BIOLOGY

BOOKS - MTG BIOLOGY (ENGLISH)

EVOLUTION

Evolution

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

A. CO_2

B. chlorophyll

C. green plants

D. UV rays and lightning.

Answer: D

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2. Abiogenesis theory of origin supports

A. spontaneous generation

B. origin of life from blue-green algae

C. origin of life is due to pre-existing organisms

D. organic evolution is due to chemical reactions.

Answer: A

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3. Which experiment suggests that simplest living organism could not have originated spontaneously from non-living matter ?

A. Larvae could appear in decaying organic matter.

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

C. Microbes appear on unsterilised organic matter.

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

Answer: D

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4. Read the given statements and select the correct ones.

(i) Swan-necked flask experiment was done by Louis Pasteur.

(ii) The early belief of the spontaneous origin of life was disproved by Louis paseteur.

(iii) Louis Pasteur is famour for germ theory of dieseases.

(iv) The idea that life originates from pre-existing life is referred to as biogenesis theory.

(v) Father Suarez was one of the greatest supporter of theory of special creation.

(vi) Cosmozoic theory of the origin of life was proposed by Richter.

(vii) The founder of 'theory of catastrophism' is Georges Cuvier.

A. i,ii,iv and vi

B. ii,v and vii

C. iii,iv,v and vii

D. i,ii,iii,iv,v,vi,vii

Answer: D

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5. Match the column I with column II and select the correct option from the codes given below.

Column I	Column II
Francesco Redi	(i)Theory of chemical evolution of life
L.Pasteur	(ii)Disproval of spontaneous generation
Richter	(iii)Swan necked flask experiment
Oparin	(iv)Mutation
	(v)Panspermia

A. v,i,iv,ii

B. ii,iii,v,i

C. v,iv,ii,i

D. i,ii,iii,iv,

Answer: B

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

A. S.L. Miller

B. Oparin and Haldane

C. Charles Darwin

D. Alfred Wallace

Answer: B

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

A. oxidising

B. oxidising along with H_2

C. reducing with free O_2 in small amont

D. reducing with oxygen absent in O_2 form.

Answer: D

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8. According to Oparin, which one of the following was not present in the primitive atmospehre of the earth?

A. Methane

B. Oxygen

C. Hydrogen

D. Water vapour

Answer: B

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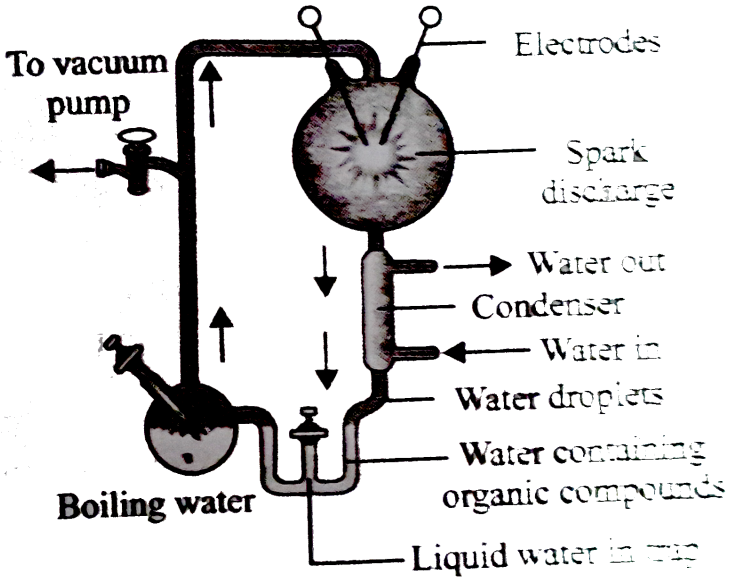
9.



In the experiment in given diagram which of the following groups of gases wer used to simulate primitive atmosphre?

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_2NO_2, SO_2

Answer: B

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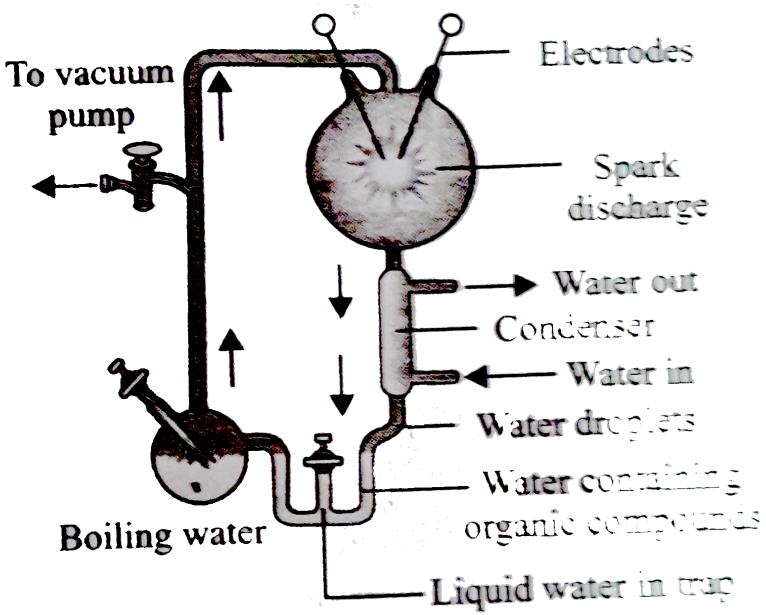
10. The diagram given here is the representation of



A. Miller's experiment

B. Redi's experiment

C. Louis pasteur's experiment

D. Spallanzani's experiment

Answer: A

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11. From the point of view of early chemical evolution that preceded the origin of life on earth, the most important simple organic molecules formed were

A. sugars and amino acids

B. glycerol and fatty acids

C. puriness and pyrimidines

D. all of these

Answer: D

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12. The correct sequence for the manufacture of the compounds on the primitive earth is

A. NH_3, CH_4 protein and carbohydrate

B. Protein , carbohydrate, water and nucleic acid

C. NH_3. CH_4, carbohydrate and nucleic acid

D. NH_3, carbohydrate, protein and nucleic acid.

Answer: D

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13. The prebiotic atmosphere of the earth was of a reducing nature. It was transformed into a oxidising atmosphere of present day due to the emergence of

A. cyanobacteria

B. angiosperms

C. photosynthetic protists

D. eukaryotic algae.

Answer: A

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14. The first non-cellular form of life could have originated ___ billion years back

A. 3

B. 8

C. 10

D. 1

Answer: A

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15. The first life originated

A. on land

B. in air

C. in water

D. all of these

Answer: C

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16. On the primitive earth, polymers such as proteins and nucleic acids in aqueous suspension formed the spherical aggregates. These are called.

A. primitosomes

B. liposomes

C. primitogens

D. coacervates.

Answer: D

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17. Coacervates are

A. colloid droplets

B. nucleoprotein containing entities

C. microspheres,

D. both a and b

Answer: D

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18. Consider following statement regarding microspheres.

(i) They were spherical in shape and 1-2 μm in diameter.

(ii) They hand concentric double layered boundaries.

(iii) They could grow in size but were not able to reproduce.

(iv) They used ATP as source of energy.

Which of the above statements is/are incorrect?

A. i only

B. ii only

C. iii only

D. none of these

Answer: C

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19. Which one of the following is incorrect about the characteristics of protobionts (coacervates and microsopheres) as envisaged in the

abiogenic origin of life?

A. They were partially isolated from the surroundings.

B. They could maintain an internal enviorment.

C. They were able to reproduce sexually.

D. They could separate combinations of molecuels from the surroundings.

Answer: C

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20. The sequence of origin of life may be

A. Inorganic materials $\rightarrow$ Organic materials $\rightarrow$ Colloidal aggregate $\rightarrow$ Eobiont $\rightarrow$ Cell

B. Organic materials $\rightarrow$ Inorganic materials $\rightarrow$ Colloidal aggregate $\rightarrow$ Eobiont $\rightarrow$ Cell

C. Inorganic materials $\rightarrow$ Organic materials $\rightarrow$ Eobiont $\rightarrow$ Cell $\rightarrow$ Colloidal aggregate

D. Organic materials $\rightarrow$ Inorganic materials $\rightarrow$ Eobiont $\rightarrow$ Cell $\rightarrow$ Colloidal aggregate.

Answer: A

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21. The following are some major events in the early history of life.

P. First heterotrophic prokaryotes

Q. First genes

R. First eukaryotes

S. First autotrophic prokaryotes

T. First animals

Which option below places these events in the correct order?

A. $P \rightarrow Q \rightarrow S \rightarrow R \rightarrow T$

B. $Q \rightarrow S \rightarrow P \rightarrow T \rightarrow R$

C. $Q \rightarrow P \rightarrow S \rightarrow R \rightarrow rT$

D. $Q \rightarrow S \rightarrow P \rightarrow R \rightarrow T$

Answer: C

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22. First life form on earth was a

A. cynaobacterium

B. chemoherotroph

C. autotroph

D. photoautotroph.

Answer: B

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23. The ship used by Charles Darwin during his sea voyages was

A. HMS Beagle

B. HSM Beagle

C. HMS Eagle

D. HSM Eagle.

Answer: A

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24. Fitness according to Darwin refers to

A. number of species in a community

B. strength of an individual

C. reproductive fitness of an organism.

D. reproductive fitness of an organism.

Answer: D

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25. Alfred Wallace worked in

A. Galapagos island

B. Australian island Continent

C. Malay Archipelago

D. none of these

Answer: C

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26. The theory of natural selection was given by

A. Lamarck

B. Alfred Wallce

C. Charles Darwin

D. Oparin and Haldane.

Answer: C

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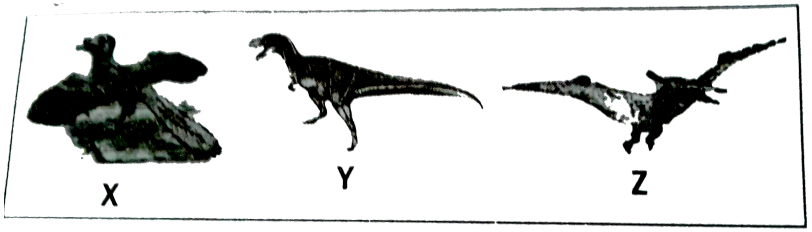
27. Refer to the given figure and select the correct option regarding X,Y and Z.



A. X Brachioaurus Y Archaeopteryx Z Triceratops

B. X Archaeopteryx Y Tryannosaurus Z Pteranodon

C. X Archaeopteryx Y Stgosaurus Z Tryrannosaurus

D. X Archaeopteryx Y Brachiosaurus Z Triceratops

Answer: B

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28. The preserved fossil remains of Archaeopteryx show that

A. it was flying reptile from the Permain 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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29. Which of the following isotopes is used for finding the fossil age maximum about 35,0000 years?

A. . ^{238}U

B. . ^{14}C

C. . ^{3}H

D. . ^{206}Pb

Answer: B

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30. 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. Lamrack's principle

B. Mendelian principle

C. Biogenetic law

D. Hardy Weinberg law

Answer: C

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31. Which of the following statements is related to Karl Ernst von Baer?

A. Embryos never pass through the adult stages of other animals.

B. comparative anatomy shows differences among organisms of today and those that existed years ago.

C. Certain features during embryonic stages are common to all vertebrates that are absent in adult.

D. Ontogeny repeats phylogeny.

Answer: A

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32. The presence of gill slits, in the embryos of all vertebrates, supports the theory of

A. metaorphosis

B. biogenesis

C. organic evolution

D. recapitulation.

Answer: D

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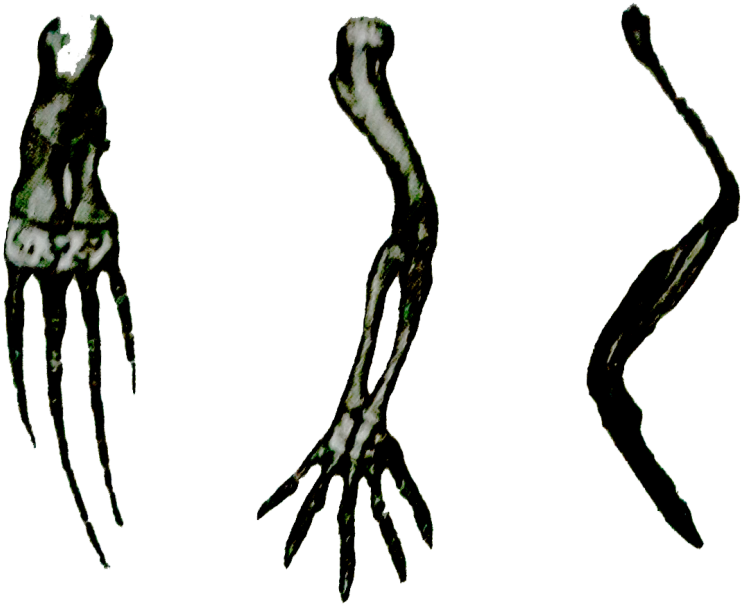
33. What can you infer about the structures shown in figure?



A. They are homologous structures.

B. They are vestigial structures.

C. They are analogous structures.

D. They have nothing to do with each other.

Answer: A

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

A. Organs with anatomical similartities, but performing different functions.

B. Organs with anatomical dissimilarities, but performng 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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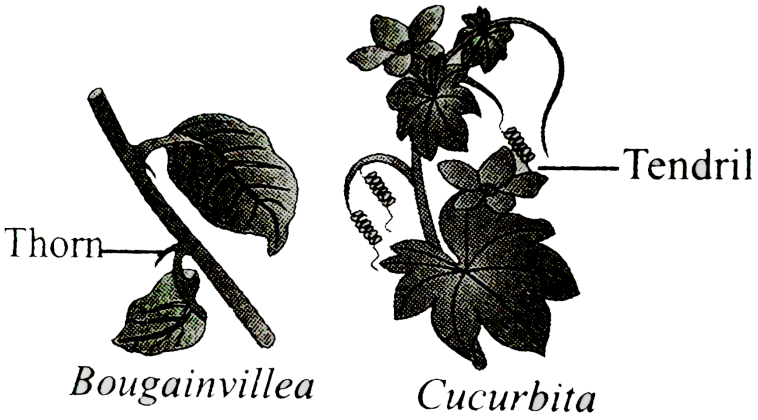
35. The given figure shows an example of



A. homologous organs

B. convergent evolution

C. divergent evolution

D. both a and c

Answer: D

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36. Which of the following statements is true?

A. Wings of birds and insects are homologous organs.

B. Human hands and bird's wings are analogous organs.

C. Human hands and bat's wings are analogous organs.

D. Flipper of penguin and dolphin are analogous organs.

Answer: D

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

A.

Convergent evolution	Divergent evolution
Eyes of octopus and mammals	Bones of forelimbs of vertebrates

B.

Convergent evolution	Divergent evoluti
Thorns of Bougainvilea and tendrils of Cucurbita	Wings of butterfly

C.

Convergent evolution	Divergent evolution
Bones of forelimbs of vertebrates	Wings of butterfly and birds

D.

Convergent evolution	Divergent evoluti
Thorns of Bougainvillea and tendrils of Cucurbila	mammals

Answer: A

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38. Evolutionary convergence is characterised by

A. development of dissimilar characteristics in closely related groups

B. development of a common set of characteristics in groups of different ancestry

C. development of characteristics by random mating

D. replacement of common characteristics in different groups.

Answer: B

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39. In evolution, the studies can be made at molecular level. For example, the proteins present in the blood of man and ape 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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40. Industrial melanism as observed in peppered moth proves that

A. the dark 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-pulluted area

C. melanism is a pollution-generated feature

D. the true black melanic forms escaped unnoticed so they managed to survive resulting in more population of black moths.

Answer: D

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41. 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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42. Phenomenon of industrial melanism demonstrates

A. geographical isolation

B. reproductive isolation

C. natural selection

D. induced mutation.

Answer: C

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

A. Development of trasgenic animals

B. Production of Dolly the sheep by cloning

C. Prevalence of pesticide resistant insects

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

Answer: C

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44. Which is not a vestigial organ in man?

A. Nictitating membrane

B. Tail vertebrae

C. Vermiform appendix

D. Nails

Answer: D

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45. Which one is not a vestigial organ?

