)

C. A-(ii), B-(iv), C-(iii), D-(i)

D. A-(iv), B-(iii), C-(ii), D-(i)

**Answer: B**



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## Exercise II Hardy Weinberg

1. In a diploid population of *Drosophila* 9% of the population is black in colour. Black is recessive to grey. What is the frequency of heterozygous flies in that population, if it is in Hardy-Weinberg equilibrium?

A. 0.42

B. 0.09

C. 0.49

D. 0.7

**Answer: A**



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2. In a population, which is in Hardy-Weinberg equilibrium, the recessive allelic frequency is 0.8, in a population of 1300. Find out the number of dominant individuals in that population, if the gene in reference has only two alleles.

A. 416

B. 468

C. 640

D. 52

**Answer: B**



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3. In a population, which is in Hardy-Weinberg equilibrium, the recessive allelic frequency is 0.8, in a population of 1300. Find out the number of dominant individuals in that population, if the gene in reference has only two alleles.

A. 648

B. 864

C. 288

D. 432

**Answer: C**



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4. In a population of 100 rabbits 40 are short eared. Short ears are recessive to long ears. There are only two alleles for this gene. Long eared are 60 which are in 1:1 ratio of homozygous and heterozygous. Find out the dominant allelic frequency?.

A. 0.55

B. 0.45

C. 0.09

D. 0.35

**Answer: B**



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5. What is the percentage of oxygen in atmosphere ?

A. 0.09

B. 0.42

C. 0.48

D. 0.36

**Answer: B**



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## Exercise II Evolutionary Forces

1. Small populations are prone to change in allelic frequencies which decrease genetic variability, this is explained by:

A. Sewall-Wright effect

B. Genetic load

C. Genetic flow

D. Mutation

**Answer: A**



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**2. An example of bottleneck effect is:**

A. Pitcairn island population

B. Longneck in giraffes

C. Polydactylic dwarf individuals in the Old order Amish  
population of Lancaster of USA

D. Limbless snakes

**Answer: C**



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3. Natural selection that promotes adaptivity of population in heterogeneous environments that is changed from homogeneous environment

- A. Stabilizing selection
- B. Directional selection
- C. Normalizing selection
- D. Disruptive selection

**Answer: D**



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4. Type of natural selection that eliminates deleterious variants and keeps the species unchanged is

- A. Directional selection
- B. Stabilising selection
- C. Disruptive selection
- D. Diversifying selection

**Answer: B**



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5. Long neck of giraffe is stabilized in its evolution by

- A. Centrifugal selection
- B. Centripetal selection

C. Adaptive radiation

D. Directional selection

**Answer: B**



**Watch Video Solution**

**6. Genetic drift is greater in**

A. Small populations

B. Large populations

C. Mendelian populations

D. Sympatric populations

**Answer: A**



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7. Continuation of recessive harmful genes in a population is termed

- A. Gene flow
- B. Sewall wright effect
- C. Genetic load
- D. Bottleneck effect

**Answer: C**



**Watch Video Solution**

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

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

**Answer: C**



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**9. Genetic drift operates only in**

- A. Larger population
- B. Mendelian population
- C. Island population
- D. Smaller populations

**Answer: D**



**Watch Video Solution**

**10. Which of the following is most important for speciation?**

- A. Seasonal isolation
- B. Reproductive isolation
- C. Behavioural isolation
- D. Tropical isolation

**Answer: B**



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

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

**Answer: D**



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2. Earliest fossil form in phylogeny of horse is

- A. Merychippus
- B. Equus
- C. Mesohippus

D. Eohippus

**Answer: D**



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3. Most primitive living mammals, which provide an evidence of organic evolution from geographical distribution are found in

A. China

B. India

C. Australia

D. Africa

**Answer: D**



**Watch Video Solution**

4. Select the correct match among the following, regarding the event that took place in the history of life.

- A. First mammals - Precambrian era
- B. Appearance of humans - Pleistocene era
- C. Dominance of dinosaurs - Coenozoic era
- D. Movement of plants & animals on to land - Palaeozoic era

