DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

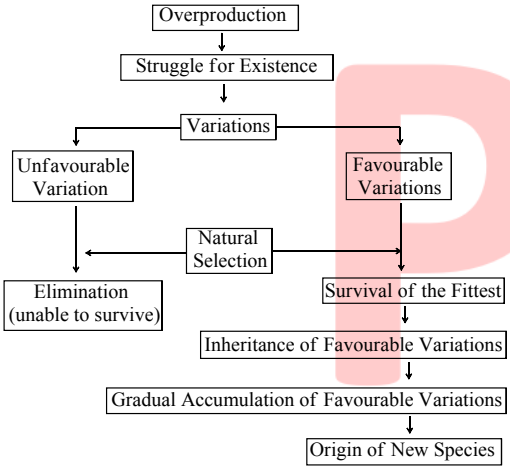
Solutions

Subject : BIOLOGY
DPP No. : 4

Topic :- Evolution

1 **(d)**
Somatic cell of gorilla, chimpanzee and orangutan have 48 chromosome (24 pairs) while humans have 46 chromosome (23 pairs)

2 **(a)**
Natural selection
(i) Tend to increase the characters that enhance survival and reproduction
(ii) Cause adaptation



Central theme of Darwinism

3 **(b)**
Darwinian fitness can be estimated by the number of offspring produced by different individual in a population. The organisms which have favourable variation in accordance with environment have more offspring than the other which don't variations in accordance with environment

4 **(b)**
Protoviruses are considered as the first life on earth.

5 **(d)**
All new species develop from the pre-existing species. The phenomenon of the development of a new species from the pre-existing ones is called speciation. A species is a collection of demes. The deme is a group of population with a common gene pool. Mutation, recombination, natural selection, hybridization, genetic drift polyploidy, isolation, all of these factors affects the phenomenon of speciation

6 **(a)**

Jurassic period is the second geological period of Mesozoic era. In this period, the **gymnosperms** were dominant and the plants included ferns, cycads, *Ginkgo*, rushes and conifers, among animals, important invertebrates included anamniotes, corals, brachiopods, bivalves and echinoids. Reptiles dominated the vertebrates and the **first flying reptiles**, the pterosaurs appeared. The **first primitive bird**,*Archaeopteryx* also made its appearance.

7 **(b)**

Evidences for common ancestory of great apes and man are as follows

Evidence from Blood Protein It has been proved by the blood protein tests that man is most closely related to great apes (Chimpanzee and Gorilla) and next closest, in order are the old world monkeys the new world monkeys and tarsiers

Evidence from Blood Group In humans four blood groups A, B, AB and O occurs. The blood groups A and B are found in apes but not in monkeys. This indicates that human beings are more closely related to apes than to monkeys

Evidence from Haemoglobin There is 99% homology in haemoglobin of man and gorilla. This suggests that the two are closely related

8 **(c)**

Euglena is a member of protist kingdom. It has both the animals and plant characteristics. That's way, it is considered as the connecting link between animals and plants

9 **(a)**

Homologous organ.

Concept of adaptive radiation in evolution was developed by **HF Osborn** in 1902. Adaptive radiation is also called divergent evolution. Homologous organ shows the adaptive radiation

10 **(a)**

Founder Effect Sometime the change in allele frequency is so different in the new sample of population that they become a different species.

The original drifted population becomes founders and the effect is called founder effect. Generally, this effects operates when a population drifted to the new geographical area permanently

11 **(b)**

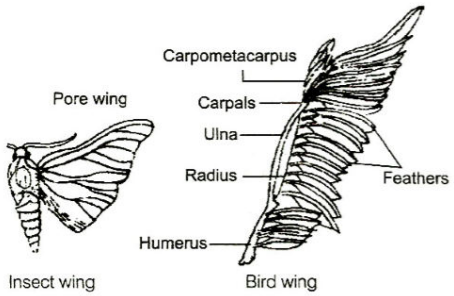
Mesozoic era

12 **(d)**

Difference in diet, health age and accident do not affect organism's hereditary material. Therefore, it is not important in evolutionary point of view

13 **(a)**

Analogous Organs The organs which have similar functions but are different in their details and origin are called analogous organs. The analogous organs shows convergent evolution



14 **(a)**

Oparin and **Sydney Fox** held that large organic molecules, synthesized abiotically on primitive earth, formed large colloidal aggregates due to intermolecular attraction. These colloidal particles were called coacervates, which are protobionts having polysaccharide, protein and water.

15 **(b)**

Humans blood group are as A, AB, B, O. Blood groups A and B are also found in apes, but not in monkeys. This indicates that human beings are more closely related to apes than to monkeys

16 **(c)**

Australopithecus(first ape-man) lived from 4 to 1.5 million years ago in cave during **Pleistocene** period. It was erect posture, omnivorous and have cranial capacity of 500-700 cc.

17 **(c)**

Darwin gave theory to explain organic evolution. The main postulates, which formed the basis of Darwin's theory were-over production, limited resources, struggle for existence, variations, survival of the fittest (natural selection) and formation of new species.

18 **(a)**

Almost all modern reptiles, birds and mammals, have forelimbs means, they all have same basic plan of the structure but they perform different functions. This phenomenon is called ancestral homology

19 **(a)**

Pasteur performed a swan-necked flasked experiment for proving biogenesis, according to biogenesis, all the living oranisms have originated from other living organisms. This experiment disproved the concept of spontaneous generation completely.

20 **(c)**

Industrial melanism is a term used to describe the evolutionary process, in which darker individuals come to predominate over lighter individuals. Since, the industrial revolution as a result of natural selection. Until 1848, almost every individual of peppered moth (*Biston betularia*) captured in Great Britain had light-coloured wings with black specklings. In 1848, a black form of moth was recorded in Manchester and by 1895, 98 of the peppered moth population in Manchester was black. This black melanic form arose by a recurring random mutation.

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