



INDIAN SCHOOL DARSAIT

DEPARTMENT OF BIOLOGY



Subject : Biology

Topic : Evolution

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Resource Person: Zehra Fatima

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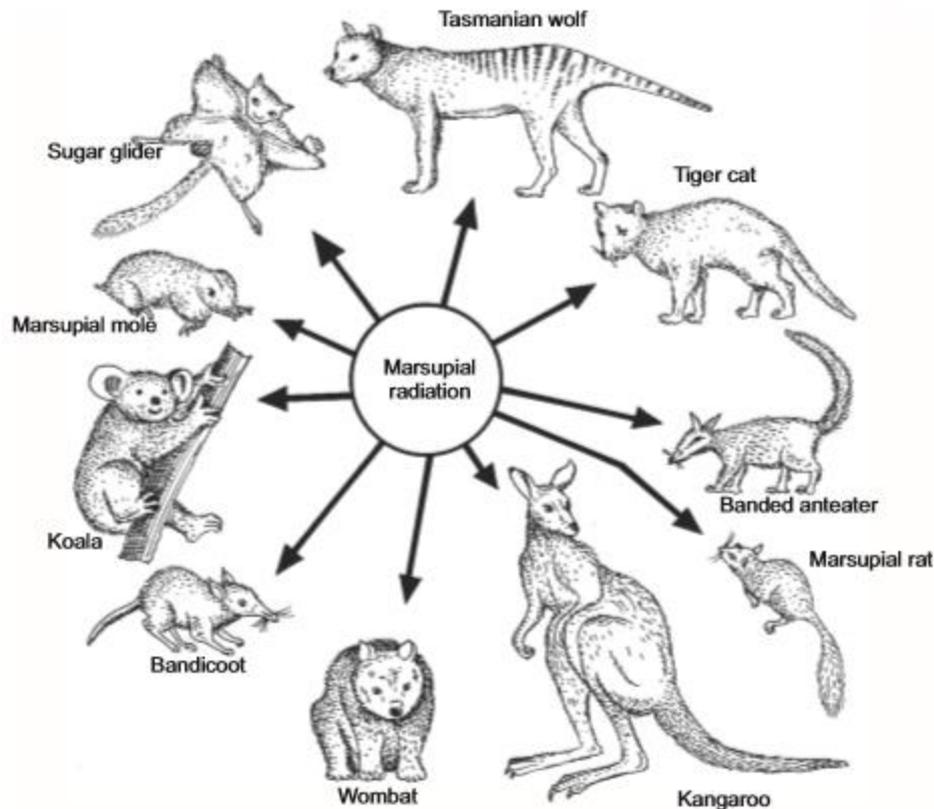
Name of the Student : _____ Class & Division : XII A & B Roll Number : ____

S.No.	Questions	Marks
1 .	What causes speciation according to Hugo de Vries? (CBSE Delhi 2008)	1
2.	Name any two vertebrate body parts that are homologous to human forelimbs. (CBSE AI 2008)	1
3.	Mention the type of evolution that has brought the similarity as seen in potato tuber and sweet potato. (CBSE Delhi 2009)	1
4.	Why are the wings of a butterfly and of a bat called analogous? (CBSE Delhi 2009)	1
5.	Are the thorn of Bougainvillea and tendril of Cucurbita homologous or analogous? What type of evolution has brought such a similarity in them? (CBSE Delhi ,Foreign 2009)	1
6.	According to Hardy–Weinberg’s principle, the allele frequency of a population remains constant. How do you interpret the change of frequency of alleles in a population? (CBSE AI 2009)	1
7.	Are the wing of a bird and the forelimb of a horse homologous or analogous? Name the type of evolution that explains the development of such structures. (CBSE Foreign 2009)	1
8.	Are flippers of penguin and dolphin homologous or analogous? What type of evolution has brought such a similarity in them? (CBSE Foreign 2009)	1
9.	Name the scientist who disproved spontaneous generation theory. (CBSE Delhi 2010)	1
10.	Name the common ancestor of the great apes and man. (CBSE AI 2011)	1
11.	Mention how is mutation theory of Hugo de Vries different from Darwin’s theory of natural selection. (CBSE Foreign 2011)	1
12.	What does Hardy-Weinberg equation $p^2 + 2pq + q^2 = 1$ convey? (CBSE Foreign 2011)	1