**Answer: B**



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5. Origin of leathered bipeds occurred during

- A. Cretaceous period



B. Triassic period

C. Carboniferous period

D. Jurassic period Evolution

**Answer: D**



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**6. Match Column - I with Column -II and select the correct option**

**from the codes given below .**

**Column-I**

A) Mesozoic

B) Devonian

C) Palaeocene

D) Permian  
mammals

**Column-II**

i) First amphibians

ii) Proliferation of reptiles

iii) Raise of modern  
mammals

iv) Radiation of primitive

v) 160 million years

**A. A-(v) , (B) - (iv) , C -(iii) , D- (ii)**

B. A-(v) , (B) - (i) , C -(iv) , D- (ii)

C. A-(v) , (B) - (i) , C -(ii) , D- (iii)

D. A-(v) , (B) - (i) , C -(iv) , D- (iii)

**Answer: B**



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7. Viviparity is considered to be more evolved because

A. the young ones are left on their own

B. the young ones are protected by a thick shell

C. the young ones are protected inside the mother's body

and are looked after they are born leading to more chances of survival

D. the embryo takes a long time to develop

**Answer: C**



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## Exercise II Evolution Of Man

1. There was a cultural evolution rather than structural evolution after .

A. Homo erectus stage

B. Cro-Magnon stage

C. Australopithecus stage

D. Neanderthal man stage .

**Answer: B**



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**2. Early modern human of European region is informally called**

- A. Homo habilis
- B. Homo erectus
- C. Cro-Magnon man
- D. Homo neanderthalensis

**Answer: C**



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3. Which of the following is not is the direction of evolution of human species ?

- A. raised orbital ridges
- B. binocular vision
- C. opposable thumb
- D. developed brain

**Answer: A**



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4. Which of the following is the age of tools of stones and bones ?

- A. mesolithic

B. paleolithic

C. neolithic

D. bronze

**Answer: B**



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**5. Ancestor of man who first stodd erect was**

A. Java mam

B. Australopithecus

C. Pekings mam

D. Cro- Magnon

**Answer: B**



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**6. Most recent fossil of man**

A. Cro-Magnon mam

B. Java mam

C. African man

D. Peking mam

**Answer: A**



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**7. Name the fossil man of Shivalik hills**

A. Australopithecus

B. Dryopithecus

C. Homo habilis

D. Ramapithecus

**Answer: D**



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**8. Cro- Magnon mam was**

A. herbivorous

B. frugivorous

C. sanguivorous

D. omnivorous

**Answer: D**





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9. Neanderthal man differs from modern man in

- A. receding jaw
- B. protruding jaw
- C. can make good tools
- D. having stockier body

**Answer: D**



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10. The cranial capacity of Java ape-man was about

- A. 560 cc

B. 900 cc

C. 1300 cc

D. 1600 cc

**Answer: B**



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**11. First fossil of African ape - man was discovered by**

A. Dr. Leaky

B. E. Dubois

C. Arther keith

D. Raymond Dart

**Answer: D**



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12. The cranial capacity was the largest in one of the following fossils of man

- A. Java ape - man
- B. Cro- Magnon Man
- C. Neanderthal man
- D. Peking man

**Answer: B**



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13. Which one of the following factors is considered best for evolution of man ?

- A. extinction of reptiles
- B. appearance of angiosperms
- C. preference of cave life
- D. Chimpanzee

**Answer: D**



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**14. Coloured rock -paintings were presumably first made by**

- A. Cro - Magnon man
- B. Neanderthal man
- C. Java ape man
- D. Peking man

**Answer: A**



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**15.** Cranial capacity of modern man is nearest to

A. Neanderthal man

B. Australopithecus

C. Java man

D. Peking man

**Answer: A**



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**16.** Which is correct ?

