

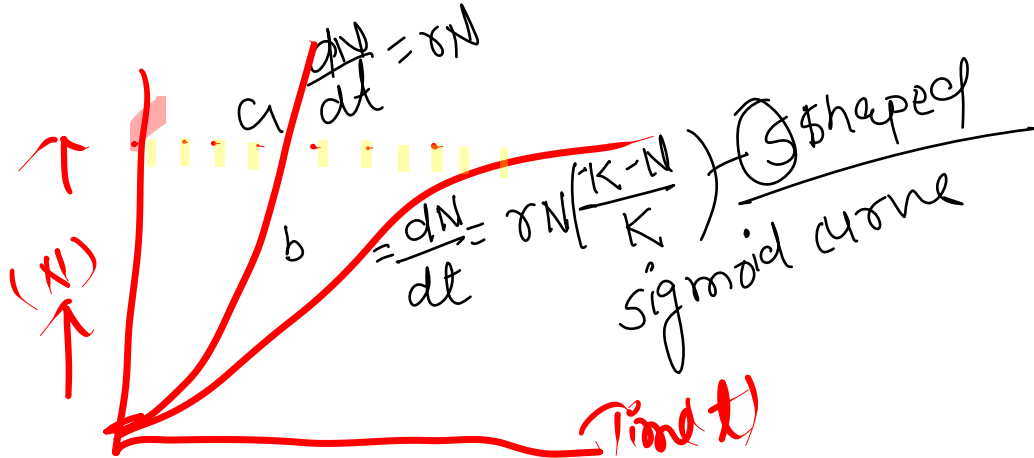
The formula for logistic growth are

(a)  $dN / dt = rN$

(b)  $rN / dN = dt$

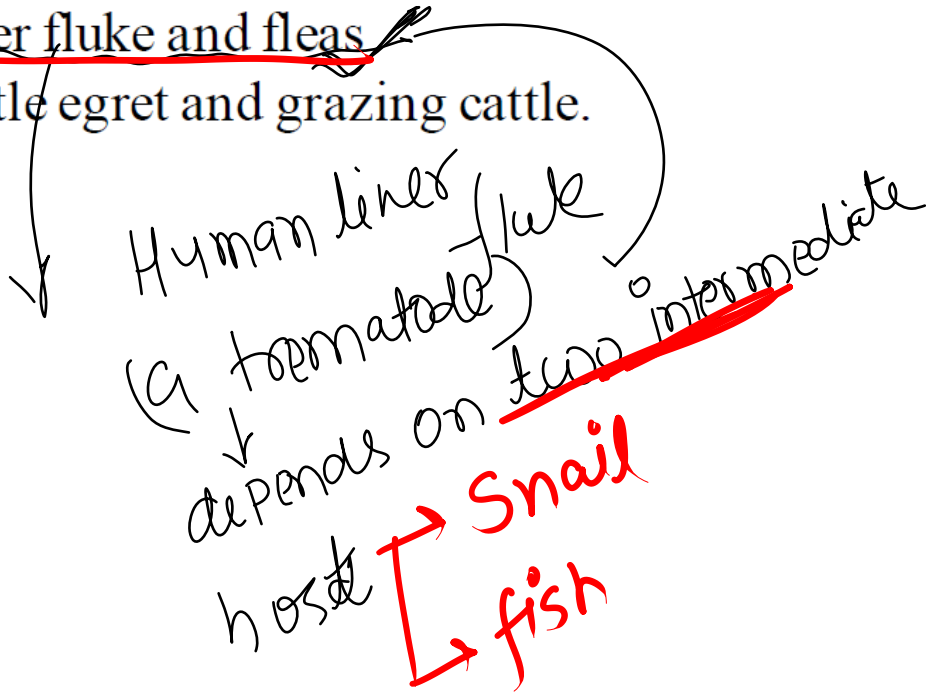
(c)  $dN / dt = rN \left[ \frac{K - N}{K} \right]$

(d)  $dN / dt = rN \left[ \frac{N - K}{N} \right]$



Which of the following is not an example of commensalism?

- (a) ✓ Sea anemone and clown fish
- (b) ✓ Epiphyte / Orchid on mango branch
- (c) ✗ Liver fluke and fleas
- (d) ✓ Cattle egret and grazing cattle.



Match Column - I with Column - II and choose the correct option.

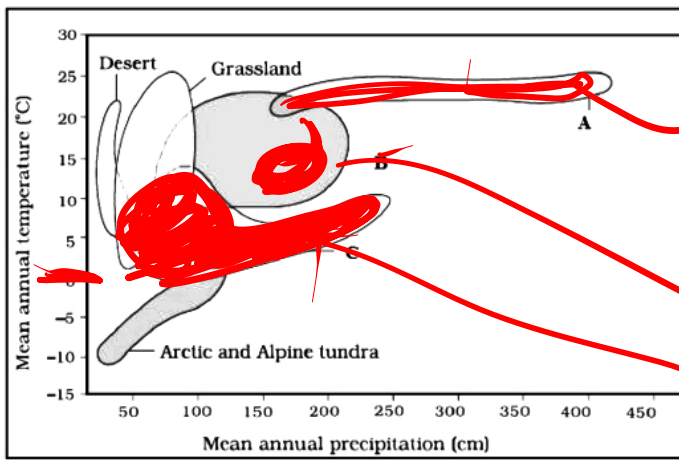
	Column I		Column II
A.	Pacific salmon fish	I	Verhulst - pearl logistic growth
B.	$N_t = N_0 e^{rt}$	II	Breed only once in life time
C.	Oyster	III	Exponential growth
D.	$\frac{dN}{dt} = rN \left[ \frac{K-N}{K} \right]$	IV	A large number of small sized offsprings

