

**Topic :- Organisms & Populations**

1 **(d)**  
Asymptote stage of the population is the stage of population in which population birth rate is equal to the death rate in other words population is stabilised

2 **(c)**  
Inability to maintain homeostasis.  
**Conformers** Their body temperature changes with the surrounding temperature they are also called ectothermers. 99% of animals are conformers  
**Regulators** Some organisms are able to maintain a constant body temperature and constant osmotic concentration despite change in external environment. They are called regulators  
**Partial regulators** Some organisms have the ability to regulate their body functions to a limited extent called partial regulators. Beyond that limit they become conformers

3 **(b)**  
 $A - N, B - r, C - K$   
**Logistic Growth Model** No population can continue to grow exponentially, as the resource availability become limiting at certain point of time. Logistic growth model have fixed carrying capacity

**It is described by the equation**  $\frac{dN}{dt} = rN\left(\frac{K - N}{K}\right)$

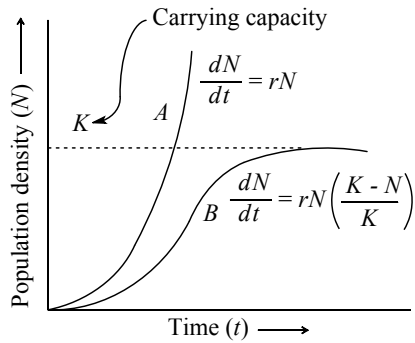
Rate of change of population density

$N$  = Population density at time

$N$  = Population density

$r$  = Intrinsic rate of natural increase

$K$  = Carrying capacity



Population growth curve A when resources are not limiting. Plot is exponential or geometrical curve B. When resources are limiting the growth, plot is logistic

'K' is carrying capacity

4 **(b)**

Secondary compound or metabolites are the compound which are not the resultant of normal metabolism. They are formed due to special need of a organism like in *Calotropis*. (production of poisonous cardiac glycosides). Some examples of secondary compounds or metabolites are nicotine, caffeine, quinine etc. They are formed by the resultant of secondary metabolism

5 **(d)**

Halophytes are the plants growing in and tolerating very salty soil typical off shores of tidal river estuaries, salt marshes or alkali desert flats. Generally, these soils (saline) have very high concentration of salts like  $\text{NaCl}_2$ ,  $\text{MgSO}_4$  and  $\text{MgCl}_2$ .

6 **(a)**

Different age group have different reproductive capabilities due to that population growth influences. For example when pre-reproductive age group is more than the reproductive and post-reproductive. Then this type of population is expanding population

7 **(b)**

The more the dissimilar the niches of two species the lesser is competition between them. Two closely, related species competing for same resource can't co-exist. Indefinitely and competitively inferior one will be eliminated

- out (Gause's principle)
- 8 **(a)**  
Natural resources are limited and necessary for survival of mankind. Thus, these should be used in limited quantity for better survival with increase in the population.
- 9 **(a)**  
In tropical areas (equator) there are more sun light than the other areas. So, tropical areas have more photosynthetic yield than other areas
- 10 **(c)**  
A-Unlimited, B-Limited, C-Fittest
- 11 **(a)**  
**Schimper's Second Law** The local distribution of plants (and hence, the occurrence of animals) is determined by soil. In an aquatic habitat, the sediment characteristics determined not only the submerged anchored hydrophytes, but also the benthic animals
- 12 **(b)**  
**Predation** is a direct food relation between two species of animals, in which one animal (the predator) captures and feeds on another (the prey).  
In **sympiosis**, two organisms live together in close physical association from which one or both derive benefit.
- 13 **(c)**  
The organism which breed only once in their life time is called monocarpic. *e.g.*, salmon fish, bamboo
- 14 **(b)**  
If more individuals are added and only some are lost, then the population will show positive growth, i.e., exponential growth.
- 15 **(b)**  
Many adaptation have evolved over a long evolutionary time in Kangaroo rat. In the absence of an external source of water, the kangaroo rat in North America deserts capable of meeting all its water requirements through internal fat oxidation (in which water is by product). It also has the ability to concentrate its urine, so that minimal

volume of water is used to remove excretory the products

16 **(b)**

A-organic, B-inorganic, C-isolation

17 **(b)**

Biotic potential is the inherent capacity of an organism to increase in numbers under ideal conditions, i.e., maximum reproductive capacity when environment resources are non limiting, conditions favour minimum mortality (absence of competition, predation, parasitism, etc.) and rates of immigration and emigration are equal.

18 **(d)**

When the number of pre-reproductive individual equal to no. of reproductive non-individual is obtained a bell-shaped curve

19 **(a)**

**Carrying Capacity ( $K$ )** A given habitat has limited resources to support a certain number of individuals of a population beyond which no further growth is possible. This limit is called as nature's carrying capacity ( $K$ ) for that species

20 **(d)**

Desert is an area in which the vegetation is sparse and the ground surface in thus, exposed to atmosphere and the associated physical force. The hot deserts of world are located in the region of **tropic of Cancer** and **tropic of Capricorn**

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