13. Write the similarity between the wing of a butterfly and the wing of a bat. What do you infer from the above with reference to evolution? (CBSE Delhi 2012) 1
14. State the significance of the study of fossils in evolution. (CBSE Delhi 2012) 1
15. Comment on the similarity between the wing of a cockroach and the wing of a bird. What do you infer from the above, with reference to evolution? (CBSE AI 2012) 1
16. Comment on the similarity between the flippers of dolphins and penguins, with reference to evolution. (CBSE Foreign 2012) 1
17. Identify the examples of homologous structures from the following: 1
 (i) Vertebrate hearts
 (ii) Thorns in Bougainvillea and tendrils of Cucurbita.
 (iii) Food storage organs in sweet potato and potato. (CBSE Delhi 2013)
18. "Sweet potato tubers and potato tubers are the result of convergent evolution." Justify the statement. (CBSE Delhi 2013) 1
19. What did Louis Pasteur's experiment on 'killed yeast' demonstrate? Name the theory that got disproved on the basis of his experiment. (CBSE Foreign 2013) 1
20. According to de-Vries what is saltation? (CBSE 2015) 1
21. Write the hypothetical proposals put forth by Oparin and Haldane. (CBSE Foreign 2015) 1
22. What is divergent evolution? Explain taking an example of plants. (CBSE Delhi 2008) 2
23. How do Darwin's finches illustrate adaptive radiation? (CBSE AI 2008) 2
24. How do Darwin and de Vries differ in their views on the mechanism of evolution of life on earth? (CBSE Foreign 2008) 2
25. Why are the wings of butterfly and birds said to be analogous organs? Name the type of evolution of which the analogous organs are a result of. (CBSE Foreign 2010) 2
26. List the two main propositions of Oparin and Haldane. (CBSE AI 2013) 2
27. Write the Oparin and Haldane's hypothesis about the origin of life on Earth. How does meteorite analysis favour this hypothesis? (CBSE AI 2013) 2

28. Describe the experiment that helped Louis Pasteur to dismiss the theory of spontaneous generation of life. (CBSE 2015)
Experiment of Louis Pasteur
29. What do the forelimbs of whales, birds and cheetah with respect to evolution signify? Provide one such example in plants? (CBSE Foreign 2017)
30. How does Darwin's theory of Natural Selection explain the appearance of new forms of life on earth? (CBSE AI 2008)
Darwin's theory of natural selection:

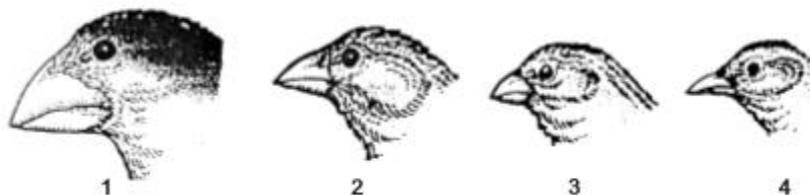
31. 3



- (a) Mention the specific geographical region where these organisms are found.
(b) Name and explain the phenomenon that has resulted in the evolution of such diverse species in the region.
(c) Explain giving reasons the existence of placental wolf and Tasmanian wolf sharing the same habitat. (CBSE Delhi 2009)

