

**Topic :- Organisms & Populations**

1 (a)  
Pollination is an example of mutualism in which pollinator gets nectar, pollen grain, etc., and by giving that products to pollinators host gets pollinated

2 (c)  
Root cap is not found in hydrophytes. In **hydrophytes**, the root is either absent or poorly developed. In floating aquatic plants, root pockets are found, e.g., *Lemna, pistia, Eichhornia*.

3 (a)  
No population have the unlimited resources to survive and reproduction. Every population in nature has given a certain amount of natural resources that is limited.  
Keeping this point of view logistic growth is the more realistic than the exponential growth curve

4 (b)

Salt Concentration	Salinity in Parts per Thousand
Less than 5%	Inland water
30-35%	Sea water
> 100%	Hypersaline water

5 (a)  
Proto-cooperation is the interaction between two living organisms of different species in which both are mutually benefited but they can live without each other.

6 (c)  
The tremendous increase in the size and growth of a population in a short period is known as population explosion.

- 7 **(b)**  
Next to temperature water is most important factor, which influences the life. Life originated in water. Even now life is unsustainable without water
- 8 **(c)**  
Water holding capacity is the extent to which a soil can hold capillary water against gravity. It is defined as the amount of water retained by unit weight of dry soil, when immersed in water under standardised condition. Sandy soil has poorest water holding capacity.
- 9 **(b)**  
In plants growth is favoured by increased availability of food, moderate light intensity and red light. Maximum photosynthesis occurs in red light Blue light favours moderate but normal growth. Differentiation of various tissue and organs in response to light is called photomorphogenesis. Aphids develops wings in response to alternate light and darkness
- 10 **(a)**  
**Chapman** (1928) proposed the term biotic potential to designate maximum reproductive power. He defined it as the inherent power of an organism to reproduce, to survive, i.e., to increase in number. But there is a natural check called environment resistance.
- 11 **(d)**  
*Level of competition depend upon the many factors like*  
(i) Resources availability  
(ii) Population density  
(iii) Group interaction of organisms
- 12 **(b)**  
(i) The concept of mimicry was first given by HW Bates in 1862  
(ii) Father of Indian plant Ecology is Ramdev Mishra. Ecological studies were initiated in India by W Dudgeon  
(iii) The term 'ecology' was coined by Ernst Haeckel in 1861
- 13 **(b)**

Some species are partial regulators. They have the ability to regulate their body temperature up to certain limit. Beyond that limit they become conformers. Further it is not essential that regulators of one attribute would be regulator in other attributes as well

14 **(d)**

**Plant Adaptation to Water and Heat** (xerophytes)

They are plants of dry habitats where the environment favours higher rate of transpiration than the absorption. Xerophytes plants normally have thick cuticle on their leaf surface, stomata arranged in deep pits, stomata of xerophyte plant remain closed during day to reduce the high transpiration

*Xerophytes are four types*

(i) **Ephemerals** (Drought escapers) The plant live for a brief period during rain. The rest of year is passed in the form of seed

*e.g., Euphorbia prostrate, Boerhaavia*

(ii) **Annuals or Drought Evaders** They live even after the few weeks of rain. Their, size are small, leaves have thick waxy, hairy coating with or without prickles, *e.g., Echinops, Solanum*

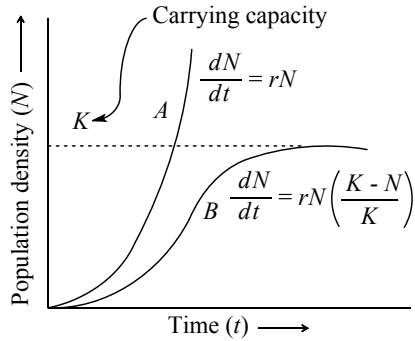
(iii) **Succulents or Drought Resistant** The plants have fleshy organs where water and mucilage are stored. *e.g., Opuntia, Aloe, Agave*

(iv) **Non-succulents or Drought Endurers** They are true xerophytes which actually tolerate drought conditions. They have smaller shoot system. The root system is very extensive. Many tropical plants of hot and arid regions perform C<sub>4</sub>-photosynthesis. They uses less water even at high temperature

15 **(a)**

A-Limited, B-Lag phase, C-Carrying capacity

16 **(d)**



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

17 (c)

Physiological adaptation.

Nausea, fatigue, heart palpitations is due to unavailability of proper oxygen in the body. At high mountain the atmospheric pressure is low. So,  $O_2$  is not easily available for Respiration. So for improve efficiency of respiration is increased by increasing RBC increasing the binding efficiency of haemoglobin

18 (b)

**Sammophytes** are grown on sandy soils. Lithophytes are grown on bare soils. Hydrophytes are grown on aquatic habitat. Xerophytes are grown on dry habitat.

19 (c)

Ecology is basically concerned with four levels of biological organisation. *They are*

- (i) organisms      (ii) populations
- (iii) communities   (iv) biomes

20 (b)

Biotic potential is a rate at which a population of a given species will increase when no limits are placed on its rate of growth.

<b>ANSWER-KEY</b>										
<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>A</b>	<b>C</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>C</b>	<b>B</b>	<b>C</b>	<b>B</b>	<b>A</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>D</b>	<b>B</b>	<b>B</b>	<b>D</b>	<b>A</b>	<b>D</b>	<b>C</b>	<b>B</b>	<b>C</b>	<b>B</b>

**PE**