A. Wings of kiwi

B. Coccyx in man

C. Pelvic girdle of python

D. Flipper of seal

Answer: D

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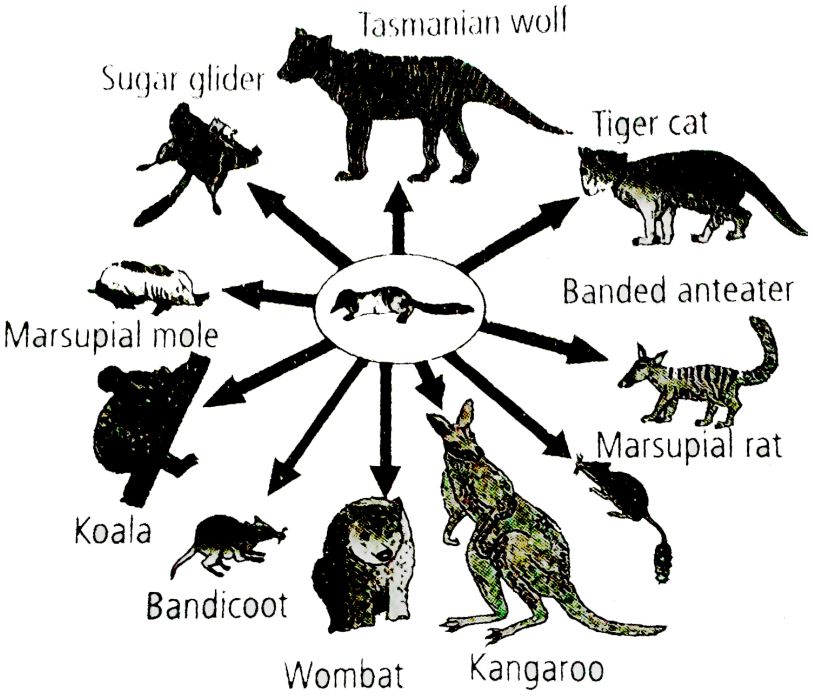
46. Refer to the given figure what does it represent?



A. Convergent evolution

B. Adaptive radiation

C. Atavism

D. Both b and c

Answer: B

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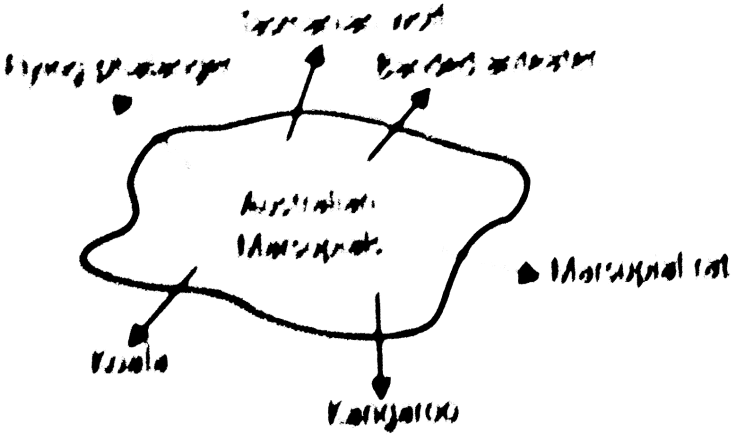
47. Following diagram provides and example of



A. convergent evolution

B. parallel evolution

C. recapitulation

D. divergent evolution.

Answer: D

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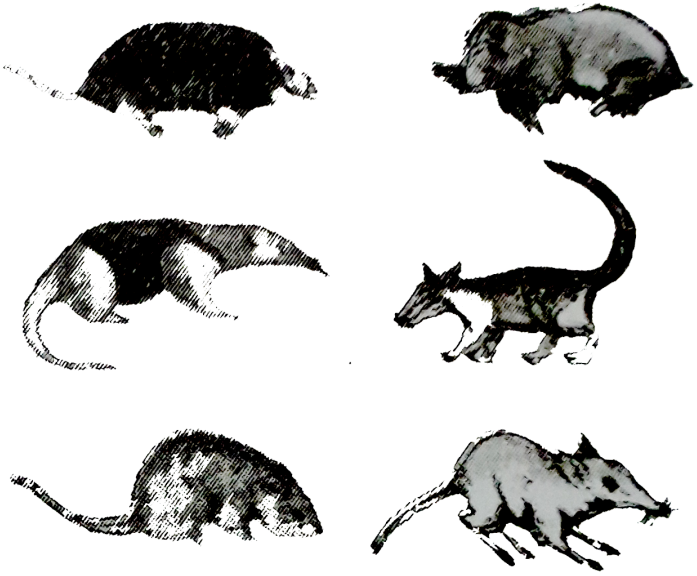
48. Refer to the given figure



The organisms in the given figure represent

A. divergent evolution

B. convergent evolution

C. connecting links

D. recapitulation.

Answer: B

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49. 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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50. Consider the following three statements and select the correct option stating which one is true (T) and which one is false (F).

(i) Oparin of Russia and Haldane of England proposed that the first form of life could have come from pre-existing nonliving organic molecules

(e.g, RNA, protein etc.) and that formation of life was preceded by chemical evolution.

(ii) Based on observations made during a sea voyage around the world. Charles Darwin concluded that existing living forms share similarities to varying degrees only among themselves.

(iii) Evolution by natural selection must have started when cellular forms of life with different metabolic capability originated on Earth.

A. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ F & T & T\end{matrix}$

B. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ T & F & T\end{matrix}$

C. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ T & T & F\end{matrix}$

D. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ F & F & T\end{matrix}$

Answer: B

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51. Read the following statements carefully and select the correct ones.

() Alfred wallace, a naturalist who worked in Malay Archipelago had also

come to similar conclusions as Darwin around the same time.

(ii) August Weismann by carefull experimentation demonstrated that life comes only from pre-existing life.

(iii) The organs which have the same fundamental structure but are different in functions are called homologous organs.

(iv) Rate of appearance of new form is inversely proportional to life spain of organism.

A. i and iii

B. i and ii

C. ii and iv

D. iii and iv

Answer: A

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52. 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 adaptatble to changes survives.

Answer: D

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53. 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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54. Given below are the three statement each with one or two blanks. Select the option which correctly fills up the balnks in any two statements.

(A) For a long time it was also believed that life came out of decaying and rotting matter like straw, mud, etc. This was the theory of i

(B) During post-industrilasiation period, the tree trunks became dark due to industrial smoke and soots. Under this condition the i did not survive due to predators, while ii survived.

(C) Lamrack said that evolution of life forms had occurred but driven by i of organs.

A. i panspermia, i natural slection

B. i white-winged moth, ii dark-winged moth

i use and disuse

C. i spontaneous generation

i dark winged moth, ii white-winged moth

D. i eternity of life

i use and disuse.

Answer: B

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55. According to Lamarckism, long necked giraffes evolved because

A. nature slected only long necked ones

B. humans preferred only long necked ones

C. short necks suddenly changed into long necks

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

Answer: D

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56. 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. Melanisation in peppered moth

C. Absence of limbs in snakes

D. Presence of webbed toes in aquatic birds

Answer: B

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

A. Darwin

B. Bateson

C. Amartya Sen

D. malthus.

Answer: D

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58. 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 birds look alike and are the results of i evolution.

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

(C) Vermiform appendix is a i organ and an ii evidence of evolution.

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

A. i convergent: i small variation, ii survival

B. i covergent, i oxygen, ii nucleosides

C. i water vapour, ii amino acids: i homologous, ii anatomical

D. i vestigial, ii anatomical: i mutations, ii multiplication.

Answer: A

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59. Which one of the following sequences was propsoed by Drawin and Wallace for organic evolution?

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

B. Variations, constancy of population size, over-production, natural selection

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

D. Variations, natural selection, overproduction, contancy of population size.

Answer: C

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60. Which of the following statements about natural selection are correct?

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

(ii) Inviduals with better adaptive ability leave more progeny

(iii) Was considered as mechanism of evolution by Darwin

A. i,ii and iii

B. i and ii only

C. iii only

D. i and iii only

Answer: A

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61. Which of the following are necessary for evolution by natural selection to take place?

(i) Offspring resemble their parents more than other individuals in the population.

(ii) Differences among individuals exist and lead to different numbers of successful offspring being produced.

(iii) Individuals adjust their development depending on the enviorment

(iv) Every individual possess enormous fertillity.

A. i and ii

B. ii and iv

C. i,iii and iv

D. iii only

Answer: B

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62. Darwinism explains all the following except

A. offspring with better raits that overcome competition are best suited for the enviorment

B. variations may not be inherited from parents t 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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63. Which of the following differences between Lamarckism and Darwinism is incorrect?

A.

Lamarckism	Darwinism
It does not consider	Struggle for existence is very important in this

B.

Lamarckism	Darw
Only useful variations are transferred to the next generation.	All th

C.

Lamarckism	Darwinism
Neglects survival of fittest	Based on survival of the fittest

D.

Lamarckism	Darwinism
None of these	

Answer: B

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64. 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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65. Which one of the following scientist's name is correctly mathce dwith the theory put forth by him?

A. de Vries-Theory of natural selection

B. Darwin-Theory of pangenesis

C. Weismann-Theory of contunity of germplasm

D. Pasteur-Theory of inheritance of acquired characters

Answer: C

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66. 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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67. Match column I with column II and select the correct option from the given codes.

Column I	Column II
Saltation	(i)Darwin
Formation of life was preceded by chemical evolution	(ii)Louis Pasteur
Reproductive fitness	(iii)de Vries
Reproductive fitness pre-existing life	(iv)Oparin and Hal

A. iii,iv,i,ii

B. iv,iii,ii,i

C. ii,iii,i,iv

D. i,iv,iii,ii

Answer: A

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68. Match the column I with column II and select the correct option from the given codes.

Column I	Column II
Wallace	(i)Essay on population
Malthus	(ii)Biston
Hardy-Weinberg law	$(iii)P^2 + q^2 + 2pq = 1$
Industrial melanism	(iv)Co-proposer of Natural selection

A. iii,iv,ii,i

B. ii,I,iv,iii

C. iv,I,ii,iii

D. iv,I,iii,ii

Answer: D

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69. At a particular locus, frequency of allete 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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70. 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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71. The Hardy-Weinberg principle cannot operate if

A. a population does not migrate for a longtime to a new habitat

B. frequent mutations occur in the population

C. the population has no change of interaction with other populations

D. free interbreeding occurs among all membres of the population.

Answer: B

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72. Match column I with column II and select the correct option from the codes given below.

Column I	Column II
Mutation	(i)Changes in population's frequencies due to chance alo
Gene flow	(ii)Differences in survival and reproduction among vari
Natural selection	(iii)Immigration, emigration change allele frequencies
Genetic drift	(iv)Source of new alleles

A. I,ii,iii,iv

B. iv,ii,iii,i

C. v,I,iv,ii

D. iv,iii,ii,i

Answer: D

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73. The effects of genetic drift are more marked in

A. larger populations

B. Mendelian populations

C. island populations

D. smaller populations.

Answer: D

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74. Fill up the balnks in the following paragraph by selecting the correct option.

When migration of a section of population to another place and population occurs, I change in the original as well as in the new population new genes/ alleles are added to the ii, population and these are lost from the population. These would be a iv if this gene migration, happens multiple times. if the same change occurs by chance, it is called

v. sometimes the change in allele frequency is so different in the new sample of population that they become a diffrent species. The original drifted population becomes founders and the effect is called vi

A.

(i)	(ii)	(iii)	(iv)	(v)	(vi)
natural	new	old	gene flow	gene	founder effect

B.

(i)	(ii)	(iii)	(iv)	(v)	(vi)
gene frequencies	old	new	natural selection	gene flow	bottle nec

C.

(i)	(ii)	(iii)	(iv)	(v)	(vi)
gene frequencies	new	old	gene flow	genetic drift	founder effect

D.

(i)	(ii)	(iii)	(iv)	(v)	(vi)
mutations	old	new	natural selection	gene flow	bottle-necl effe

Answer: C

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75. An isolated population of humans with approximately equal numbers of blue-eyed and brown-eyed individuals was decimated by and

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. Hardy-Weinberg equilibrium

B. blocked gene flow

C. bottle-neck effect

D. gene migration

Answer: C

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76. 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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77. The factors involved in the formation of new species are

A. isolation and competition

B. gene flow and competition

C. competition and mutation

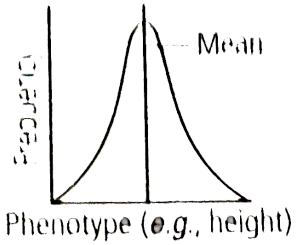
D. isolation and vriation.

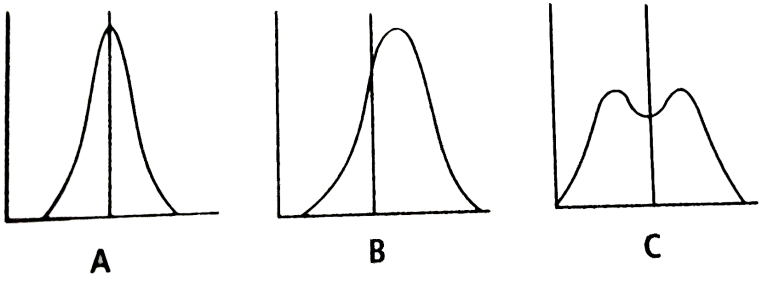
Answer: D

Watch Video Solution

78. Following is the digrammatic 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. $\begin{matrix} A & B & C \\ \text{Directional} & \text{Stabilising} & \text{Disruptive} \end{matrix}$

B. $\begin{matrix} A & B & C \\ \text{Stabilising} & \text{Directional} & \text{Disruptive} \end{matrix}$

C. $\begin{matrix} A & B & C \\ \text{Distruptive} & \text{Statbilising} & \text{Directional} \end{matrix}$

D. $\begin{matrix} A & B & C \\ \text{Directional} & \text{Disruptive} & \text{Stabilising} \end{matrix}$

Answer: B

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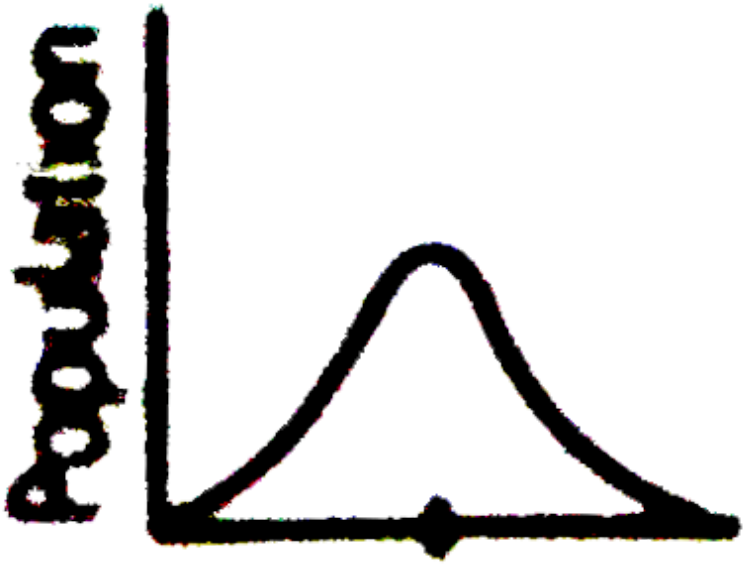
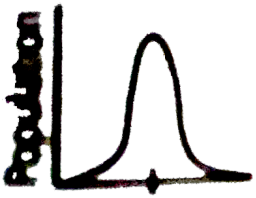
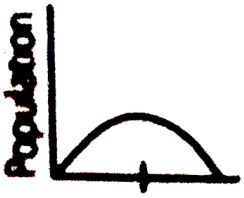
79. The given graph shows the range of variation among population members for a trait determined by multiple genes. If this population is subjected to disruptive selection for several generations, which of the following distributions is most likely to result?

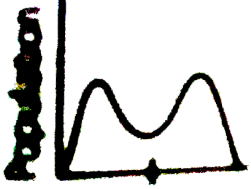


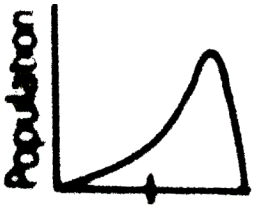
A.



B.



C. 

D. 