- A. Neanderthal man is direct ancestor of humans
- B. Homo erectus is direct ancestor of man
- C. Cro-Magnon was found in Ethiopia
- D. Australopithecus is real ancestor of modern man

**Answer: A**



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**17. History of modern man goes back to**

- A. 20000 years
- B. 10000 years
- C. 1 lakh years
- D. none of these

**Answer: A**



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**18. Which is most recent in human evolution ?**

A. mesolithic

B. upper palaeolithic

C. neolithic

D. middle palaeolithic

**Answer: C**



**Watch Video Solution**

**19. Fossil man who recent in human evolution ?**

A. Cro - Magno man

B. Neanderthal man

C. Java man

D. Peking man

**Answer: A**



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**20. Fire was used for cooking and protection first by**

A. Peking man

B. Cro- Magnon Man

C. Neanderthal man

D. moder man



**Answer: C**



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**21. Proconsuls are ancestors of**

- A. apes only
- B. man only
- C. both (1) and (2)
- D. all primates

**Answer: D**



**Watch Video Solution**

**22. In *Homo habilis*, *habilis*, refers to**

A. wandering man

B. modern man

C. ancient man

D. tool maker

**Answer: C**



**Watch Video Solution**

**23. The cranial capacity of Homo erectus was**

A. 500cc

B. 970cc

C. 900cc

D. 6500cc

**Answer: A**



**Watch Video Solution**

**24.** The cranial capacity of Homo erectus was

A. 1200-1600 cc

B. 900-1100cc

C. 600-1000cc

D. 450-650cc

**Answer: B**



**Watch Video Solution**

**25.** Fossil of Cro - Magnon man discovered by

- A. Leaky
- B. MacGregor
- C. W.V.Pel
- D. Dubois

**Answer: C**



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**26. Neanderthal man lived in**

- A. desert
- B. deep forest
- C. cave
- D. mountains

**Answer: D**



**Watch Video Solution**

**27.** Which of these ancestors of modern man presumably lived upon earth during late Pleistocene ?

- A. Australopithecus
- B. Zinjanthropus
- C. Atlantic man
- D. Neanderthal man

**Answer: C**



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**28.** In which of these , the cranial capacity was smallest ?

- A. Peking man
- B. Neanderthal man
- C. Java ape man
- D. Cro- Magnon man

**Answer: B**



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**29.** Which one of these is belived to have first made use of fire for hunting cooking and protection ?

- A. Cro - mangnon man
- B. Java ape man

C. Peking man

D. Neanderthal man

**Answer: C**



**Watch Video Solution**

**30. Pithecanthropus erectus fossil was found in**

A. China

B. Japna

C. Java

D. Texas

**Answer: C**



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**31.** The closest relative of modern man is considered to be

- A. orangutan
- B. gibbon
- C. chimpanzee
- D. Gorilla

**Answer: B**



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**32.** The nearest relative of man are

- A. Lemurs
- B. Apes



C. Gorillas

D. Old world monkey

**Answer: D**



**View Text Solution**

**33.** What kind of evidence suggested that man is more closely with chimpanzee than with other hominoid apes ?

A. Evidence from DNA from sex chromosomes only

B. Comparison of chromosomes morphology only

C. Evidence from fossil remains , and the fossil mitochondrial DNA alone

D. Evidence from DNA extracted from sex chromosome , autosomes .

**Answer: D**



**View Text Solution**

### Exercise Iii Previous Aipmt Neet Questions

1. Artifical selection to obtain cows yielding higher milk output represents :

A. stabilizing selection as it stabilizes this character in the population

B. directional as it pushes the mean of the character in the population

C. disroptive as it splits the populaiton into , one yielding higher output and the other lower output

D. stabilizing followed by disruptive as it stabilized the population to produce higher yielding cows.

**Answer: B**



**Watch Video Solution**

2. Which of the following represents order of horse ?

A. Equidae

B. Perissodactyla

C. Caballus

D. Fercus

**Answer: B**



**Watch Video Solution**

3. Analogous structures are a result of (2016 - 1)

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

**Answer: B**



**View Text Solution**

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

- A. Dorsal fin of a Shark

B. Wing of a Moth

C. Hindu limb of Rabbit

D. Flipper of whale

**Answer: D**



**Watch Video Solution**

**5.** Following are the two statements regarding the origin of life .

The earliest organisms that appeared on the earth were non green and presumably anaerobes.

