DPP
DAILY PRACTICE PROBLEMS

Class : XIIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 5

Topic :- Organisms & Popoulations

1 **(a)**
Genetic drift operates in small isolated population.

2 **(d)**
Gene flow means the spread of genes through population as affected by movements of individuals and their propagules, e.g., spores, seeds etc. Gene flow ensures that all population of a given species share a common gene pool, i.e., it reduces difference between populations.

3 **(a)**
Zero growth rate means natality (*i.e.,* birth rate) balances the mortality (*i.e.,* death rate)

4 **(a)**
A population has three ecological age groups
(i) Pre-reproductive
(ii) Reproductive
(iii) Post-reproductive
This division of population given by Bodenheimer in 1958

5 **(b)**
Sigmoid growth curve is represented by
$dN/dt = rN\left(\frac{1-N}{K}\right)$
Most populations do not show exponential increase because their environment prevents this.

6 **(d)**
Black soil is dark black or dark brown in colour. It is formed from basaltic rock under semi-arid condition. Black soil is deficient in nitrogen and phosphorus and rich in potash and lime and not in calcium carbonate.

7 **(d)**
All vertebrates most molluscs and cry fishes are

oxyregulators but with the exception of birds and mammals, they are thermoconformers and osmoconformers

8 **(d)**

There are unique habitats such as thermal springs and deep sea hydrothermal vent where average temperature exceeds 100°C

9 **(b)**

Deep (>500 m) in the oceans the environment is perpetually dark and its inhabitants are not aware of the existence of celestial source of light

10 **(b)**

Regulators Some organisms are able to maintain a constant body temperature and constant osmotic concentration despite change in external environment. They are called as regulators. Only bird, mammals belong to category of regulators

11 **(a)**

Population having highest intrinsic rate will increase fastest among all of the given populations

12 **(a)**

In soil profile, **A-horizon** is present under the litter zone and is called as top-soil. It is the the zone of eluviations that contains a relatively high content of **organic matter** but mixed with mineral water. It is further divided into three sub-zones :

(i)**A_1 region** : It is dark and rich in organic matter. Finely divided organic matter here, becomes mixed with the mineral matter and is known as **humus**. It is dark brown or black coloured.

(ii)**A_2-region** : It contains less humus and is called as the zone of maximum leaching.

(iii) **A_3-region** : It is transitional to B-zone but is more like the A-zone than B.

Sometimes, it is totally absent.

13 **(c)**

Components of ecosystems are

Biotic Living members of an ecosystem

Abiotic Non-living members of an ecosystem

14 **(b)**

Monarch butterfly is highly distasteful to its predator because of special chemical present in

their body. Interestingly the butterfly acquires this chemical during its caterpillar stage by feeding on poisonous weeds

15 **(a)**

The species living in a restricted or overlapping area of geographical distribution, are called **sympatric species**.

16 **(b)**

A number of mangroove plants possess small negatively geotrophic vertical roots called pneumatophores. Pneumatophores have lenticels for gaseous exchange. They are connected with internal arenchymatous tissue. It is a plant adaptation to saline environment

17 **(a)**

Temperature gradient over the earth's surface is 6.4-6.5°C per 1000m altitude or 10° latitude. Therefore, there is lowering of mean temperature from equator to poles. Tropical, sub-tropical, temperate and arctic organisms living in these zones are respectively called Megatherms, mesotherms, microtherms and hekistotherms

18 **(c)**

All of the above.

The most important elements that lead to so much variation are temperature, water, light, soil. Physio-chemical components alone do not characterize the habitat of an organism completely. It includes biotic factors also. So for characterization of habitat both abiotic and biotic components are needed

19 **(a)**

Shark and sucker fish (*Echenis*) association is an example of commensalism (without continuous contact).

20 **(d)**

Soil Nature and properties of soil depends on climate, weathering process or breathring of rocks into fine powder can occur due to atmospheric changes, mechanical forces, chemical changes and biological breakdown.

The physical and chemical properties of soil determine the type of plants that can grow in

particular habitat and the characteristics of the bottom sediments of aquatic environment determine type of benthic animals

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