Answer: C

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80. Read the following statements and select the correct option.

(i) Increase in metained months after industrialisation in Great Britain is a proof for natural selection.

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

(iii) Changes in allelic frequency in a population will lead to Hardy-Weinberg equilibrium.

(iv) Genetic drift changes the existing gene or allelic frequency in future generations.

A. Only ii is correct.

B. Only iv is correct.

C. Both I and iv are correct.

D. Both I and ii are correct.

Answer: C

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81. Stablising selection favours.

A. both extreme forms of a trait

B. Intermediate forms of a trait

C. enviromental difference

D. one extreme form over the other extreme form and over intermediate forms of a trait.

Answer: B

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82. Select the pair which does not match.

A. Coacervates – Aggregates of organic compounds separated by an

B. Lamrarck – Species are not immutable

C. Allopatric speciation – Separated by space

D. Darwin's finches – Unique to Galapagos

Answer: A

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83. The different forms of interbreeding species that live in different geographical regions are called

A. sibling species

B. sympatric species

C. allopatric species

D. polypic species.

Answer: C

Watch Video Solution

84. Allopatric speciation occurs when

A. genetically related population inhabit widely separted geographical area

B. genetically unrelated populations inhabit widely separated geographical area

C. genetically related population inhabit the same geographical area

D. genetically unrelated population inhabit the same geographical area.

Answer: A

Watch Video Solution

85. An inter-breeding population of finches became separated geographically, forming two isolated groups. Each group then became subect to different selective pressures. One group was then introduced into the habitat of the other.

Which one of the following would determiner wheather they now formed two district species?

A. They had been separated for more than three milion years.

B. They failed to produce fertile F_1 hybrids.

C. They showed marked differences in the shape of their beaks.

D. Their plumage had become markely different.

Answer: B

Watch Video Solution

86. Read the given statements i-iv regarding evolution and select the incorrect ones.

(i) The oceanic water rich in mixture of organic compounds was termed by J.B.S. Haldane (1920) as 'hot dilute soup of organic substances'.

(ii) The term coacervate was given by Sydney Fox.

(iii) First cellular form of life did not possible originate till about 2000 mya,

The first geological time scale was developed by Georges Cuvier.

A. ii and iv

B. I and ii

C. ii and iii

D. iii and iv

Answer: A

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87. Refer to the given statements and select the correct ones.

(i) Fossils are remains of hard parts of life forms in rocks.

(ii) Dinosaurs disappeared about 65 mya.

(iii) Animals called lobe fins evolved into reptiles.

(iv) Study of fossils is called palaentology.

A. I,ii and iv

B. ii and iv

C. i,iii and iv

D. none of these

Answer: A

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88. Which of the following represents correct order of evolution?

A. Amoeba $\rightarrow$ Leucosolenia $\rightarrow$ Ascaris

B. Leucosolenia $\rightarrow$ Hydra $\rightarrow$ Amoeba $\rightarrow$ Ascaris

C. Ascaris $\rightarrow$ Amoeba $\rightarrow$ Leucosolenia $\rightarrow$ Hydra

D. none of these

Answer: A

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89. Presence of gills in the tadpole of frog indicates that

A. fishes were amphibious in the past

B. fishes evolved from frog like ancestors

C. frogs will have gills in future

D. frogs evolved from gilled ancestors.

Answer: D

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90. The character that proves that frogs have evolved from fishes is

A. their ability to swim in water

B. tadpole larva in frogs

C. similarity in the shape of the head

D. their feeding on aquatic plants.

Answer: B

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91. Which of the following statement is correct?

A. Amphibians evolved into reptiles.

B. Fish with stout and strong fins could move on land and go back to water. This was about 350 mya.

C. Giant ferns were present but they all fell to form coal deposits slowly.

D. all of these

Answer: D

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92. Consider the following three statements and select the correct option stating which one is true (T) and which one is false (F).

(i) Some land reptiles went back, into water to evolve into fish like reptiles probable 200 mya.

(ii) The first mammals were like shrews.

(iii) The work of Thomas Malthus on populations influenced Lamarck.

A.

(i)	(ii)	(iii)
T	F	T

B. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ F & T & T\end{matrix}$

C. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ T & T & F\end{matrix}$

D. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ F & T & T\end{matrix}$

Answer: C

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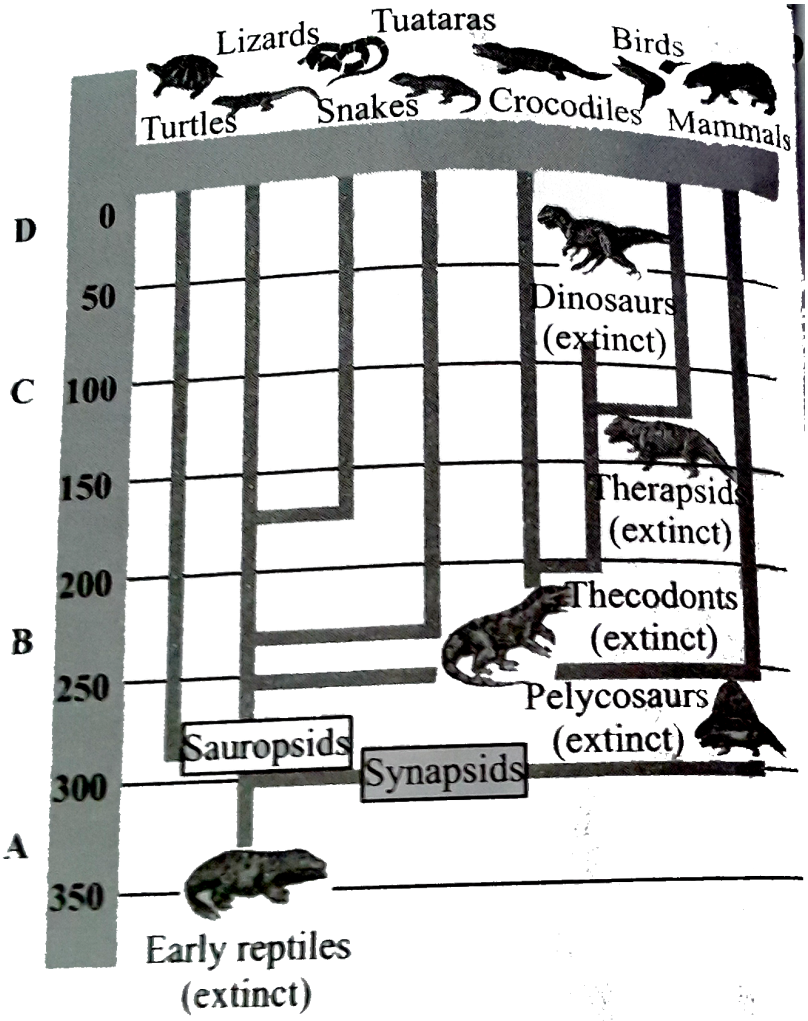
93. Following is given the diagrammatic representation of evolutionary history of vertebrates through geological periods. Identify the geological

periods (A,B,C and D) and select the correct option.



A. *A* Carboniferus *B* Triassic *C* Cretaceous *D* Quaternary

B. *A* Jurassic *B* Permian *C* Tertiary *D* Cretaceous

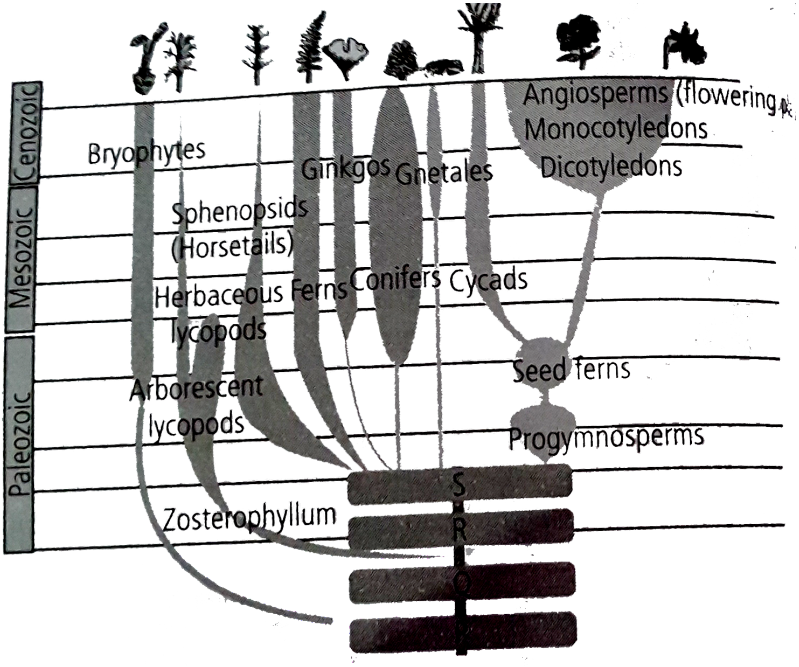
C. *A* Permian *B* Jurassic *C* Quatermary *D* Tertiary

D. *A* Cretaceous *B* Quaternary *C* Carboniferous *D* Jurassic

Answer: A

Watch Video Solution

94. Refer to the given figure and select the correct option regarding it.



A.

P	Q	R
Chlorophyte ancestors	Tracheophyte ancestors	Rhynia-type plan

B.

P	Q	R
Tracheophyte ancestors	Rhynia type plants	Chrolophyte ancesto

C.

P	Q	R	S
Chlorophyte ancestors	Tracheophyte ancestors	Psilophyton	Rh

D.

P	Q	R
Chlorophyte ancestors	Rhynia-type plants	Traceophyte ancestor

Answer: A

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95. Identify the correct arrangement of periods of palaeozoic era in ascending order in geological time scale.

A. Cambran $\rightarrow$ Devonian $\rightarrow$ Ordovician $\rightarrow$ Silurian $\rightarrow$ Carboniferous $\rightarrow$ Permian

B. Cambrian → Ordovvician → Silurian → Devonian → Carboniferous → Permian

C. Cambrian → Ordovicina → Devonian → Silurian → Carboniferous → Permian

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

Answer: B

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

A. Cenozoic, Mesozoic, Paleozoic, Proterozoic

B. Cenozoic, Palaeozoic, Mesozoic, Proterozoic

C. Proterozoic, Cenozoic, Palaeozoic, Mesozoic

D. Proterozoic, Palaezoic,Mesozoic,Cenozoic

Answer: D

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97. The Devonian period is considered to be as

A. age of fishes

B. age of amphibians

C. age of reptiles

D. age of mammals.

Answer: A

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98. Given below are four statements i-iv regarding geological time scale. Read them carefully.

(i) Paleozoic era is the era of ancient life.

(ii) Ordovician period is the age of vertebraes.

(iii) Carboniferous period is the age of reptiles

(iv) Proterozoic era is the era of early life

Which of the above two statements are incorrect ?

A. I and iv

B. ii and iii

C. ii and iv

D. i and iii

Answer: B

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99. Golden age of reptiles was

A. Proterozoic era

B. Paleeozoic era

C. Mesozoic era

D. Coenozoic era.

Answer: C

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100. Amphibians were dominant during ____ period.

A. Carboniferous

B. Silurian

C. Ordovician

D. Cambrian

Answer: A

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101. The primate which existed 15 mya was

A. Homo habilis

B. Austrlopithecus

C. Ramapithecus

D. Homo eractus.

Answer: C

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102. The extinct human ancestor, who are only fruits and hunted with stone weapons was

A. Ramapithecus

B. Australopithecus

C. Dryopithecus

D. Homo erectus.

Answer: B

Watch Video Solution

103. One of the oldest, best preserved and most complete hominid fossil commonly known as 'lucy' belongs to the genus

A. Australopithecus

B. Oreopithecus

C. Dryopithecus

D. Pithecanthropus.

Answer: A

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104. The brain capacityof Homo erectus was about

A. 650 c.c.

B. 900 c.c.

C. 1500 c.c.

D. 1400 c.c.

Answer: B

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105. The extinct humans who lived 1,00,000 to 40,000 years ago, in East and central Asia, used hides to protect their bodies and had brain capacity of 1400 c.c. were

A. Homo habilis

B. Neanderthal man

C. Cro-Magnon man

D. Ramapithecus.

Answer: B

Watch Video Solution

106. Which of the following statements is incorrect?

A. Jawless fish probable evolved around 350 mya.

B. Tyrannosaurus rex was biggest dinousaur, about 20 feet in height and had huge fearsome dagger-like teeth.

C. About 15 mya, primates called Dryoptihecus and Rampaithacus existed.

D. Australopithecus with a brain size if 1400 c.c. lived in East and Central Asia between 1,00,000-40,000 years back.

Answer: D

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107. Complete the following paragraph by selecting the corrects 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 buried theri dead.

A.

(i)	(ii)	(iii)	(iv)
500c. c.	Australia	2,00,000-1,40,000	Clothes

B.

(i)	(ii)	(iii)	(iv)
500c. c.	Africa	40,000-8,000	twigs

C.

(i)	(ii)	(iii)	(iv)
1400c. c.	Asia	1,00,000-40,000	hides

D.

(i)	(ii)	(iii)	(iv)
650c. c.	Africa	75,000-10,000	leaves

Answer: C

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108. Which of the following statements is correct?

A. Australopithecus has large brain around 900 c.c.

B. Neanderthal man lived in East Africa and ate fuits.

C. Homo erectus had brain capacity of 900 c.c.

D. Homo sapiens arose in Central Asia and moved to other continents and developed into distinct races.

Answer: C

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

A. Homo erectus is preceded by Homo habilis.

B. Neanderthal man and cro-Magnon man were living at the same time.

C. Australopithecus was living in Australia.

D. none of these

Answer: A

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110. The cranial capacity was largest among the

A. Peking man

B. Java ape man

C. African man

D. Neanderthal man.

Answer: D

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111. The most apparent change during the evolutionary history of Homo-sapients is traced in

A. loss of body hair

B. walking upright

C. shortening of the jaws

D. remarkable increase in the brain size.

Answer: D

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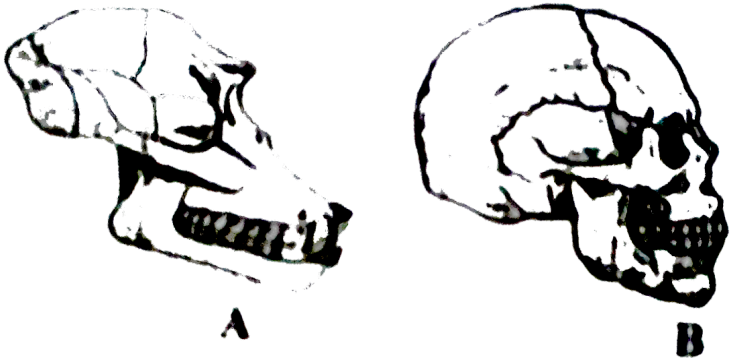
112. The diagram given here shows the skulls of two different mammals.



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

A. SkullA 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 a ape and skull B is of a human.

Answer: D

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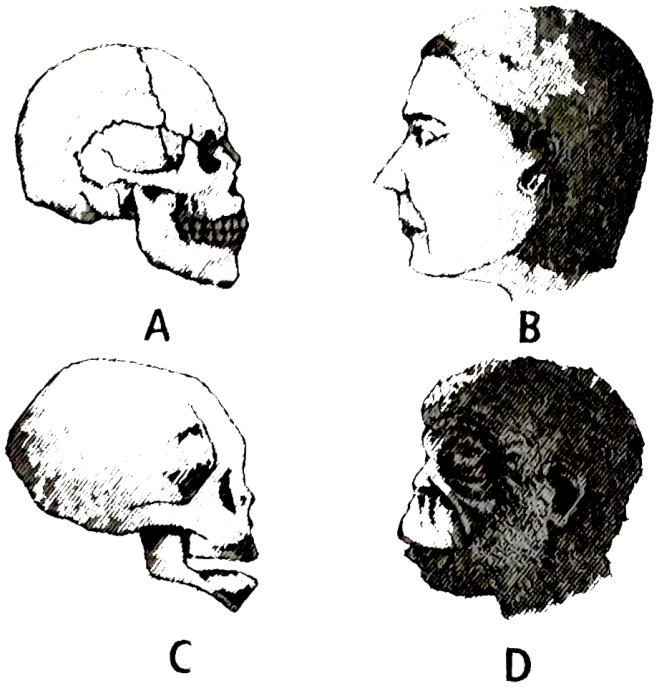
113. Refer to the given figure.