The first autotrophic organisms were the chemoautotrophs that never released oxygen .

On the above statements which one of the following options is correct ?

A. (A) is true but (B) is false

B. (B) is true but (A) is false

C. both (A) and (B) are true

D. both (A) and (B) are false

**Answer: C**



**Watch Video Solution**

**6. Select the wrong statement :**

A. Mosaic disease in tobacco and AIDS in human being are

caused by viruses

B. The virioids were discovered by D.J. Ivanowski

C. W.M Stanley showed that viruses could be crystallized

D. The term *contagium vivum fluidum* was coined by M.W.

Beijerinck

**Answer: B**



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

- A. Homologous structures and represent convergent evolution
- B. Homologous structure and represent divergent evolution
- C. Analogous structures and represent convergent evolution
- D. Phylogentetic structures and represent divergent evolution

**Answer: C**



**Watch Video Solution**

**8. Industrial melanism is an example of :**

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

**Answer: C**



**Watch Video Solution**

**9. Which of the following has the smallest brain capacity ?**



- A. Homo habilis
- B. Homo erectus
- C. Homo sapiens
- D. Homo neanderthalensis

**Answer: A**



**Watch Video Solution**

**10. Which one of the following in analogous structures ?**

- A. Wings of Bat and Wings of Pigeon
- B. Gills of Prawn and Lungs Man
- C. Thorns of Bougainvillea and tendrills of Cucubrita
- D. Flipper of Dolphin and legs of Horse .

**Answer: B**



**Watch Video Solution**

**11.** Forelimbs of cat , Lizard used in walking , fore limbs 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**



**Watch Video Solution**

12. According to Darwin , the organic evolution is due to.

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

**Answer: B**



**Watch Video Solution**

13. Variations in gene frequencies within populations can occur by chance rather than by natural selection. This is referred to as :

- A. Genetic flow

- B. Genetic drift
- C. Random mating
- D. Genetics load

**Answer: B**



**Watch Video Solution**

**14.** 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. Convergent evolution
- C. Non - randon evolution
- D. Adaptive radiation

**Answer: B**



**Watch Video Solution**

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

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

**Answer: C**



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**16.** The extinct human who lived 1,00,000 to 40,000 years ago , in Eurpouse , Asia and parts of Africa with short stature , heavy eye brows , retreating fore heads , large jaws with heavy teeth , stocky bodies , a lumbering gait and stooped posture was :

A. Cro- Magnon humans

B. Ramapithecus

C. Homo habilis

D. Neanderthal human

**Answer: D**



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17. What was the most significant trend in the evolution of modern man (*Homo sapiens*) from his ancestors ?

A. Increasing brain capacity

B. Upright posture

C. Shortening of jaws

D. Binocular vision

**Answer: A**



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

- A. Migration
- B. Divergent evolution
- C. Adaptive radiation
- D. natural selection

**Answer: C**



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



	Convergent evolution	Divergent evolution
1)	Bones of forelimbs of vertebrates	Wings of butterfly and birds
2)	Thorns of Bougainvillia and tendrils of Cucurbiya	Eyes of octopus and mammals
3)	Eyes of octopus and mammals	Bones of forelimbs of vertebrates
4)	Thorns of Bougainvillia and ten drils of Cucurbita	Wings of butterflies and birds



**Watch Video Solution**

**20.** What was the most significant trend in the evolution of modern man (*Homo sapiens*) from his ancestors ?

- A. Increasing carnail capacity
- B. Uprigth posture
- C. Shortening of jaws
- D. Binocular vision

**Answer: D**



**Watch Video Solution**

**21.** Peripatus is a connecting link between

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

**Answer: D**



**Watch Video Solution**

22. Which one of the following is incorrect about the characteristic of protobionts (coacervates and microspheres) as envisaged in the abiogenic origin of life.

