DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 3

Topic :- Evolution

1 **(c)**
Diversity of living organism occurs due to the long term evolutionary changes which accumulated gradually in the organisms

2 **(b)**
Darwin's book **Origin of New Species by Natural Selection** was published in **1859**.

3 **(b)**
Natural selection leads to the competition between the members of same species or different species but in genetic drift there is very little competition between the members of the same species

4 **(a)**
Homo sapiens sapiens (the man of today) appeared about 25000 years ago and started spreading all over the world about 10,000 years ago. Morphologically, the transition is marked merely by slight raising of skull cap, thining of skull bones and cranial capacity (1300-1600 CC) and formation of four flexor in vertebral column

5 **(c)**
Continental drift pouched mammals of Australian survived because of lack of competition from other mammals or animals

6 **(c)**
*Neopilina*is a living fossil and also considered as connecting link between Annelida and Mollusca.

7 **(a)**
Fossils of *Homo erectus* (Java ape man) were obained from Java and the similar fossils were found in the cave near Peking China in the 1891. They were named *Homo erectus pekinensis*

8 **(d)**
Natural selection is the differential success in reproduction and it leads to the adaptation of organisms to their environment. Thus, natural selection occurs through an interaction between the environment and the population

9 **(a)**
Industrial melanism is an example of directional selection, changing, environment leading to change in the phenotypic/genotypic constitution of a population.

10 **(a)**
Stanley Miller proposed that the life has originated in the sea due to reactions taken place

between the organic compounds.

11 **(a)**

Anthropoid are like a human being or an ape

Examples for Anthropoid

Gorillas, chimpanzees and gibbons are all anthropoid apes, having long arms, no tails and highly developed brains.

Monkeys, apes and humans, proconsul, are all anthropoids

12 **(b)**

These fossils demonstrates gradualism, the theory on the time frame of evolution that states that the species gradually changes over time. Since, the fossils are found in the different layers of sedimentary rocks, the older layer contains species that evolved into new species with some changes into the new layer of rock

13 **(d)**

The Hardy –Weinberg law states that the gene and genotypic frequencies in a Mendelian population remain constant generation after generation if there is no selection, mutation, migration or random drift.

14 **(b)**

Darwin gave both theories — struggle for existence and survival of the fittest.

15 **(a)**

Theory of continuity of germplasm was give by **August Weismann** (1834-1914).

Theory of continuity of germplasm by **August Weismann** (1834-1914). A German biologist, was the main opposer of the inheritance of acquired characters. He put forward the theory of continuity of germplasm. According to Weismann, the characters influencing the germ cells are only inherited. There is a continuity of germplasm (protoplasm of germ cells) but the somatoplams (protoplasm of somatic cells) is not transmitted to the next generation. Hence, it do not carry characters to the next generation. Weismann cut off the tails of rats for as many as 22 generations and allowed them to breed, but tailless rats were never born

16 **(a)**

Adaptive radiation.

Examples of adaptive radiation are

(i) **Darwin's Finches of Galapagos Island** They had common ancestors but different types of modified beaks according to their food habits.

Darwin differentiated thirteen species of the finches according to their food habits

(ii) **Australian Marsupials** Darwin explained that adaption radiation gave rise to the varieties of marsupials (pouched mammals) in Australia by the same process of adaptive radiation as found in the finches of Galapagos Islands.

(iii) **Placental mammals** in Australia exhibit adaptive radiation in evolving into varieties of placental mammals each of which appears to be similar to corresponding marsupials

17 **(a)**

When a group of organisms shares a homologous structure, which is specialized to perform a varity of different functions, it shows **adaptive radiation**, which represents evolution of new

forms in several directions from the common ancestral type (divergence).

18 **(a)**
A-Inheritable, B-Reproduce, C-Greater

19 **(b)**
Among these, **cow** does not left any evidence of organic evolution.

20 **(a)**
Biological concept of species was given by Ernst Mayer. Alternative ways of defining a species

Biological Aspect	Definitions
Breeding	A group of organisms capable of interbreeding and producing fertile offspring
Genetic	A group of organisms showing close similarity in genetic karyotype
Ecological	A group of organisms sharing the same ecological niche; no two species can share the same ecological niche
Evolutionary	A group of organisms sharing a unique collection of structural and functional characteristics

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