The given figures represents that.

A. the skull of baby chimpanzee is more like adult human skull

B. the bay chimpanzee did not have teeth whereas humans do

C. sutures are present on the skull of adult human whereas in chimpanzee it is a single bone.

D. both a and c.

Answer: A

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114. Which of the following is correct order of the evolutionary history of man?

A. Peking man, Homo sapines, Neanderthal man,Cro Magnon man

B. Preking man, Neanderthal man, Heidelberg man, Cro-Magnon man

C. Peking man, Heidelberg man, Neanderthal man, Cro-Magnon man

D. Perking man, Neanderthal man, Homo sapiens, Heidelberg man.

Answer: C

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115. What kind of evidences suggested that man is more closely related with chimpanzee than with other hominoid apes?

A. Evidence from DNA of sex chromosomes, only

B. Comparison of chromosome morphology and number

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

D. Evidence from banding pattern of chromosome 3 and 6

Answer: D

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116. Match column I with Column II and select the correct option from the codes given below.

Column I	Column II
Edward Lewis	(i) Australopithecus
L.S.B. Leakey	(ii) Homo neanderthalensis
C. Fuhlrott	(iv) Ramapithecus

A. iv,iii,ii,i

B. ii,i,iv,iii

C. iii,ii,i,iv

D. i,ii,iii,iv

Answer: A

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117. If the Neanderthals are not the direct ancestors of 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 trictly linear and without brances.

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

Answer: A

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118. Which of the following eras, in geological time scale corresponds to the period when life had not originated upon the earth?

A. Azoic

B. Palaezoic

C. Mesozoic era

D. Archaeozic

Answer: A

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119. Homo sapiens arose during which epoch?

A. Plesistocene

B. Pliocene

C. Oligocene

D. Holocene

Answer: D

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120. Study of human evolution is called

A. archaeology

B. anthropology

C. pedigree analysis

D. chronobiology.

Answer: B

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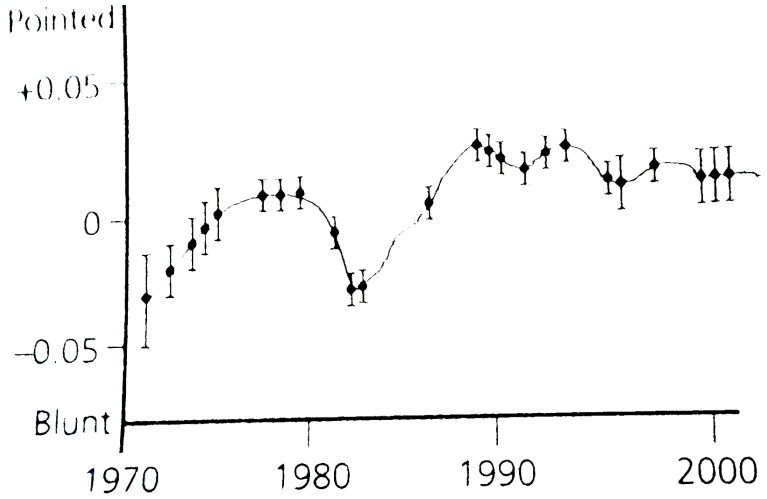
121. In order to build a longitudinal data set, data of adult finches Geospiza fortis living on one of the Galapagos islands were collected. The beak shape data collected between 1971-2001 are shown in the graph.



Study the graph and select the correct statement.

A. The fluctuating direction in the beak shape is most probable due to change in the environment.

B. The graph as a whole does not indicate evolutionary change in the beak shape as the time interval is too small and evolution requires thousands of years to occur.

C. The graph indicates that the beak shape may lead to convergent evolutin in the finches of Galapagos inslands.

D. The change in any phenotypic character requires selection to alter the expression of large number of geries in coordinated fashion. Henc,e it is unlikely that change in the beak shape depicted in the graph is a result of evolution.

Answer: A

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122. The following summaries describe some published research results.

Research 1. Wu and Li (1985): The comparative analysis of homologous genes between human and mouse genomes suggests that the evolutionary rate of homologous genes was higher in the mouse lineage than in the human lineage.

Research 2. Smith and Donohe (2008) : The plant families Caprifoliacease, Asclepiadeceae and Lamiaceae are compsed of both herbaceous and

arborescent speciers. The comparative analysis of homologous genes between the herbaceous and arborescent species within a single plant family suggests that the evolutionary rate of homologous genes in herbaceous lineages were faster than of arborescent lineages in all three plant familes.

Research 3. Gilman et al. (2009): The comparative analysis of 130 homologous mitochondrial genes between a sister species pair of vertebrates from the temperate region and from the tropical region indicate that the base substitution rates of homologous genes from the tropical region are 1.7 times faster than that of the temperate region.

Based on these studies which of the following statements best describes the common evolutionary processes in plant and animal genes?

A. The evolutionary rates of genes are accelerated in shot-lived animals and plants.

B. The evolutionary rates of genes are accelerated in higher animals and plants.

C. The evolutionary rates of genes are accelerated in animals and plants which lived in higher temperature regions.

D. Direct comparisons of homologous genes between animals and plants show that the plants evolve faster than animals.

Answer: A

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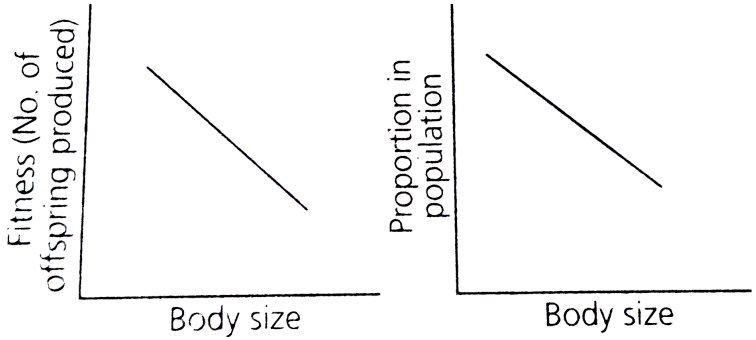
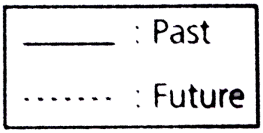
123. Study the charactristics of a population represented in the graphs below.

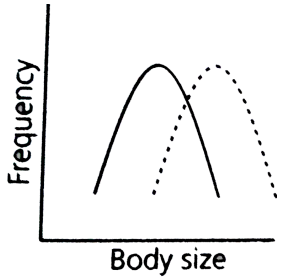


Mark the correct graph that represents the type of selection that this

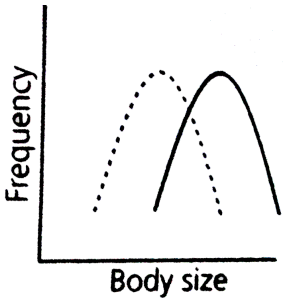
population is likely to undergo



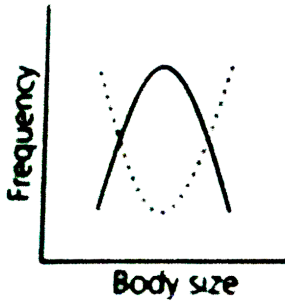
A.

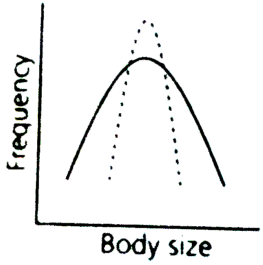


B.



C.





D.

Answer: B

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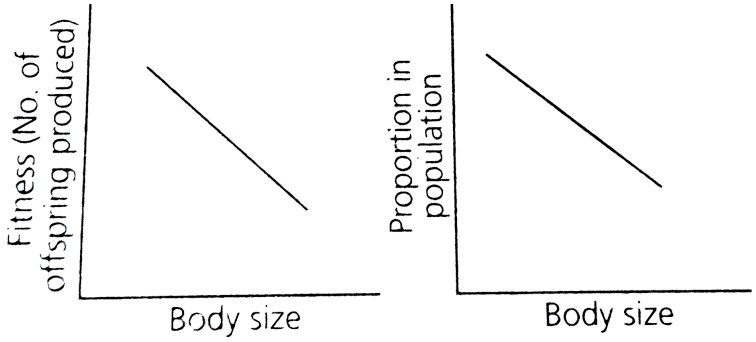
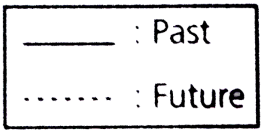
124. Study the charactristics of a population represented in the graphs below.



Mark the correct graph that represents the type of selection that this population is likely to undergo



A. Directional selection

B. Stablising selection

C. Disruptive selection

D. Balancing selection

Answer: A

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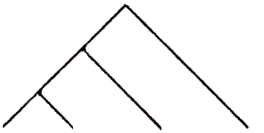
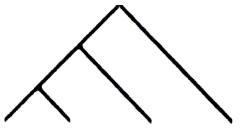
125. Following table shows data on amino acid substitution in the α chain of haemoglobin in four different mammalian species A,B,C and D on the basis of the data shown in the table. Choose the most appropriate

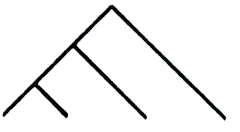
evolutionary tree from those given below.

Comparison of Species	Number of Amino Acid Substitution
A and B	19
B and C	26
A and C	27
D and C	27
A and D	20
D and B	1

A. 

B. 

C. 

D. 

Answer: D

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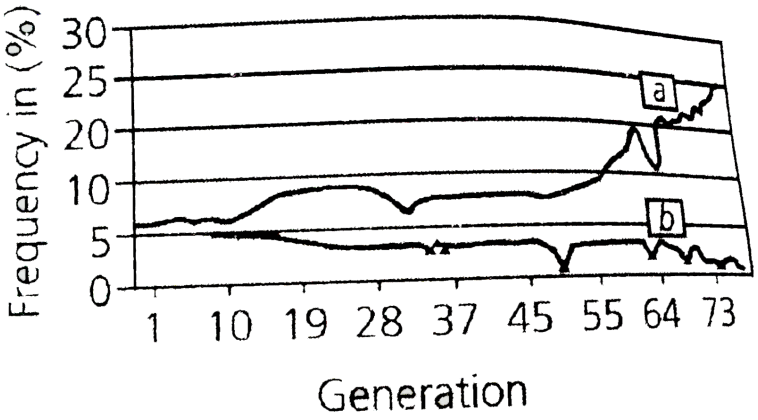
126. In a long term experiment of a population of Drosophila melnogaster, the frequency of two alleles 'a' and 'b' of a multi-allelic locus X over time has been shown in the following graph.



6 students were asked to evaluate the observed pattern and their inferences are given below.

Statement 1: Enviorment is not uniformly slective.

Statement 2: Population may be under artificial selection.

Statement 3: Genetic variability is progressively reduced.

Statement 4: Genetic varuability is progressively increased.

Statement 5: Mechanism such as genetic drift is operating from time to time.

Statement 6: Selection is favouring a particualr genotype through directional selection.

The appropriate conclusions were draws by

A. Students 2,6 and 6

B. Students 1,3 and 5

C. Students 2,3 and 6

D. Studnets 1,3 and 6.

Answer: C

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127. In a large, randomly mating population, only one person in 10,000 is an albino. What will be the frequency of a carrier person of albinism?

A. 1 in 50

B. 99 in 10000

C. 2 in 10000

D. 1 in 100

Answer: A

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128. Which of the following is used an atomospheric pollution indicator?

A. Lepidoptera

B. Lichens

C. Lycopersioon

D. Lycopodium

Answer: B

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129. The theory of spontaneous generation stated that

A. life arose from living forms only

B. life cn 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: C

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130. Animal husbandry and plant breeding programmers are the examples of

A. reverse evolution

B. artifical selection

C. Mutation and natural selection.

D. natural selectron.

Answer: B

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131. Palaentological evidences for evolution refer to the

A. developemtn of embryo

B. homologous organs

C. fossils

D. analogous organs.

Answer: C

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132. 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 perfrom the same function

D. the have biochemical similarities.

Answer: B

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133. Analogous organs arise due to

A. divergent evolution

B. artificial selection

C. genetic drift

D. convergent evolution.

Answer: D

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

A. population genetics

B. Mendelian genetics

C. biomertircks

D. molecular genetics

Answer: A

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135. 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

136. Evolution of life shows that life hard a trent of moving from

A. land to water

B. dryland to wet land

C. frest water to wet land

D. frest water to sea waer

Answer: D

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137. Viviparity is considered to be more evolved because

A. the yound ones are left on their own

B. the young ones are protected by a thick shell

C. the young ones are prtected inside the mother's bod and are lookea fter they are born leading to more chances of survival

D. the embryo takes a long time to develop.

Answer: C

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138. 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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139. 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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140. Which type of selection is industrial melansim observed in month, Biston betularia?

A. Stabilising

B. Directional

C. Disruptive selection

D. Artificial

Answer: B

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

A. Austrlopithecus $\rightarrow$ Ramapithecus $\rightarrow$ Homo sapiens $\rightarrow$ Homo habilis

B. Homo erectus $\rightarrow$ Homo habilis $\rightarrow$ Homo sapiens

C. Ramapithecus → Homo habilis → Homo erectus → Homo sapiens

D. Australopithecus → Rampapithecus → Homo erectus → Homo habilis → Homo sapiens.

Answer: C

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142. 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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143. Match the scientists listed under Column 'A' with ideas listed under column 'B'

Column I	column II
Darwin	(i)Abiogenesis
Oparin	(ii)Use and disuse of organs
Lamrack	(iii)continental drift theory
Wagner	(iv)Evolution by natural selection

A. I,IV,II,III

B. IV,I,II,III

C. II,IV,III,I

D. IV,III,II,I

Answer: B

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144. 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 condition created include.

A. low temperature, volcanic storms, atmosphere rich in oxygen

B. low temperature, volcanic storms, reducing atmosphere

C. high temperature, voicanic storms, non-reducing atmosphere

D. high temperature, voicanic storms, non-reducing atmosphere.

Answer: D

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145. 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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146. Assertion: Louis pasteur showed that in flask open to air, new living organisms appeared in the heat killed yeast culture.

Reason: Life arise from pre-existing life.

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147. Assertion: Primitive atmosphere was of reducing type.

Reason: First hydrogen atoms combined with all oxygen.

Watch Video Solution

148. Assertion: Thorns and tendrils of Bougainvillea and Cucurbita represent homology.

Reason: Homologous organs have similar functions but are different in their structural details and origin.

Watch Video Solution

149. Assertion: Moths living in the industrial areas became dark to match body colour to the tree trunks.

Reason: Smoke from industries covers the moths, making them appear dark.

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150. Assertion: Evolution is not a directed process in sense of determinism.

Reason: Evolution is a stochastic process based on chance events in nature and chance mutation in the organisms.

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151. Assertion: The embryos of fish, salamander, tortoise, chick and a man, of same age resemble one another closely.

Reason: Ontogeny recapitulates phylogeny.

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152. Assertion: Darwin's finches of Galapagos islands have different types of modified beaks according to their food habits.

Reason: Adaptive radiation, leads to development of different functional structure from a common ancestral form.

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153. Assertion: Adaptive ability is inherited.

Reason: Fitness is the end result of the ability to adoapt and get selected by the nature.

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154. Assertion: Evolutionary trend is continous changes of character in a linage.

Reason: Lineage is an evolutionary sequence arranged in linear order.

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155. Assertion: Hardy-Weinberg principle explains the variations occurring in population and species over a number of generations.

Reason: Hardy-Weinberg principle is applicable only when genetic drift occurs.

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156. Assertion: Founder effect may lead to formation of new species.

Reason: Founders carry all the parental gene pool to a new location.

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157. Assertion: Genetic drift refers to changes in the allele frequency occuring by chance.

Reason: Sampling errors often lead to the elimination of certain alleles and fixation of others, reducing genetic variability.

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158. Assertion: Disruptive selection changes the population towareds one particular direction.

Reason: This type of selection favours average sized individuals.

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159. Assertion: Neanderthal man is the intermediate between Ramapithecus and Homo erectus.

Reason: Neanderthal man, with brain sizeof 800 c.c., used hides to protect their body.

