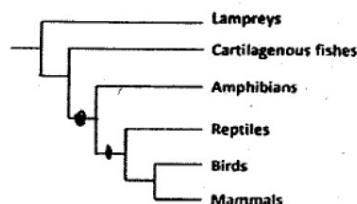


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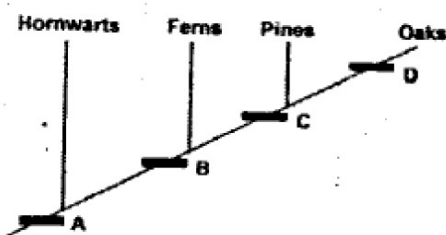
1. With reference to the phylogenetic tree resented above, which of the following statements is true?
- Amphibians, reptiles, birds and mammals share a common ancestor.



- Birds are more closely related to reptiles than to mammals.
  - Cartilaginous fishes are the ancestors of amphibians.
  - Lampreys and mammals are not related.
2. Match major events in the history of life with Earth's geological period.

Event	Geological period
A. First reptiles	(i) Quaternary
B. First mammals	(ii) Tertiary
C. First humans	(iii) Cretaceous
D. First amphibians	(iv) Triassic
	(v) Carboniferous
	(vi) Devonian

- A - (v); B-(i); C-(ii); D-(v)
  - A - (v); B - (iv); C -(i); D - (vi)
  - A - (vi); B - (iv); C -(ii); D -(vi)
  - A - (iii); B - (i); C -(vi); D - (v)
3. Following is a cladogram showing phylogenetic relationships among a group of plants; In the above representation. A, B, C and D respectively represent.

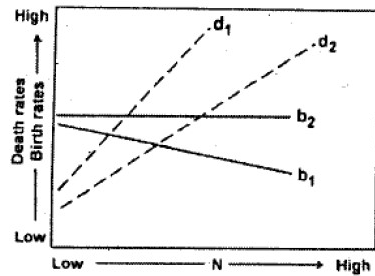


- xylem and phloem, embryo, Flower, seed.
  - embryo, xylem and phloem, seed, flowers.
  - embryo, xylem and phloem, Flower, seed.
  - xylem and phloem, flower, embryo, seed
4. Match the following human diseases with their causal organisms

A. Sleeping Sickness	(i)	<i>Trypanosoma cruzi</i>
B. Chagas disease	(ii)	<i>Trypanosoma brucei</i>
C. Elephantiasis	(iii)	<i>Borrelia burgdorfei</i>
D. Lyme disease	(iv)	<i>Wuchereria bancrofti</i>

- a. A - (ii); B - (iv); C - (iii); D- (i)
- b. A - (i); B - (ii); C - (iv); D - (iii)
- c. A- (ii); B - (i); C -(iv); D - (iii)
- d. A - (ii); B - (iv); C - (i); D -- (iii)

5. The birth rates (b) and death rates (d) of two species 1 and 2 in relation to population density (N) are shown in the graph. Which of the following is NOT true about the density dependent effects on birth rates and death rates?



- a. Birth rates are density-dependent in species 1 and density independent in species 2
  - b. Death rates are density-dependent in both the species.
  - c. Density-dependent effect on birth rate is stronger in species1 than in species 2 .
  - d. The density-dependent effects on death rates are similar inboth the species
6. Which one of the following statements is INCORRECT?
- a. Loss of genetic variation occurs within a small population due to genetic drift
  - b. The number of deleterious alleles present in the gene pool of a population is called the genetic load.
  - c. Genetic erosion is a reduction in levels of homozygosity.
  - d. Inbreeding depression results from increased homozygosity for deleterious alleles.
7. During which of the following major mass extinction events, over 95% of the marine species disappeared from the planet Earth?
- a. Ordovician
  - b. Devonian
  - c. Permian
  - d. Triassic
8. For two species A and B in competition, the carrying capacities and competition coefficients are  $K_A = 150$   $K_B = 200$ ,  $\alpha = 1$   $\beta = 1.3$ , According to the Lotka-Volterra model of interspecific competition, the outcome of competition will be
- a. Species A wins.
  - b. Species B wins.
  - c. Both species reach a stable equilibrium.
  - d. Both species reach an unstable equilibrium