32. Explain convergent and divergent evolution with the help of one example of each. (CBSE Delhi 2010) 3

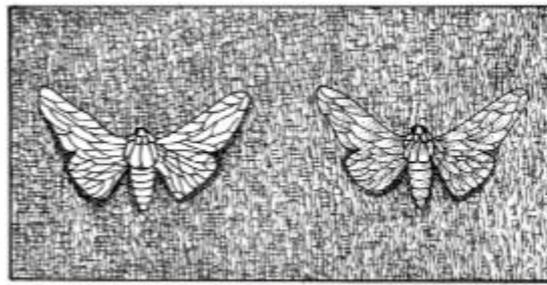
33. 3



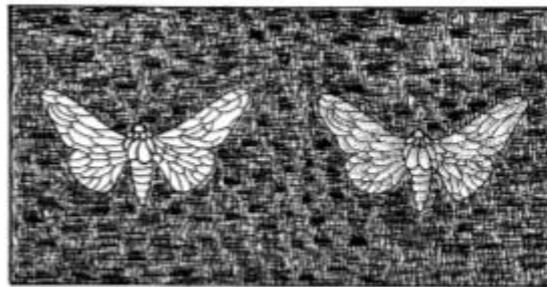
- (a) Write your observations on the variations seen in the Darwin's finches shown above.

(b) How did Darwin explain the existence of different varieties of finches on Galapagos Islands? (CBSE AI 2009)

34.



(a)

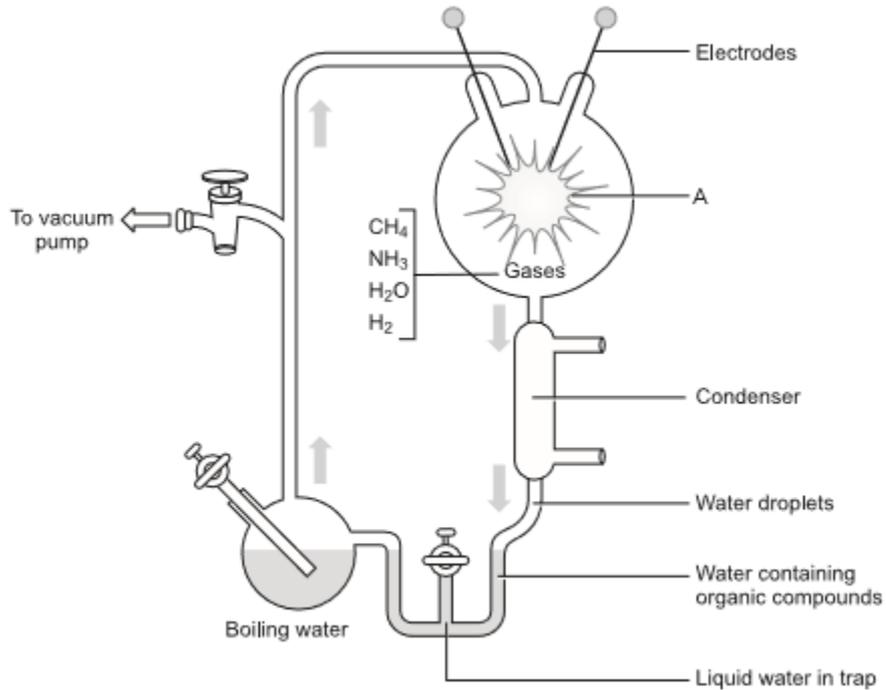


(b)