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160. Assertion: The chimpanzee is the closest relative of the present day humans

Reason: The banding pattern in some autosomes of man and chimpanzee is remarkable similar.

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Others

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

A. CO_2

B. chlorophyll

C. green plants

D. UV rays and lightning.

Answer: D

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2. Abiogenesis theory of origin supports

A. spontaneous generation

B. origin of life from blue-green algae

C. origin of life is due to pre-existing organisms

D. organic evolution is due to chemical reactions.

Answer: A

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3. Which experiment suggests that simplest living organism could not have originated spontaneously from non-living matter ?

A. Larvae could appear in decaying organic matter.

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

C. Microbes appear on unsterilised organic matter.

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

Answer: D

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4. Read the given statements and select the correct ones.

(i) Swan-necked flask experiment was done by Louis Pasteur.

(ii) The early belief of the spontaneous origin of life was disproved by Louis paseteur.

(iii) Louis Pasteur is famour for germ theory of dieseases.

(iv) The idea that life originates from pre-existing life is referred to as biogenesis theory.

(v) Father Suarez was one of the greatest supporter of theory of special creation.

(vi) Cosmozoic theory of the origin of life was proposed by Richter.

(vii) The founder of 'theory of catastrophism' is Georges Cuvier.

A. i,ii,iv and vi

B. ii,v and vii

C. iii,iv,v and vii

D. i,ii,iii,iv,v,vi,vii

Answer: D

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5. Match the column I with column II and select the correct option from the codes given below.

Column I	Column II
Francesco Redi	(i)Theory of chemical evolution of life
L.Pasteur	(ii)Disproval of spontaneous generation
Richter	(iii)Swan necked flask experiment
Oparin	(iv)Mutation
	(v)Panspermia

A. v,i,iv,ii

B. ii,iii,v,i

C. v,iv,ii,i

D. i,ii,iii,iv,

Answer: B

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

A. S.L. Miller

B. Oparin and Haldane

C. Charles Darwin

D. Alfred Wallace

Answer: B

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

A. oxidising

B. oxidising along with H_2

C. reducing with free O_2 in small amont

D. reducing with oxygen absent in O_2 form.

Answer: D

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8. According to Oparin, which one of the following was not present in the primitive atmospehre of the earth?

A. Methane

B. Oxygen

C. Hydrogen

D. Water vapour

Answer: B

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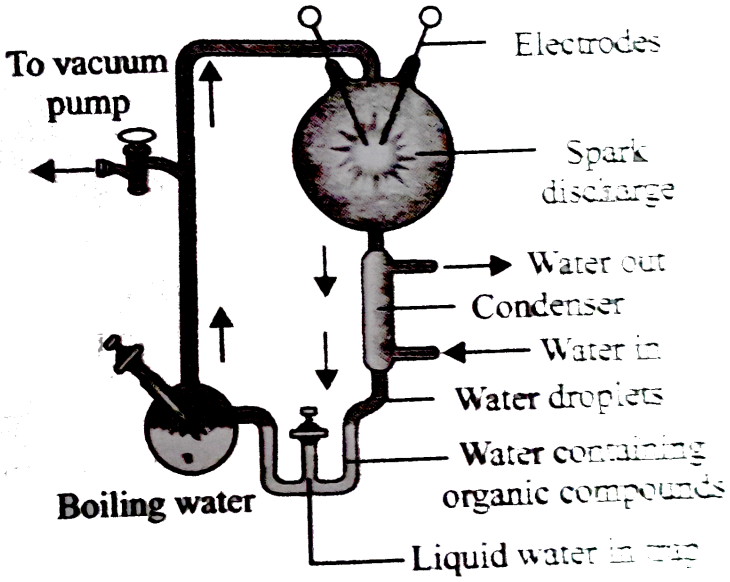
9.



In the experiment in given diagram which of the following groups of gases wer used to simulate primitive atmosphre?

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_2NO_2, SO_2

Answer: B

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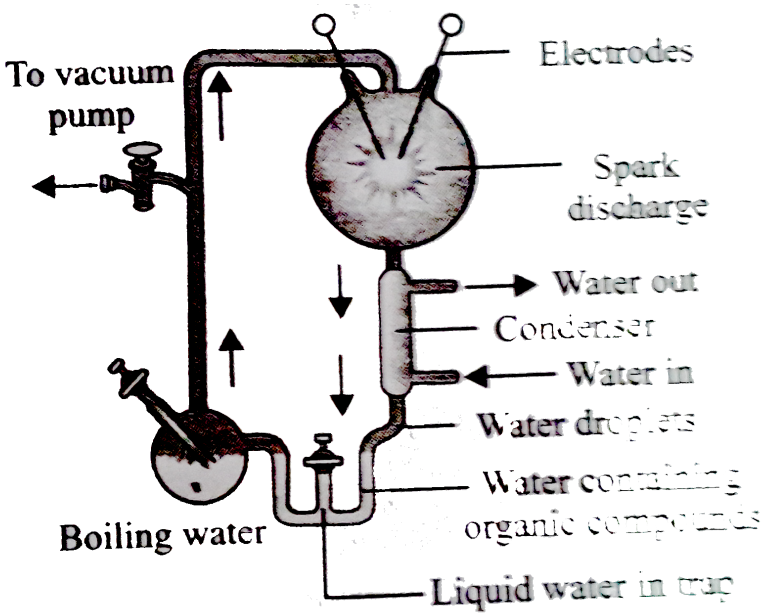
10. The diagram given here is the representation of



A. Miller's experiment

B. Redi's experiment

C. Louis pasteur's experiment

D. Spallanzani's experiment

Answer: A

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11. From the point of view of early chemical evolution that preceded the origin of life on earth, the most important simple organic molecules formed were

A. sugars and amino acids

B. glycerol and fatty acids

C. puriness and pyrimidines

D. all of these

Answer: D

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12. The correct sequence for the manufacture of the compounds on the primitive earth is

A. NH_3, CH_4 protein and carbohydrate

B. Protein , carbohydrate, water and nucleic acid

C. NH_3. CH_4, carbohydrate and nucleic acid

D. NH_3, carbohydrate, protein and nucleic acid.

Answer: D

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13. The prebiotic atmosphere of the earth was of a reducing nature. It was transformed into a oxidising atmosphere of present day due to the emergence of

A. cyanobacteria

B. angiosperms

C. photosynthetic protists

D. eukaryotic algae.

Answer: A

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14. The first non-cellular form of life could have originated ___ billion years back

A. 3

B. 8

C. 10

D. 1

Answer: A

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15. The first life originated

A. on land

B. in air

C. in water

D. all of these

Answer: C

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16. On the primitive earth, polymers such as proteins and nucleic acids in aqueous suspension formed the spherical aggregates. These are called.

A. primitosomes

B. liposomes

C. primitogens

D. coacervates.

Answer: D

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17. Coacervates are

A. colloid droplets

B. nucleoprotein containing entities

C. microspheres,

D. both a and b

Answer: D

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18. Consider following statement regarding microspheres.

(i) They were spherical in shape and 1-2 μm in diameter.

(ii) They hand concentric double layered boundaries.

(iii) They could grow in size but were not able to reproduce.

(iv) They used ATP as source of energy.

Which of the above statements is/are incorrect?

A. i only

B. ii only

C. iii only

D. none of these

Answer: C

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19. Which one of the following is incorrect about the characteristics of protobionts (coacervates and microsopheres) as envisaged in the

abiogenic origin of life?

A. They were partially isolated from the surroundings.

B. They could maintain an internal enviorment.

C. They were able to reproduce sexually.

D. They could separate combinations of molecuels from the surroundings.

Answer: C

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20. The sequence of origin of life may be

A. Inorganic materials $\rightarrow$ Organic materials $\rightarrow$ Colloidal aggregate $\rightarrow$ Eobiont $\rightarrow$ Cell

B. Organic materials $\rightarrow$ Inorganic materials $\rightarrow$ Colloidal aggregate $\rightarrow$ Eobiont $\rightarrow$ Cell

C. Inorganic materials $\rightarrow$ Organic materials $\rightarrow$ Eobiont $\rightarrow$ Cell $\rightarrow$ Colloidal aggregate

D. Organic materials $\rightarrow$ Inorganic materials $\rightarrow$ Eobiont $\rightarrow$ Cell $\rightarrow$ Colloidal aggregate.

Answer: A

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21. The following are some major events in the early history of life.

P. First heterotrophic prokaryotes

Q. First genes

R. First eukaryotes

S. First autotrophic prokaryotes

T. First animals

Which option below places these events in the correct order?

A. $P \rightarrow Q \rightarrow S \rightarrow R \rightarrow T$

B. $Q \rightarrow S \rightarrow P \rightarrow T \rightarrow R$

C. $Q \rightarrow P \rightarrow S \rightarrow R \rightarrow rT$

D. $Q \rightarrow S \rightarrow P \rightarrow R \rightarrow T$

Answer: C

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22. First life form on earth was a

A. cynaobacterium

B. chemoherotroph

C. autotroph

D. photoautotroph.

Answer: B

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23. The ship used by Charles Darwin during his sea voyages was

A. HMS Beagle

B. HSM Beagle

C. HMS Eagle

D. HSM Eagle.

Answer: A

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24. Fitness according to Darwin refers to

A. number of species in a community

B. strength of an individual

C. reproductive fitness of an organism.

D. reproductive fitness of an organism.

Answer: D

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25. Alfred Wallace worked in

A. Galapagos island

B. Australian island Continent

C. Malay Archipelago

D. none of these

Answer: C

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26. The theory of natural selection was given by

A. Lamarck

B. Alfred Wallce

C. Charles Darwin

D. Oparin and Haldane.

Answer: C

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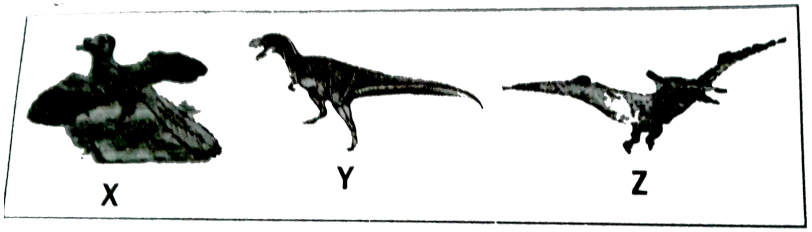
27. Refer to the given figure and select the correct option regarding X,Y and Z.



A. X Brachioaurus Y Archaeopteryx Z Triceratops

B. X Archaeopteryx Y Tryannosaurus Z Pteranodon

C. X Archaeopteryx Y Stgosaurus Z Tryrannosaurus

D. X Archaeopteryx Y Brachiosaurus Z Triceratops

Answer: B

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28. The preserved fossil remains of Archaeopteryx show that

A. it was flying reptile from the Permain 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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29. Which of the following isotopes is used for finding the fossil age maximum about 35,0000 years?

A. $._{}^{238}U$

B. $._{}^{14}C$

C. $._{}^{3}H$

D. $._{}^{206}Pb$

Answer: B

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30. 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. Lamrack's principle

B. Mendelian principle

C. Biogenetic law

D. Hardy Weinberg law

Answer: C

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31. Which of the following statements is related to Karl Ernst von Baer?

A. Embryos never pass through the adult stages of other animals.

B. comparative anatomy shows differences among organisms of today and those that existed years ago.

C. Certain features during embryonic stages are common to all vertebrates that are absent in adult.

D. Ontogeny repeats phylogeny.

Answer: A

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32. The presence of gill slits, in the embryos of all vertebrates, supports the theory of

A. metaorphosis

B. biogenesis

C. organic evolution

D. recapitulation.

Answer: D

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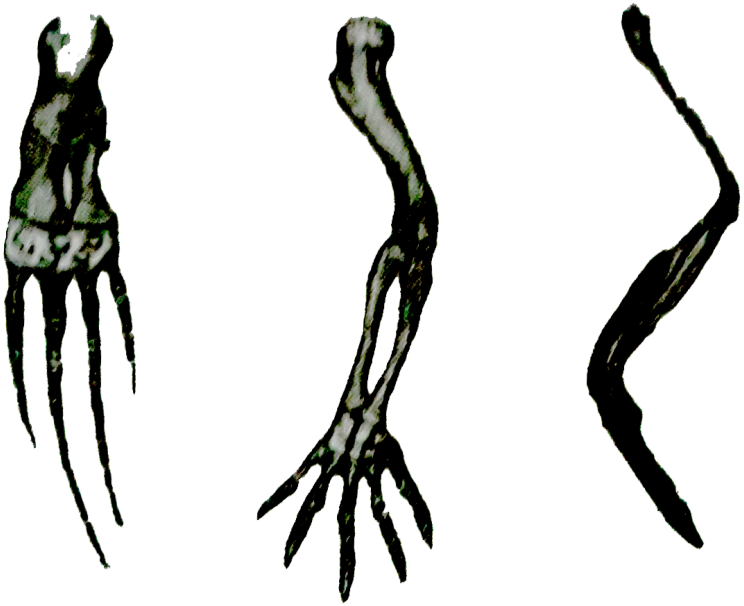
33. What can you infer about the structures shown in figure?



A. They are homologous structures.

B. They are vestigial structures.

C. They are analogous structures.

D. They have nothing to do with each other.

Answer: A

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

A. Organs with anatomical similartities, but performing different functions.

B. Organs with anatomical dissimilarities, but performng 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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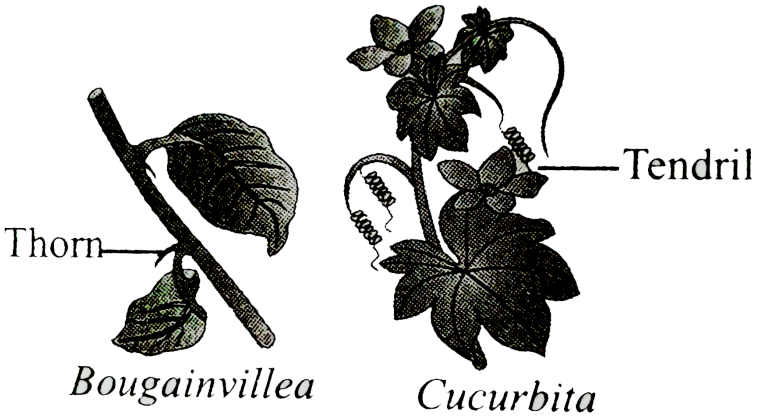
35. The given figure shows an example of



A. homologous organs

B. convergent evolution

C. divergent evolution

D. both a and c

Answer: D

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36. Which of the following statements is true?

A. Wings of birds and insects are homologous organs.

B. Human hands and bird's wings are analogous organs.

C. Human hands and bat's wings are analogous organs.

D. Flipper of penguin and dolphin are analogous organs.

Answer: D

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

A.

Convergent evolution	Divergent evolution
Eyes of octopus and mammals	Bones of forelimbs of vertebrates

B.

Convergent evolution	Divergent evoluti
Thorns of Bougainvilea and tendrils of Cucurbita	Wings of butterfly

C.

Convergent evolution	Divergent evolution
Bones of forelimbs of vertebrates	Wings of butterfly and birds

D.

Convergent evolution	Divergent evoluti
Thorns of Bougainvillea and tendrils of Cucurbila	mammals

Answer: A

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38. Evolutionary convergence is characterised by

A. development of dissimilar characteristics in closely related groups

B. development of a common set of characteristics in groups of different ancestry

C. development of characteristics by random mating

D. replacement of common characteristics in different groups.

Answer: B

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39. In evolution, the studies can be made at molecular level. For example, the proteins present in the blood of man and ape 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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40. Industrial melanism as observed in peppered moth proves that

A. the dark 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-pulluted area

C. melanism is a pollution-generated feature

D. the true black melanic forms escaped unnoticed so they managed to survive resulting in more population of black moths.

Answer: D

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41. 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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42. Phenomenon of industrial melanism demonstrates

A. geographical isolation

B. reproductive isolation

C. natural selection

D. induced mutation.

Answer: C

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

A. Development of trasgenic animals

B. Production of Dolly the sheep by cloning

C. Prevalence of pesticide resistant insects

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

Answer: C

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44. Which is not a vestigial organ in man?

A. Nictitating membrane

B. Tail vertebrae

C. Vermiform appendix

D. Nails

Answer: D

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45. Which one is not a vestigial organ?