- A. They were partially isolated from the surroundings
- B. They could maintain an internal environment
- C. They were able to reproduce
- D. They could separate combination of molecules from the surroundings

**Answer: A**



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**23.** Which one of the following pairs of items correctly belongs to the category of organs mentioned against ?

- A. Nephridia of earthworm and Malpighian tubules of cockroach \_Excretory organs
- B. Wing of honeybee and wings of crow \_Homologous organs
- C. Thorns of Bougainvillea and tendrils of cucurbita \_Analogous organs
- D. Nictitating membrane and blind spot in human eye \_Vestigial organs.

**Answer: D**



**Watch Video Solution**

24. Thorn of Bougainvillea and thendril of Cucurbita are example of :

- A. Vestigial organs
- B. Retrogressive evolution
- C. Analogous organs
- D. Homologous organs

**Answer: C**



**Watch Video Solution**

25. Drawin's finches are an excellent example of :

- A. Brood parasitism
- B. Connecting links

C. Adaptive radiation

D. Seasonal migratio

**Answer: C**



**Watch Video Solution**

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

A. de Vries - Natural selection

B. Mendel - Theory of Pangenesis

C. Wesimann - Theory of continuity of germplasm

D. Pasteur - Inheritance of aquired characters

**Answer: C**



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**27.** Which one of the following in birds indicates their reptilian ancestry ?

- A. Two special chambers crop and gizzard in their digestive tract
- B. Eggs with a calcareous shell
- C. Scales on their hind limbs
- D. Four - chambered heart

**Answer: B**



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**28.** One of the important consequence of geographical isolation is :

- A. Random creatio of new species
- B. No change in the isolated fauna
- C. Preventing speciation
- D. Speciation through reproductive isolation .

**Answer: D**



**Watch Video Solution**

**29.** Adaptive radiation refers to :

- A. Power of adaptation in an individual to a variety of environments



B. Adaptations due to geographical isolation

C. Evolution of different species from a common ancestor

D. Migration of members of a species to different geographical area

**Answer: C**



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**30.** Industrial melanism as observed in peppered moth proves that

A. Melanism is a pollution - generated feature

B. The true black melanic forms arise by a recurring random mutation

- C. The melanic form of the moth has no selective advantage over light form in industrial area
- D. The lighter form of the moth has no selective advantage either in industrial area

**Answer: B**



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**31. What is common to whale , seal and shark ?**

- A. Homeothermy
- B. Seasonal migration
- C. Thick subcutaneous fat
- D. Convergent evolution

**Answer: D**



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**32.** Which one of the following is a matching pair of a body feature and the animal possessing it ?

- A. Ventral heart - Scorpion
- B. Post -anal tail - Octopus
- C. Ventral central nervous system - Leech
- D. Pharyngeal gills slits absent in embryo- Chamaeleon

**Answer: C**



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**33.** What is common between parrot, platypus and kangaroo?

- A. Oviparity
- B. Homeothermy
- C. Toothless jaws
- D. Functional post - anal tail

**Answer: B**



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**34.** The finches of Galapagos islands provide an evidence in favour of

- A. Biogeographical evolution
- B. Special creation

C. Evolution due to mutation

D. Retrogressive evolution

**Answer: A**



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**35.** The concept of chemical evolution is based on

A. Possible origin of life by combination of chemical under suitable environmental conditions

B. Crystallization of chemical

C. Interaction of water, air and clay under intense heat

D. Effect of solar radiation on chemicals

**Answer: A**



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**36.** Which one of the following statement is correct ?

- A. Ontogeny repeats phylogeny
- B. Stem cells are specilized cells
- C. There is no evidence of the existence of gills during embryogenesis of mammals
- D. All plants animals cell are totipotent

**Answer: A**



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**37.** Among the human ancestors the brain size was more than 1000CC in :

- A. Homo habilis
- B. Homo neanderthalensis
- C. Homo erectus
- D. Ramapithecus

**Answer: B**



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**38.** What is common to whale , seal and shark ?

- A. Homeothermy
- B. Seasonal migration

C. thick subcutaneous fat

D. Convergent evolution

**Answer: D**



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