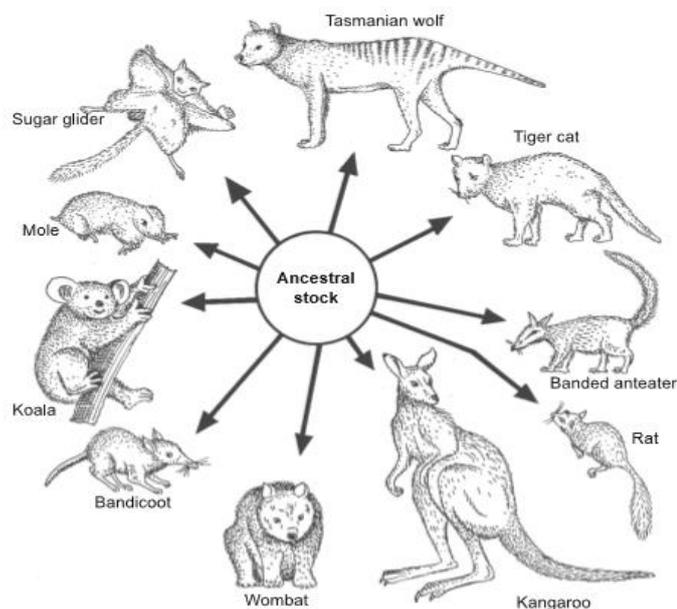
What do these pictures 'a' and 'b' illustrate with reference to evolution? Explain. (CBSE Foreign 2009)

35. (a) How does the Hardy-Weinberg's expression ($p^2 + 2pq + q^2 = 1$) explain that genetic equilibrium is maintained in a population? 3
(b) List any two factors that can disturb the genetic equilibrium. (CBSE AI 2010)
36. Anthropogenic action can hasten the evolution. Explain with the help of a suitable example. 3
(CBSE Foreign 2010)
37. Explain adaptive radiation and convergent evolution by taking example of some of Australian marsupials and Australian placental mammals. 3
(CBSE Foreign 2010)
38. In England, during the post-industrialized period, the count of melanic moths increased in urban areas but remained low in rural areas. Explain. 3
(CBSE Foreign 2010)
39. Branching descent and natural selection are the two key concepts of Darwinian theory of evolution. Explain each concept with the help of a suitable example. 3
(CBSE AI 2011)
40. Convergent evolution and divergent evolution are the two concepts explaining organic evolution. Explain each one with the help of an example. 3
(CBSE Foreign 2011)
41. Given below is a diagrammatic representation of the experimental set-up used by S.L. Miller for his experiment: (CBSE Foreign 2011)
(a) Write the names of different gases contained and the conditions set for the reaction in the flask 'A'.

- (b) State the type of organic molecule he collected in the water at 'B'.
 (c) Write the conclusion he arrived at.



42. State the theory of Biogenesis. How does Miller's experiment support this theory? (CBSE Delhi 2012) 3
43. How does industrial melanism support Darwin's theory of Natural Selection? Explain. (CBSE AI 2012) 3
44. Name the explain the evolutionary concept represented in the illustration given below: (CBSE AI 2012) 3



45. Evolution is a change in gene frequencies in a population in response to changes in the environment in a time scale of years and not centuries. Justify this statement with reference to DDT. How does the theory of Hugo de Vries support this? (CBSE Foreign 2012) 3
46. With the help of any two suitable examples explain the effect of anthropogenic actions on organic evolution. (CBSE Delhi 2013) 3
47. Explain the increase in the numbers of melanic (dark winged) moths in the urban areas of post-industrialisation period in England. (CBSE AI 2013) 3
48. Differentiate between the explanations given by Darwin and de Vries respectively on the mechanism of evolution. (CBSE Foreign 2013) 3
49. Describe the three different ways by which Natural Selection can affect the frequency of a heritable trait in a population. (CBSE Foreign 2014) 3
50. Explain convergent evolution with the help of two examples. (CBSE Foreign 2015) 3
51. What are analogous structures ? How are they different from homologous structures ? Provide one example for each. (CBSE Foreign 2015) 3
52. "Post-industrialization, the population of melanised moth increased in England at the expense of white-winged moths." Provide explanations. (CBSE Foreign 2016) 3
53. (a) State Oparin- Haldane's hypothesis ? (b) How does S.L. Miller's experiment supports it ? (CBSE Foreign 2016) 3
54. State the contribution of Louis Pasteur in understanding the origin of life on Earth. Explain the procedure that he followed to arrive at his conclusion. (CBSE Foreign 2017) 3
55. Describe the experiment of S.L Miller on the origin of life. Write the conclusion drawn at the end of the experiment. (CBSE Foreign 2017) 3
56. How do fossils help us in understanding the evolutionary history? (CBSE Foreign 2017) 3
57. (i) Natural selection operates when nature select for fitness. Explain. (ii) The rate of appearance of new forms is linked to the lifespan of an organism. Explain with the help of a suitable example. (CBSE Delhi 2010) 5
- 58 (a) Write the Hardy-Weinberg principle. (CBSE Delhi 2010) 5
(b) Explain the three different ways in which natural selection can affect the frequency of a heritable trait in a population shown in the graph given below.
59. Explain the salient features of Hugo de Vries theory of mutation. How is Darwin's theory of natural selection different from it? Explain. (CBSE Delhi 2011) 5