A. Wings of kiwi

B. Coccyx in man

C. Pelvic girdle of python

D. Flipper of seal

Answer: D

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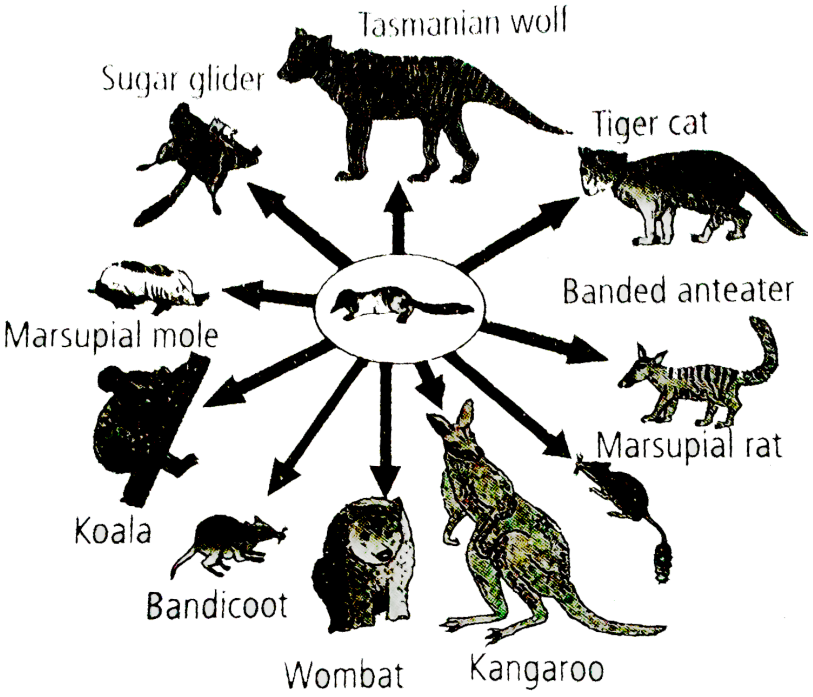
46. Refer to the given figure what does it represent?



A. Convergent evolution

B. Adaptive radiation

C. Atavism

D. Both b and c

Answer: B

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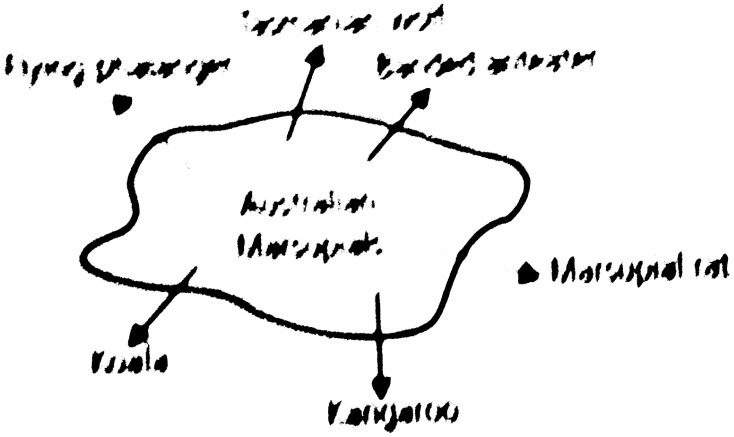
47. Following diagram provides and example of



A. convergent evolution

B. parallel evolution

C. recapitulation

D. divergent evolution.

Answer: D

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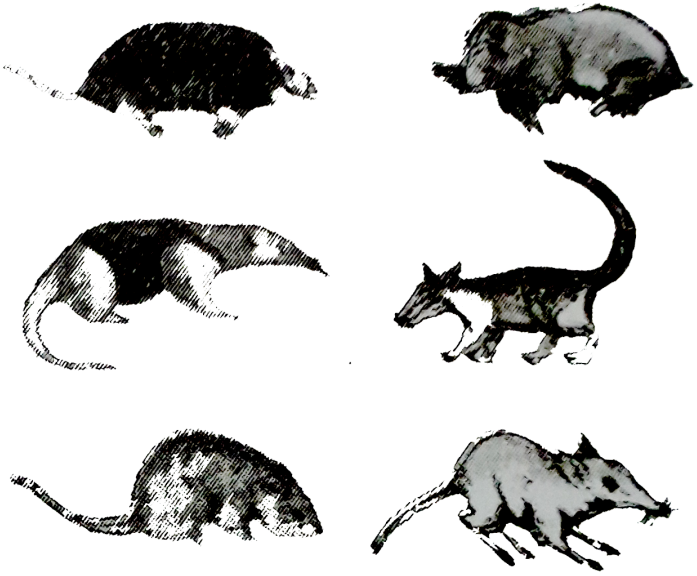
48. Refer to the given figure



The organisms in the given figure represent

A. divergent evolution

B. convergent evolution

C. connecting links

D. recapitulation.

Answer: B

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49. 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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50. Consider the following three statements and select the correct option stating which one is true (T) and which one is false (F).

(i) Oparin of Russia and Haldane of England proposed that the first form of life could have come from pre-existing nonliving organic molecules

(e.g, RNA, protein etc.) and that formation of life was preceded by chemical evolution.

(ii) Based on observations made during a sea voyage around the world. Charles Darwin concluded that existing living forms share similarities to varying degrees only among themselves.

(iii) Evolution by natural selection must have started when cellular forms of life with different metabolic capability originated on Earth.

A. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ F & T & T\end{matrix}$

B. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ T & F & T\end{matrix}$

C. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ T & T & F\end{matrix}$

D. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ F & F & T\end{matrix}$

Answer: B

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51. Read the following statements carefully and select the correct ones.

() Alfred wallace, a naturalist who worked in Malay Archipelago had also

come to similar conclusions as Darwin around the same time.

(ii) August Weismann by carefull experimentation demonstrated that life comes only from pre-existing life.

(iii) The organs which have the same fundamental structure but are different in functions are called homologous organs.

(iv) Rate of appearance of new form is inversely proportional to life spain of organism.

A. i and iii

B. i and ii

C. ii and iv

D. iii and iv

Answer: A

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52. 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 adaptatble to changes survives.

Answer: D

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53. 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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54. Given below are the three statement each with one or two blanks. Select the option which correctly fills up the balnks in any two statements.

(A) For a long time it was also believed that life came out of decaying and rotting matter like straw, mud, etc. This was the theory of i

(B) During post-industrilasiation period, the tree trunks became dark due to industrial smoke and soots. Under this condition the i did not survive due to predators, while ii survived.

(C) Lamrack said that evolution of life forms had occurred but driven by i of organs.

A. i panspermia, i natural slection

B. i white-winged moth, ii dark-winged moth

i use and disuse

C. i spontaneous generation

i dark winged moth, ii white-winged moth

D. i eternity of life

i use and disuse.

Answer: B

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55. According to Lamarckism, long necked giraffes evolved because

A. nature slected only long necked ones

B. humans preferred only long necked ones

C. short necks suddenly changed into long necks

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

Answer: D

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56. 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. Melanisation in peppered moth

C. Absence of limbs in snakes

D. Presence of webbed toes in aquatic birds

Answer: B

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

A. Darwin

B. Bateson

C. Amartya Sen

D. malthus.

Answer: D

Watch Video Solution

58. 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 birds look alike and are the results of i evolution.

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

(C) Vermiform appendix is a i organ and an ii evidence of evolution.

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

A. i convergent: i small variation, ii survival

B. i covergent, i oxygen, ii nucleosides

C. i water vapour, ii amino acids: i homologous, ii anatomical

D. i vestigial, ii anatomical: i mutations, ii multiplication.

Answer: A

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59. Which one of the following sequences was propsoed by Drawin and Wallace for organic evolution?

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

B. Variations, constancy of population size, over-production, natural selection

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

D. Variations, natural selection, overproduction, contancy of population size.

Answer: C

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60. Which of the following statements about natural selection are correct?

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

(ii) Inviduals with better adaptive ability leave more progeny

(iii) Was considered as mechanism of evolution by Darwin

A. i,ii and iii

B. i and ii only

C. iii only

D. i and iii only

Answer: A

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61. Which of the following are necessary for evolution by natural selection to take place?

(i) Offspring resemble their parents more than other individuals in the population.

(ii) Differences among individuals exist and lead to different numbers of successful offspring being produced.

(iii) Individuals adjust their development depending on the enviorment

(iv) Every individual possess enormous fertillity.

A. i and ii

B. ii and iv

C. i,iii and iv

D. iii only

Answer: B

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62. Darwinism explains all the following except

A. offspring with better raits that overcome competition are best suited for the enviorment

B. variations may not be inherited from parents t 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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63. Which of the following differences between Lamarckism and Darwinism is incorrect?

A.

Lamarckism	Darwinism
It does not consider	Struggle for existence is very important in this

B.

Lamarckism	Darw
Only useful variations are transferred to the next generation.	All th

C.

Lamarckism	Darwinism
Neglects survival of fittest	Based on survival of the fittest

D.

Lamarckism	Darwinism
None of these	

Answer: B

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64. 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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65. Which one of the following scientist's name is correctly mathce dwith the theory put forth by him?

A. de Vries-Theory of natural selection

B. Darwin-Theory of pangenesis

C. Weismann-Theory of contunity of germplasm

D. Pasteur-Theory of inheritance of acquired characters

Answer: C

Watch Video Solution

66. 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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67. Match column I with column II and select the correct option from the given codes.

Column I	Column II
Saltation	(i)Darwin
Formation of life was preceded by chemical evolution	(ii)Louis Pasteur
Reproductive fitness	(iii)de Vries
Reproductive fitness pre-existing life	(iv)Oparin and Hal

A. iii,iv,i,ii

B. iv,iii,ii,i

C. ii,iii,i,iv

D. i,iv,iii,ii

Answer: A

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68. Match the column I with column II and select the correct option from the given codes.

Column I	Column II
Wallace	(i)Essay on population
Malthus	(ii)Biston
Hardy-Weinberg law	$(iii)P^2 + q^2 + 2pq = 1$
Industrial melanism	(iv)Co-proposer of Natural selection

A. iii,iv,ii,i

B. ii,I,iv,iii

C. iv,I,ii,iii

D. iv,I,iii,ii

Answer: D

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69. At a particular locus, frequency of allete 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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70. 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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71. The Hardy-Weinberg principle cannot operate if

A. a population does not migrate for a longtime to a new habitat

B. frequent mutations occur in the population

C. the population has no change of interaction with other populations

D. free interbreeding occurs among all membres of the population.

Answer: B

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72. Match column I with column II and select the correct option from the codes given below.

Column I	Column II
Mutation	(i)Changes in population's frequencies due to chance alo
Gene flow	(ii)Differences in survival and reproduction among vari
Natural selection	(iii)Immigration, emigration change allele frequencies
Genetic drift	(iv)Source of new alleles

A. I,ii,iii,iv

B. iv,ii,iii,i

C. v,I,iv,ii

D. iv,iii,ii,i

Answer: D

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73. The effects of genetic drift are more marked in

A. larger populations

B. Mendelian populations

C. island populations

D. smaller populations.

Answer: D

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74. Fill up the balnks in the following paragraph by selecting the correct option.

When migration of a section of population to another place and population occurs, I change in the original as well as in the new population new genes/ alleles are added to the ii, population and these are lost from the population. These would be a iv if this gene migration, happens multiple times. if the same change occurs by chance, it is called

v. sometimes the change in allele frequency is so different in the new sample of population that they become a diffrent species. The original drifted population becomes founders and the effect is called vi

A.

(i)	(ii)	(iii)	(iv)	(v)	(vi)
natural	new	old	gene flow	gene	founder effect

B.

(i)	(ii)	(iii)	(iv)	(v)	(vi)
gene frequencies	old	new	natural selection	gene flow	bottle nec

C.

(i)	(ii)	(iii)	(iv)	(v)	(vi)
gene frequencies	new	old	gene flow	genetic drift	founder effect

D.

(i)	(ii)	(iii)	(iv)	(v)	(vi)
mutations	old	new	natural selection	gene flow	bottle-necl effe

Answer: C

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75. An isolated population of humans with approximately equal numbers of blue-eyed and brown-eyed individuals was decimated by and

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. Hardy-Weinberg equilibrium

B. blocked gene flow

C. bottle-neck effect

D. gene migration

Answer: C

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76. 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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77. The factors involved in the formation of new species are

A. isolation and competition

B. gene flow and competition

C. competition and mutation

D. isolation and vriation.

Answer: D

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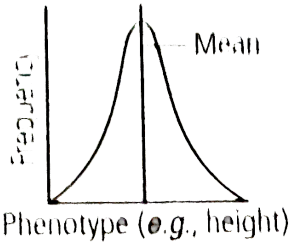
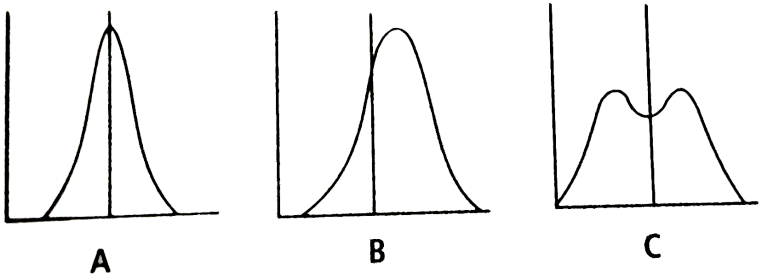
78. Following is the digrammatic representation of the operation of natural selection on different traits. Which of the following options

correctly identifies all the three graphs A,B and C?





A. A Directional B Stabilising C Disruptive

B. A Stabilising B Directional C Disruptive

C. A Distruptive B Statbilising C Directional

D. A Directional B Disruptive C Stabilising

Answer: B

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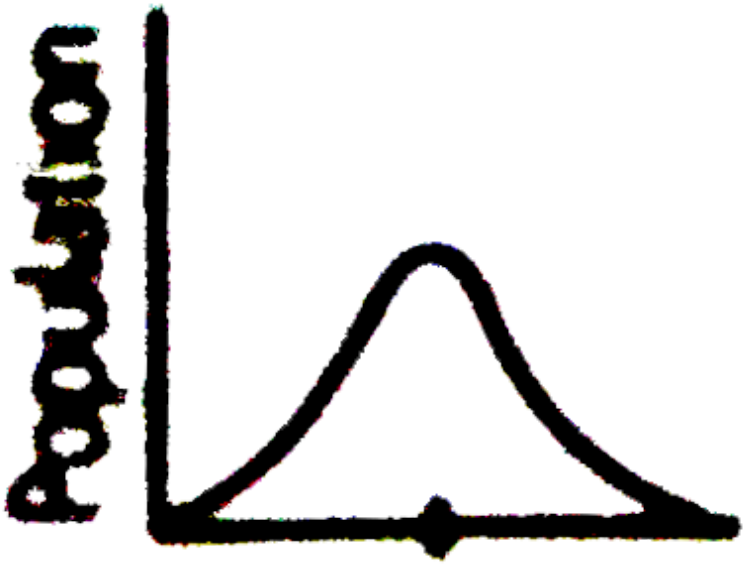
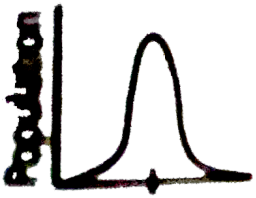
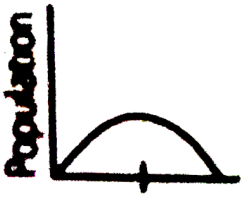
79. The given graph shows the range of variation among population members for a trait determined by multiple genes. If this population is subjected to disruptive selection for several generations, which of the following distributions is most likely to result?

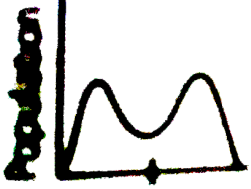


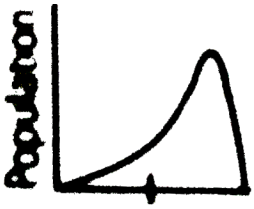
A.



B.



C. 

D. 

Answer: C

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80. Read the following statements and select the correct option.

(i) Increase in metained months after industrialisation in Great Britain is a proof for natural selection.

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

(iii) Changes in allelic frequency in a population will lead to Hardy-Weinberg equilibrium.

