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TARGET : NEET (UG) 2024

Course : SARANSH (Youtube Live CRASH COURSE)

BIOLOGY
DPP
DAILY PRACTICE PROBLEMS
DPP NO. 1

BOTANY : ORGANISMS AND POPULATION

DPP No. : 1

1. A biologist studied the population of rats in a barn. He found that the average natality was 250, average mortality 240, immigration 20 and emigration 30. The net increase in population is :

(1) 15 (2) 05 (3) zero (4) 10

2. When does the growth rate of a population following the logistic model equal zero? The logistic model is given as dN/dt = rN(1-N/K) :

(1) when death rate is greater than birth rate.

(2) when N/K is exactly one.

(3) when N nears the carrying capacity of the habitat.

(4) when N/K equals zero.

3. Asymptote in a logistic growth curve is obtained when:

(1) The value of 'r' approaches zero (2) K = N

(3) K > N (4) K < N

4. **Statement I:** Gause's 'Competitive Exclusion Principle' states that two closely related species competing for the same resources cannot co-exist indefinitely and competitively inferior one will be eliminated eventually.

Statement II: In general, carnivores are more adversely affected by competition than herbivores.

In the light of the above statements, choose the correct answer from the options given below:

(1) Both Statement I and Statement II are false.

(2) Statement I is correct but Statement II is false.

(3) Statement I is incorrect but Statement II is true.

(4) Both Statement I and Statement II are true.

5. Match List I with List II.

List I	**List II**
A. Logistic growth	I. Unlimited resource availability condition
B. Exponential growth	II. Limited resource availability growth

C. Expanding age pyramid — III. The percent individuals of pre-reproductive age is largest followed by reproductive and post reproductive age groups

D. Stable age pyramid — IV. The percent individuals of pre-reproductives and reproductive age group are same

Choose the correct answer from the options given below:

(1) A-II, B-III, C-I, D-IV (2) A-II, B-IV, C-I, D-III

(3) A-II, B-IV, C-III, D-I (4) A-II, B-I, C-III, D-IV

6. The logistic population growth is expressed by the equation :

(1) $dt/dN = Nr\left(\frac{K-N}{K}\right)$ (2) $dN/dt = rN\left(\frac{K-N}{K}\right)$

(3) $dN/dt = rN$ (4) $dN/dt = rN\left(\frac{N-K}{N}\right)$

7. Match List I with List II:

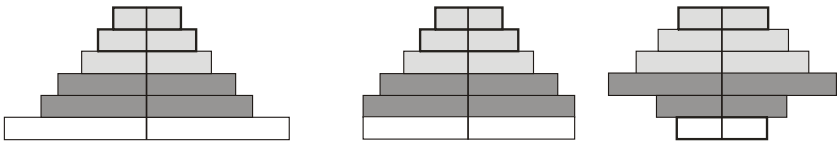
List I (Interaction)	**List II (Species A and B)**
A. Mutualism	**I.** +(A), O(B)
B. Commensalism	**II.** (A), O(B)
C. Amensalism	**III.** (A). (B)
D. Parasitism	**IV.** +(A), (B)

Choose the correct answer from the options given below:

(1) A-IV, B-1, C-II, D-III (2) A-IV, B-III, C-I, D-II

(3) A-III, B-1, C-IV, D-II (4) A-IV, B-II, C-1, D-III

8.



Above diagram represents age pyramids of human population. In which a, b & c represent triangular, Bell shaped and Urn shaped age pyramids which of the following statement is true **ECOP-PB**

(1) The number prereproductive individuals is more than reproductive individuals & post reproductive individuals in Bell shaped age pyramid

(2) The number of post reproductive individuals is equal to number of reproductive individuals in Triangular age pyramid

(3) The number of reproductive individuals is more than post reproductive individuals and pre reproductive individuals in urn shaped age pyramid

(4) The number of prereproductive individuals & reproductive individuals are equal in triangular shaped pyramid.

9. $N_{t+1} = N_t + (B + I) – (D + E)$

In the above equation, if the value of D + E is more than B + I then population will -

(1) Declining (2) stable

(3) Expanding (4) Non evaluated

10. What is a keystone species

(1) A species which make up only a small proportion of total biomass of a community yet has a huge impact on the community's organisation and survival.

(2) A common species that has plenty of biomass, yet has fairly low impact on the community's organisation.

(3) A rare species that has minimal impact on the biomass and on other species in the community

(4) A large dominant species that constitutes a large proprtion of the biomass and which affect many other species.