

DPP

DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 9

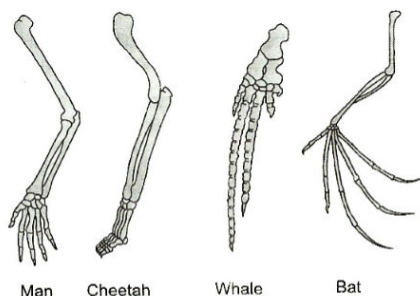
Topic :- Evolution

- 1 **(c)**
The concept of inheritance of acquired character in support of evolution was proposed by **Lamarck**. New traits are acquired by organism during their lifetime, and are passed on to the next generation.

- 2 **(c)**
Peripatus is a connecting link between **Annelida** and **Arthropoda**. Like annelids, it has continuous muscle layers in the body wall, unjointed legs like parapodia, nephridia for excretion and simple gut. Main arthropod characters are claws on the legs, haemocoel, tracheae for respiration, dorsal heart with ostia, etc.

- 3 **(b)**
Convergent evolution or adaptive convergence or parallel evolution is shown by analogous organs, whereas divergent evolution or evolutionary divergence or adaptive radiation are shown by homologous organs.

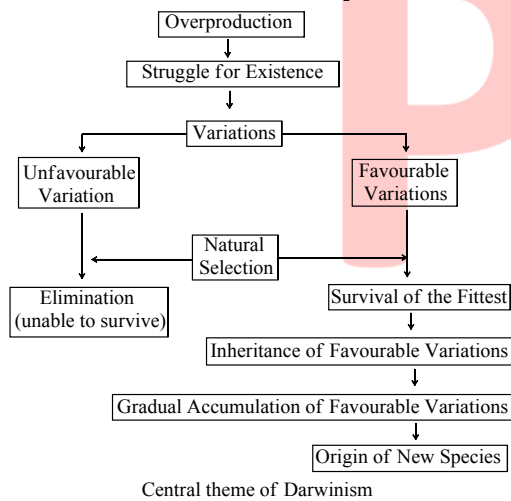
- 4 **(b)**
Forelimb of frog, wings of bird, forelimb of rabbit, flipper of whale.
Homologous Organs The organs which have the same fundamental structure but are different in functions are called homologous organs. These organs follow the same basic plan of organization during development. But in adult condition, these organs are modified to perform different functions as an adaptation to the different environment. Homologous organs are the result of divergent evolution.
Implants homologous organs may be those of *Bougainvillea* or a tendril of *Cucurbita*, both arising in the axillary position.
Vertebrate hearts, vertebrate brains and vertebrate limbs have the same basic plan of organization during development. But in adult condition they are modified. This indicates their homology.



5 **(b)**
Coprolite is a scientific name for the fossilized excrement, faeces or droppings of ancient animals. It was coined by **Dr. William Buckland**(1829).

6 **(d)**
When the members of a species do not interbreed with the members of other species or same species due to differential modification is called reproductive isolation. The criterion of the reproductive isolation can not be used in asexual organisms

7 **(b)**
Branching descent and natural selection are the two main concepts of Darwin.
Mendel's laws of inheritance and Weismann's theory of continuity of germplasm (1892) discarded Lamarck's concept of inheritance of acquired characters



8 **(a)**
Related species which are reproductively isolated but morphologically similar are called sibling species.

Allopatric species are species having exclusive areas of geographical distribution.

Sympatric species are species having overlapping areas of geographical distribution.

9 **(a)**
Presence of **homologous** and **vestigial organs** are important evidences in favour of organic evolution. They show divergent evolution.

- 10 **(b)**
Progeny with modifications.
Evolutionary biology is the study of history of life forms on earth
Evolution The word 'evolution' (Latin-*evolvere*) means to unfold or unroll. In broad sense evolution simply means an orderly change from one condition to another. Evolution is a continuous process in which descent with modification are produced
- 11 **(b)**
Harold Clayton Urey, (April 29, 1893-January 5, 1981) was an American Physical Chemist, whose pioneering work on isotopes earned him the **Nobel Prize** in chemistry in 1934 and later led him to theories of planetary evolution.
- 12 **(d)**
"Meat was not spoiled, when heated, and kept sealed in a vessel". This experiment suggested that simplest living organisms could not have originated spontaneously from non-living matter.
- 13 **(a)**
A-Variations, B-Better, C-More
- 14 **(a)**
Founder effect is the loss of genetic variations that occurs when a new population is established containing a very small number of individuals called founders. Sometimes they forms a new species. The population in a new settlement may have different genotype frequencies from that of parent population
- 15 **(b)**
Genetic Drift The process of change in the genetic composition of a population due to chance or random events rather than by natural selection, resulting in changes in allele frequencies overtime. The effect of genetic drift in large populations is usually negligible whereas in small populations, it predominates
- 16 **(a)**
Archaeopteryx possesses both reptilian (toothed jaws, non-pneumatic bones, keel-less sternum, free caudal vertebra) and avian characters (forelimb forming wings, feathers, beak, fused skull bones).
- 17 **(b)**
Epiglottis is not a vestigial organ in man. Epiglottis is the structure that prevents the entry of food into respiratory tract during swallowing in man.
- 18 **(c)**
Origin of new species by the struggle for existence and survival of the fittest due to natural selection was the main theme of Darwinism. **Arrival of the fittest** (*i.e.*, production of individuals already adapted to environment) was not explained by the Darwinism.
- 19 **(a)**
Development of large changes like formation of new species and genera (or taxa) due to

mutation comes in **macroevolution**. In this, large changes in chromosomes take place.

20 **(d)**

Recapitulation theory or biogenetic law states that ontogeny (development of embryo) is recapitulation of phylogeny (ancestral history).

ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	C	C	B	B	B	D	B	A	A	B
Q.	11	12	13	14	15	16	17	18	19	20
A.	B	D	A	A	B	A	B	C	A	D

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