(iv) Genetic drift changes the existing gene or allelic frequency in future generations.

A. Only ii is correct.

B. Only iv is correct.

C. Both I and iv are correct.

D. Both I and ii are correct.

Answer: C

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81. Stablising selection favours.

A. both extreme forms of a trait

B. Intermediate forms of a trait

C. enviromental difference

D. one extreme form over the other extreme form and over intermediate forms of a trait.

Answer: B

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82. Select the pair which does not match.

A. Coacervates – Aggregates of organic compounds separated by an

B. Lamrarck – Species are not immutable

C. Allopatric speciation – Separated by space

D. Darwin's finches – Unique to Galapagos

Answer: A

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83. The different forms of interbreeding species that live in different geographical regions are called

A. sibling species

B. sympatric species

C. allopatric species

D. polypic species.

Answer: C

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84. Allopatric speciation occurs when

A. genetically related population inhabit widely separted geographical area

B. genetically unrelated populations inhabit widely separated geographical area

C. genetically related population inhabit the same geographical area

D. genetically unrelated population inhabit the same geographical area.

Answer: A

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85. An inter-breeding population of finches became separated geographically, forming two isolated groups. Each group then became subect to different selective pressures. One group was then introduced into the habitat of the other.

Which one of the following would determiner wheather they now formed two district species?

A. They had been separated for more than three milion years.

B. They failed to produce fertile F_1 hybrids.

C. They showed marked differences in the shape of their beaks.

D. Their plumage had become markely different.

Answer: B

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86. Read the given statements i-iv regarding evolution and select the incorrect ones.

(i) The oceanic water rich in mixture of organic compounds was termed by J.B.S. Haldane (1920) as 'hot dilute soup of organic substances'.

(ii) The term coacervate was given by Sydney Fox.

(iii) First cellular form of life did not possible originate till about 2000 mya,

The first geological time scale was developed by Georges Cuvier.

A. ii and iv

B. I and ii

C. ii and iii

D. iii and iv

Answer: A

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87. Refer to the given statements and select the correct ones.

(i) Fossils are remains of hard parts of life forms in rocks.

(ii) Dinosaurs disappeared about 65 mya.

(iii) Animals called lobe fins evolved into reptiles.

(iv) Study of fossils is called palaentology.

A. I,ii and iv

B. ii and iv

C. i,iii and iv

D. none of these

Answer: A

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88. Which of the following represents correct order of evolution?

A. Amoeba $\rightarrow$ Leucosolenia $\rightarrow$ Ascaris

B. Leucosolenia $\rightarrow$ Hydra $\rightarrow$ Amoeba $\rightarrow$ Ascaris

C. Ascaris $\rightarrow$ Amoeba $\rightarrow$ Leucosolenia $\rightarrow$ Hydra

D. none of these

Answer: A

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89. Presence of gills in the tadpole of frog indicates that

A. fishes were amphibious in the past

B. fishes evolved from frog like ancestors

C. frogs will have gills in future

D. frogs evolved from gilled ancestors.

Answer: D

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90. The character that proves that frogs have evolved from fishes is

A. their ability to swim in water

B. tadpole larva in frogs

C. similarity in the shape of the head

D. their feeding on aquatic plants.

Answer: B

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91. Which of the following statement is correct?

A. Amphibians evolved into reptiles.

B. Fish with stout and strong fins could move on land and go back to water. This was about 350 mya.

C. Giant ferns were present but they all fell to form coal deposits slowly.

D. all of these

Answer: D

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92. Consider the following three statements and select the correct option stating which one is true (T) and which one is false (F).

(i) Some land reptiles went back, into water to evolve into fish like reptiles probable 200 mya.

(ii) The first mammals were like shrews.

(iii) The work of Thomas Malthus on populations influenced Lamarck.

A.

(i)	(ii)	(iii)
T	F	T

B. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ F & T & T\end{matrix}$

C. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ T & T & F\end{matrix}$

D. $\begin{matrix}(\mathrm{i}) & (\mathrm{ii}) & (\mathrm{iii}) \\ F & T & T\end{matrix}$

Answer: C

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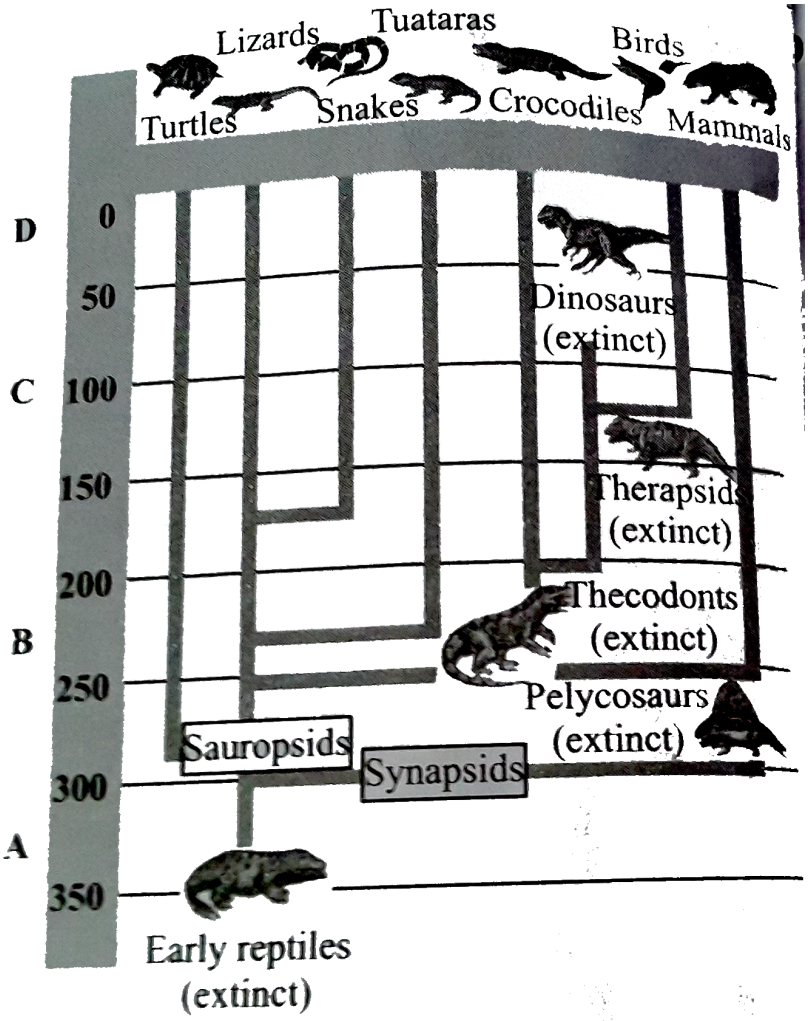
93. Following is given the diagrammatic representation of evolutionary history of vertebrates through geological periods. Identify the geological

periods (A,B,C and D) and select the correct option.



A. *A* Carboniferus *B* Triassic *C* Cretaceous *D* Quaternary

B. *A* Jurassic *B* Permian *C* Tertiary *D* Cretaceous

C. *A* Permian *B* Jurassic *C* Quatermary *D* Tertiary

D. *A* Cretaceous *B* Quaternary *C* Carboniferous *D* Jurassic

Answer: A

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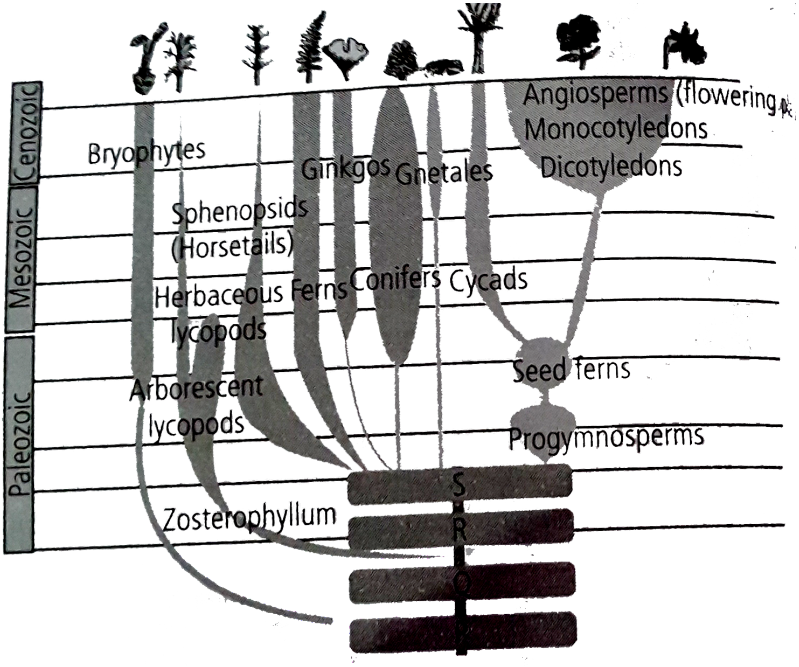
94. Refer to the given figure and select the correct option regarding it.



A.

P	Q	R
Chlorophyte ancestors	Tracheophyte ancestors	Rhynia-type plan

B.

P	Q	R
Tracheophyte ancestors	Rhynia type plants	Chrolophyte ancesto

C.

P	Q	R	S
Chlorophyte ancestors	Tracheophyte ancestors	Psilophyton	Rh

D.

P	Q	R
Chlorophyte ancestors	Rhynia-type plants	Traceophyte ancestor

Answer: A

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95. Identify the correct arrangement of periods of palaeozoic era in ascending order in geological time scale.

A. Cambran $\rightarrow$ Devonian $\rightarrow$ Ordovician $\rightarrow$ Silurian $\rightarrow$ Carboniferous $\rightarrow$ Permian

B. Cambrian → Ordovvician → Silurian → Devonian → Carboniferous → Permian

C. Cambrian → Ordovicina → Devonian → Silurian → Carboniferous → Permian

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

Answer: B

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

A. Cenozoic, Mesozoic, Paleozoic, Proterozoic

B. Cenozoic, Palaeozoic, Mesozoic, Proterozoic

C. Proterozoic, Cenozoic, Palaeozoic, Mesozoic

D. Proterozoic, Palaezoic,Mesozoic,Cenozoic

Answer: D

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97. The Devonian period is considered to be as

A. age of fishes

B. age of amphibians

C. age of reptiles

D. age of mammals.

Answer: A

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98. Given below are four statements i-iv regarding geological time scale. Read them carefully.

(i) Paleozoic era is the era of ancient life.

(ii) Ordovician period is the age of vertebraes.

(iii) Carboniferous period is the age of reptiles

(iv) Proterozoic era is the era of early life

Which of the above two statements are incorrect ?

A. I and iv

B. ii and iii

C. ii and iv

D. i and iii

Answer: B

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99. Golden age of reptiles was

A. Proterozoic era

B. Paleeozoic era

C. Mesozoic era

D. Coenozoic era.

Answer: C

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100. Amphibians were dominant during ____ period.

A. Carboniferous

B. Silurian

C. Ordovician

D. Cambrian

Answer: A

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101. The primate which existed 15 mya was

A. Homo habilis

B. Austrlopithecus

C. Ramapithecus

D. Homo eractus.

Answer: C

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102. The extinct human ancestor, who are only fruits and hunted with stone weapons was

A. Ramapithecus

B. Australopithecus

C. Dryopithecus

D. Homo erectus.

Answer: B

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103. One of the oldest, best preserved and most complete hominid fossil commonly known as 'lucy' belongs to the genus

A. Australopithecus

B. Oreopithecus

C. Dryopithecus

D. Pithecanthropus.

Answer: A

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104. The brain capacityof Homo erectus was about

A. 650 c.c.

B. 900 c.c.

C. 1500 c.c.

D. 1400 c.c.

Answer: B

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105. The extinct humans who lived 1,00,000 to 40,000 years ago, in East and central Asia, used hides to protect their bodies and had brain capacity of 1400 c.c. were

A. Homo habilis

B. Neanderthal man

C. Cro-Magnon man

D. Ramapithecus.

Answer: B

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106. Which of the following statements is incorrect?

A. Jawless fish probable evolved around 350 mya.

B. Tyrannosaurus rex was biggest dinousaur, about 20 feet in height and had huge fearsome dagger-like teeth.

C. About 15 mya, primates called Dryoptihecus and Rampaithacus existed.

D. Australopithecus with a brain size if 1400 c.c. lived in East and Central Asia between 1,00,000-40,000 years back.

Answer: D

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107. Complete the following paragraph by selecting the corrects 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 buried theri dead.

A. (i) 500c. c. (ii) Australia (iii) 2,00,000-1,40,000 (iv) Clothes

B. (i) 500c. c. (ii) Africa (iii) 40,000-8,000 (iv) twigs

C. (i) 1400c. c. (ii) Asia (iii) 1,00,000-40,000 (iv) hides

D. (i) 650c. c. (ii) Africa (iii) 75,000-10,000 (iv) leaves

Answer: C

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108. Which of the following statements is correct?

A. Australopithecus has large brain around 900 c.c.

B. Neanderthal man lived in East Africa and ate fuits.

C. Homo erectus had brain capacity of 900 c.c.

D. Homo sapiens arose in Central Asia and moved to other continents and developed into distinct races.

Answer: C

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

A. Homo erectus is preceded by Homo habilis.

B. Neanderthal man and cro-Magnon man were living at the same time.

C. Australopithecus was living in Australia.

D. none of these

Answer: A

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110. The cranial capacity was largest among the

A. Peking man

B. Java ape man

C. African man

D. Neanderthal man.

Answer: D

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111. The most apparent change during the evolutionary history of Homo-sapients is traced in

A. loss of body hair

B. walking upright

C. shortening of the jaws

D. remarkable increase in the brain size.

Answer: D

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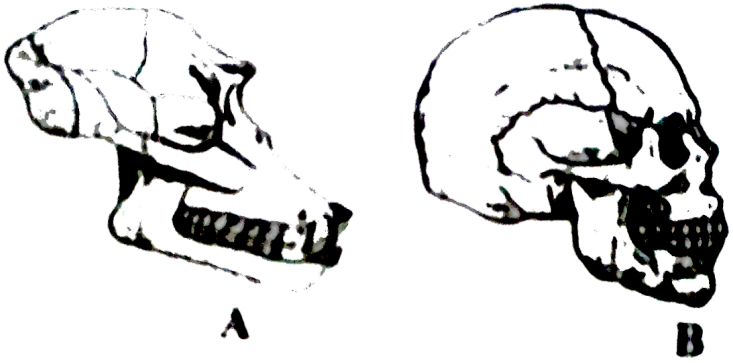
112. The diagram given here shows the skulls of two different mammals.



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

A. SkullA 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 a ape and skull B is of a human.

Answer: D

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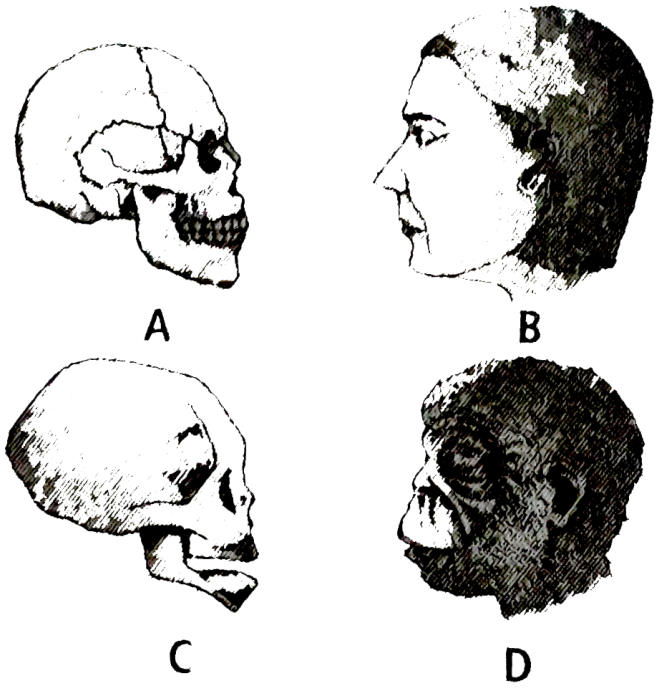
113. Refer to the given figure.



The given figures represents that.