- 60.. (a) Name the primates that lived about 15 million years ago. List their characteristic features. 5
 (b)
 (i) Where was the first man-like animal found?
 (ii) Write the order in which Neanderthals, Homo habilis and Homo erectus appeared on earth. State the brain capacity of each one of them.
 (iii) When did modern Homo sapiens appear on this planet? (CBSE Delhi 2011)
61. (a) How does Hardy–Weinberg equation explain genetic equilibrium? 5
 (b) Describe how does this equilibrium get disturbed which may lead to founder effect. (CBSE Foreign 2012)
62. (a) Explain the process of natural selection that leads to speciation. 5
 (b) List the three different ways in which this process operates in nature. Explain any one of the processes (CBSE Foreign 2012)
63. How does the process of natural selection affect Hardy-Weinberg equilibrium? Explain. List the other four factors that disturb the equilibrium. 5 (CBSE AI 2013)
64. (a) Write and explain the conclusion Darwin arrived at after observing the variations seen in the beaks of finches during his sea voyage. 5
 (b) Marsupials and Australian placental mammals exhibit convergent evolution. Explain how. (CBSE Foreign 2013)
65. (a) Explain “founder effect”. 5
 (b) State Oparin and Haldane Hypothesis.
 (c) Describe Stanley and Miller’s experiment and give its significance.
 or
 What was proposed by Oparin and Haldane on origin of life? How did S.L. Miller’s experiment support their proposal? (CBSE Foreign 2013, 2014)
66. (a) List the various causes of variations in the progeny of the population. (b) Describe the three different ways in which the natural selection operates in nature with regard to organic evolution. 5 (CBSE Foreign 2013)
67. (a) Explain Darwinian theory of evolution with the help of one suitable example. State the two key concepts of the theory. 5
 (b) Mention any three characteristics of Neanderthal man that lived in near east and central Asia. (CBSE Delhi 2014)
68. (a) What was proposed by Oparin and Haldane on origin of life? How did S.L. Miller’s experiment support their proposal? 5
 (b) Which human chromosome has
 (i) maximum number of genes, and which one has
 (ii) fewest genes?
 (c) Write the scientific importance of single nucleotide polymorphism identified in human genome. (CBSE Foreign 2014)

69. (a) Describe Hardy-Weinberg Principle. 5
(b) List any four factors which affect genetic equilibrium.
(c) Describe Founder effect. (CBSE Foreign 2014)
70. a) How did Darwin explain adaptive radiation? Give another example exhibiting adaptive radiation. 5
b) Name the scientist who influenced Darwin and how? (CBSE 2015)
71. (a) Describe Hardy-Weinberg's principle. 5
(b) How do variations lead to speciation?
(c) How is the genetic equilibrium affected by the variations leading to speciation?
(CBSE Foreign 2016)
72. (a) What are fossils? How are they an evidence for evolution? 5
(b) "Anthropogenic action can lead to evolution." Explain with the help of an example.
(CBSE Foreign 2016)