A. the skull of baby chimpanzee is more like adult human skull

B. the bay chimpanzee did not have teeth whereas humans do

C. sutures are present on the skull of adult human whereas in chimpanzee it is a single bone.

D. both a and c.

Answer: A

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114. Which of the following is correct order of the evolutionary history of man?

A. Peking man, Homo sapines, Neanderthal man,Cro Magnon man

B. Preking man, Neanderthal man, Heidelberg man, Cro-Magnon man

C. Peking man, Heidelberg man, Neanderthal man, Cro-Magnon man

D. Perking man, Neanderthal man, Homo sapiens, Heidelberg man.

Answer: C

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115. What kind of evidences suggested that man is more closely related with chimpanzee than with other hominoid apes?

A. Evidence from DNA of sex chromosomes, only

B. Comparison of chromosome morphology and number

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

D. Evidence from banding pattern of chromosome 3 and 6

Answer: D

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116. Match column I with Column II and select the correct option from the codes given below.

Column I	Column II
Edward Lewis	(i) Australopithecus
L.S.B. Leakey	(ii) Homo neanderthalensis
C. Fuhlrott	(iv) Ramapithecus

A. iv,iii,ii,i

B. ii,i,iv,iii

C. iii,ii,i,iv

D. i,ii,iii,iv

Answer: A

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117. If the Neanderthals are not the direct ancestors of 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 trictly linear and without brances.

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

Answer: A

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118. Which of the following eras, in geological time scale corresponds to the period when life had not originated upon the earth?

A. Azoic

B. Palaezoic

C. Mesozoic era

D. Archaeozic

Answer: A

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119. Homo sapiens arose during which epoch?

A. Plesistocene

B. Pliocene

C. Oligocene

D. Holocene

Answer: D

120. Study of human evolution is called

A. archaeology

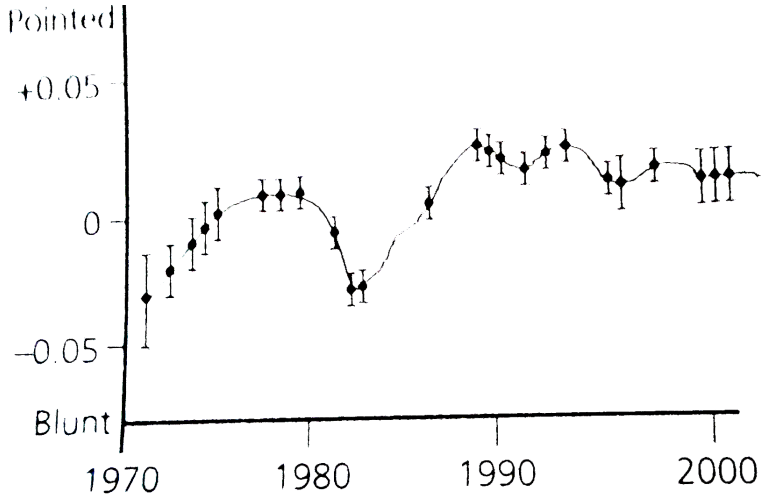
B. anthropology

C. pedigree analysis

D. chronobiology.

Answer: B

121. In order to build a longitudinal data set, data of adult finches Geospiza fortis living on one of the Galapagos islands were collected. The beak shape data collected between 1971-2001 are shown in the graph.



Study the graph and select the correct statement.

A. The fluctuating direction in the beak shape is most probable due to change in the environment.

B. The graph as a whole does not indicate evolutionary change in the beak shape as the time interval is too small and evolution requires thousands of years to occur.

C. The graph indicates that the beak shape may lead to convergent evolutin in the finches of Galapagos inslands.

D. The change in any phenotypic character requires selection to alter the expression of large number of geries in coordinated fashion. Henc,e it is unlikely that change in the beak shape depicted in the graph is a result of evolution.

Answer: A

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122. The following summaries describe some published research results.

Research 1. Wu and Li (1985): The comparative analysis of homologous genes between human and mouse genomes suggests that the evolutionary rate of homologous genes was higher in the mouse lineage than in the human lineage.

Research 2. Smith and Donohe (2008) : The plant families Caprifoliacease, Asclepiadeceae and Lamiaceae are compsed of both herbaceous and

arborescent speciers. The comparative analysis of homologous genes between the herbaceous and arborescent species within a single plant family suggests that the evolutionary rate of homologous genes in herbaceous lineages were faster than of arborescent lineages in all three plant familes.

Research 3. Gilman et al. (2009): The comparative analysis of 130 homologous mitochondrial genes between a sister species pair of vertebrates from the temperate region and from the tropical region indicate that the base substitution rates of homologous genes from the tropical region are 1.7 times faster than that of the temperate region.

Based on these studies which of the following statements best describes the common evolutionary processes in plant and animal genes?

A. The evolutionary rates of genes are accelerated in shot-lived animals and plants.

B. The evolutionary rates of genes are accelerated in higher animals and plants.

C. The evolutionary rates of genes are accelerated in animals and plants which lived in higher temperature regions.

D. Direct comparisons of homologous genes between animals and plants show that the plants evolve faster than animals.

Answer: A

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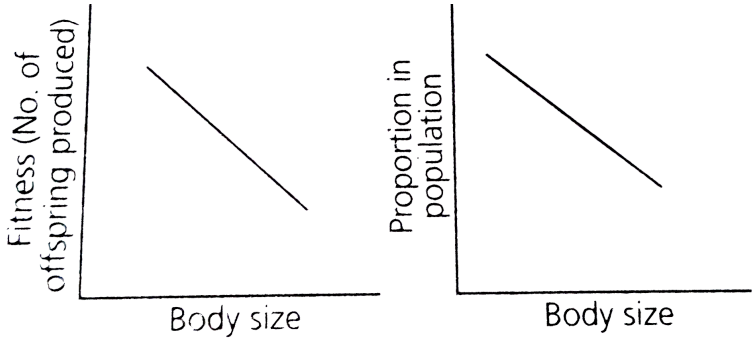
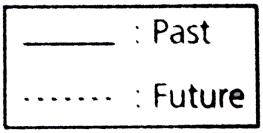
123. Study the charactristics of a population represented in the graphs below.

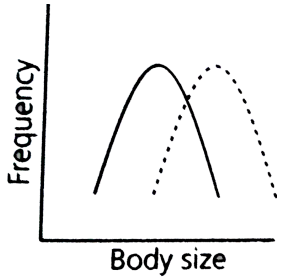


Mark the correct graph that represents the type of selection that this

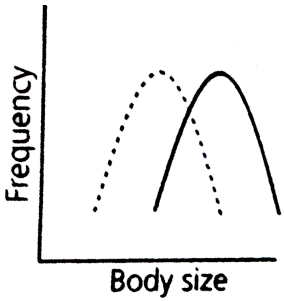
population is likely to undergo



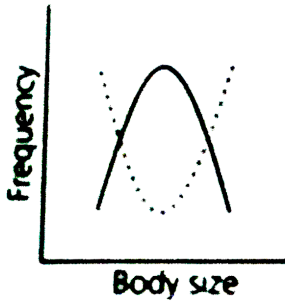
A.

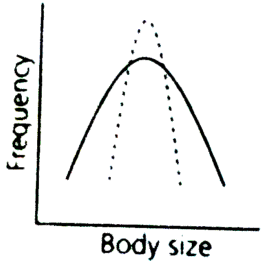


B.



C.





D.

Answer: B

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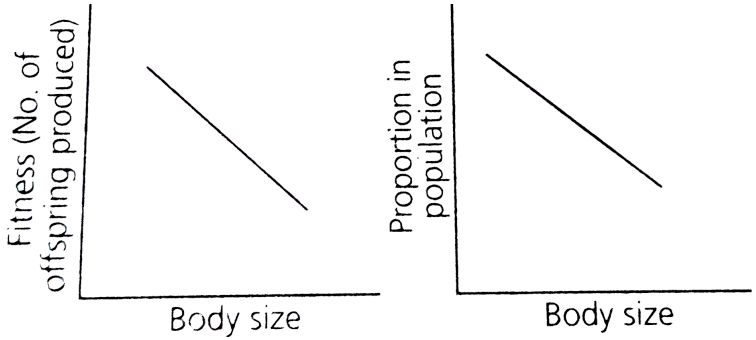
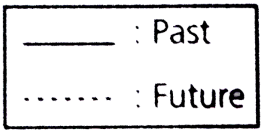
124. Study the charactristics of a population represented in the graphs below.



Mark the correct graph that represents the type of selection that this population is likely to undergo



A. Directional selection

B. Stablising selection

C. Disruptive selection

D. Balancing selection

Answer: A

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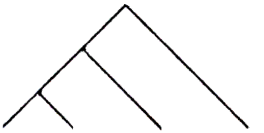
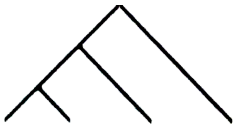
125. Following table shows data on amino acid substitution in the α chain of haemoglobin in four different mammalian species A,B,C and D on the basis of the data shown in the table. Choose the most appropriate

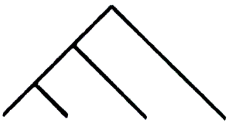
evolutionary tree from those given below.

Comparison of Species	Number of Amino Acid Substitution
A and B	19
B and C	26
A and C	27
D and C	27
A and D	20
D and B	1

A. 

B. 

C. 

D. 

Answer: D

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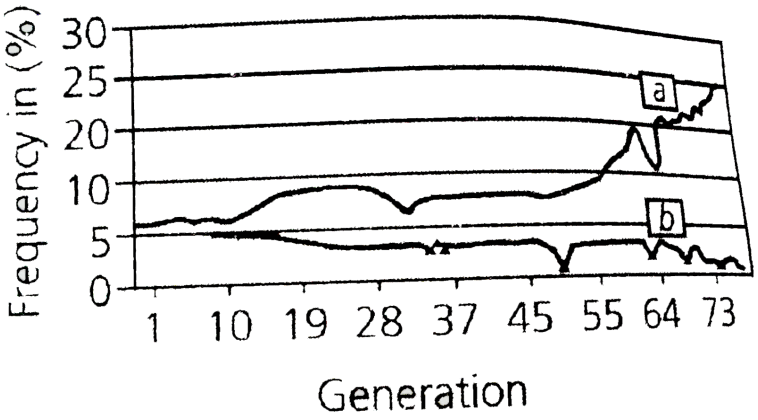
126. In a long term experiment of a population of Drosophila melnogaster, the frequency of two alleles 'a' and 'b' of a multi-allelic locus X over time has been shown in the following graph.



6 students were asked to evaluate the observed pattern and their inferences are given below.

Statement 1: Enviorment is not uniformly slective.

Statement 2: Population may be under artificial selection.

Statement 3: Genetic variability is progressively reduced.

Statement 4: Genetic varuability is progressively increased.

Statement 5: Mechanism such as genetic drift is operating from time to time.

Statement 6: Selection is favouring a particualr genotype through directional selection.

The appropriate conclusions were draws by

A. Students 2,6 and 6

B. Students 1,3 and 5

C. Students 2,3 and 6

D. Studnets 1,3 and 6.

Answer: C

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127. In a large, randomly mating population, only one person in 10,000 is an albino. What will be the frequency of a carrier person of albinism?

A. 1 in 50

B. 99 in 10000

C. 2 in 10000

D. 1 in 100

Answer: A

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128. Which of the following is used an atomospheric pollution indicator?

A. Lepidoptera

B. Lichens

C. Lycopersioon

D. Lycopodium

Answer: B

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129. The theory of spontaneous generation stated that

A. life arose from living forms only

B. life cn 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: C

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130. Animal husbandry and plant breeding programmers are the examples of

A. reverse evolution

B. artifical selection

C. Mutation and natural selection.

D. natural selectron.

Answer: B

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131. Palaentological evidences for evolution refer to the

A. developemtn of embryo

B. homologous organs

C. fossils

D. analogous organs.

Answer: C

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132. 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 perfrom the same function

D. the have biochemical similarities.

Answer: B

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133. Analogous organs arise due to

A. divergent evolution

B. artificial selection

C. genetic drift

D. convergent evolution.

Answer: D

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

A. population genetics

B. Mendelian genetics

C. biomertircks

D. molecular genetics

Answer: A

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135. 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

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136. Evolution of life shows that life hard a trent of moving from

A. land to water

B. dryland to wet land

C. frest water to wet land

D. frest water to sea waer

Answer: D

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137. Viviparity is considered to be more evolved because

A. the yound ones are left on their own

B. the young ones are protected by a thick shell

C. the young ones are prtected inside the mother's bod and are lookea fter they are born leading to more chances of survival

D. the embryo takes a long time to develop.

Answer: C

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138. 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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139. 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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140. Which type of selection is industrial melansim observed in month, Biston betularia?

A. Stabilising

B. Directional

C. Disruptive selection

D. Artificial

Answer: B

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

A. Austrlopithecus $\rightarrow$ Ramapithecus $\rightarrow$ Homo sapiens $\rightarrow$ Homo habilis

B. Homo erectus $\rightarrow$ Homo habilis $\rightarrow$ Homo sapiens

C. Ramapithecus $\rightarrow$ Homo habilis $\rightarrow$ Homo erectus $\rightarrow$ Homo sapiens

D. Australopithecus $\rightarrow$ Rampapithecus $\rightarrow$ Homo erectus $\rightarrow$ Homo habilis $\rightarrow$ Homo sapiens.

Answer: C

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142. 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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143. Match the scientists listed under Column 'A' with ideas listed under column 'B'

Column I	column II
Darwin	(i)Abiogenesis
Oparin	(ii)Use and disuse of organs
Lamrack	(iii)continental drift theory
Wagner	(iv)Evolution by natural selection

A. I,IV,II,III

B. IV,I,II,III

C. II,IV,III,I

D. IV,III,II,I

Answer: B

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144. 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 condition created include.

A. low temperature, volcanic storms, atmosphere rich in oxygen

B. low temperature, volcanic storms, reducing atmosphere

C. high temperature, voicanic storms, non-reducing atmosphere

D. high temperature, voicanic storms, non-reducing atmosphere.

Answer: D

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145. 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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146. Assertion: Louis pasteur showed that in flask open to air, new living organisms appeared in the heat killed yeast culture.

Reason: Life arise from pre-existing life.

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147. Assertion: Primitive atmosphere was of reducing type.

Reason: First hydrogen atoms combined with all oxygen.

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148. Assertion: Thorns and tendrils of Bougainvillea and Cucurbita represent homology.

Reason: Homologous organs have similar functions but are different in their structural details and origin.

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149. Assertion: Moths living in the industrial areas became dark to match body colour to the tree trunks.

Reason: Smoke from industries covers the moths, making them appear dark.

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150. Assertion: Evolution is not a directed process in sense of determinism.

Reason: Evolution is a stochastic process based on chance events in nature and chance mutation in the organisms.

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151. Assertion: The embryos of fish, salamander, tortoise, chick and a man, of same age resemble one another closely.

Reason: Ontogeny recapitulates phylogeny.

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152. Assertion: Darwin's finches of Galapagos islands have different types of modified beaks according to their food habits.

Reason: Adaptive radiation, leads to development of different functional structure from a common ancestral form.

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153. Assertion: Adaptive ability is inherited.

Reason: Fitness is the end result of the ability to adoapt and get selected by the nature.

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154. Assertion: Evolutionary trend is continous changes of character in a linage.

Reason: Lineage is an evolutionary sequence arranged in linear order.

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155. Assertion: Hardy-Weinberg principle explains the variations occurring in population and species over a number of generations.

Reason: Hardy-Weinberg principle is applicable only when genetic drift occurs.

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156. Assertion: Founder effect may lead to formation of new species.

Reason: Founders carry all the parental gene pool to a new location.

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157. Assertion: Genetic drift refers to changes in the allele frequency occuring by chance.

Reason: Sampling errors often lead to the elimination of certain alleles and fixation of others, reducing genetic variability.

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158. Assertion: Disruptive selection changes the population towareds one particular direction.

Reason: This type of selection favours average sized individuals.

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159. Assertion: Neanderthal man is the intermediate between Ramapithecus and Homo erectus.

Reason: Neanderthal man, with brain sizeof 800 c.c., used hides to protect their body.

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160. Assertion: The chimpanzee is the closest relative of the present day humans

Reason: The banding pattern in some autosomes of man and chimpanzee is remarkable similar.

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