- (a) A – IV; B – III; C – I; D – II  
 (b) A – III; B – IV; C – I; D – II  
 (c) A – III; B – I; C – IV; D – II  
 (d) A – II; B – III; C – IV; D – I

$N_t = N_0 e^{rt}$

$\frac{dN}{dt} = rN \left[ \frac{K-N}{K} \right]$

The given figure flows biome distribution with respect to annual



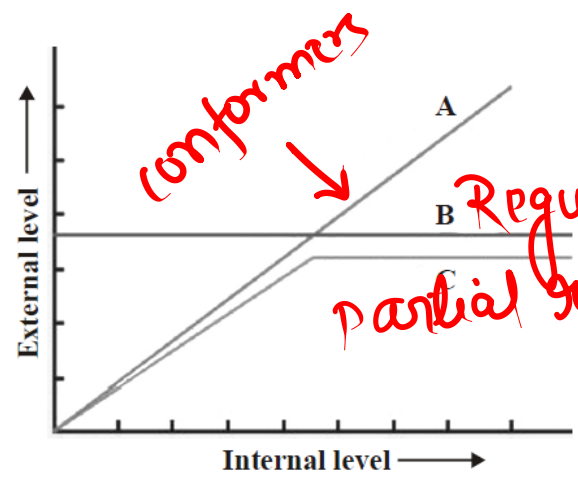
temperature and precipitation. In this few parts are marked as A, B & C. Mark the correct identification from the following picture.

*Tropical forest*  
*Temperate forest*  
*Coniferous (Pinus and cypress)*

(A)                      (B)                      (C)

- (a)  Tropical forest    Temperate forest    Coniferous forest
- (b) Temperate forest    Tropical forest    Coniferous forest
- (c) Temperate forest    Coniferous forest    Tropical forest
- (d) Coniferous forest    Tropical forest    Temperate forest

The given figure shows the diagram match representation of organismic response. Which option gives the correct identification of three types of organisms (marked as A, B & C) in response to abiotic factor?



Response to Abiotic factors

- conformers
- Regulator
- partial regu.

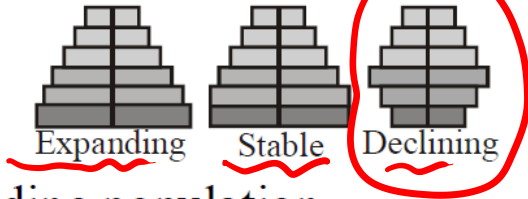
	<del>(A)</del>	<del>(B)</del>	<del>(C)</del>
(a)	Partial regulator	Regulator	Conformers
(b)	Regulator	Conformers	Partial regulator
<input checked="" type="checkbox"/> (c)	<u>Conformers</u>	<u>Regulator</u>	<u>Partial regulator</u>
(d)	Regulator	Partial regulator	Conformers

What type of human population is represented by the given age pyramid?

Post-reproductive

Reproductive

Pre-reproductive

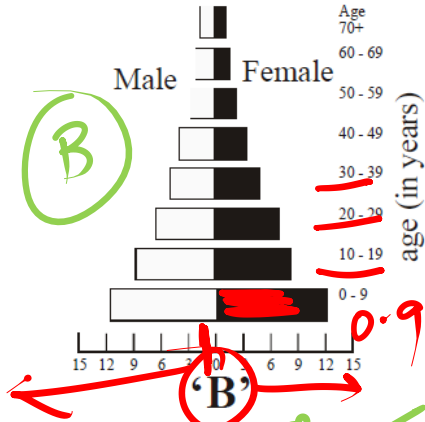
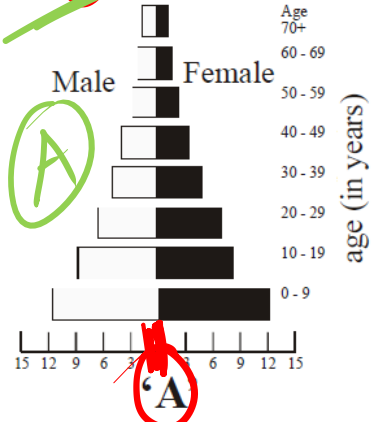


Age and sex structures  
population of individual of different age

- (a) Expanding population
- (b) Vanishing population
- (c) Stable population
- (d) Declining population

Pre Repro - < 15 year  
 Repro - 15-44 year  
 Post Repro - > 45 year

A country with a high rate of population growth took measures to reduce it. The figure below shows age-sex pyramids of populations A and B twenty years apart. Select the correct interpretation about them.

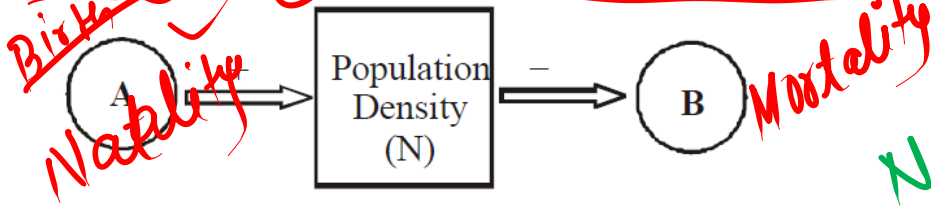


(a) "B" is earlier pyramid and shows stabilized growth rate.

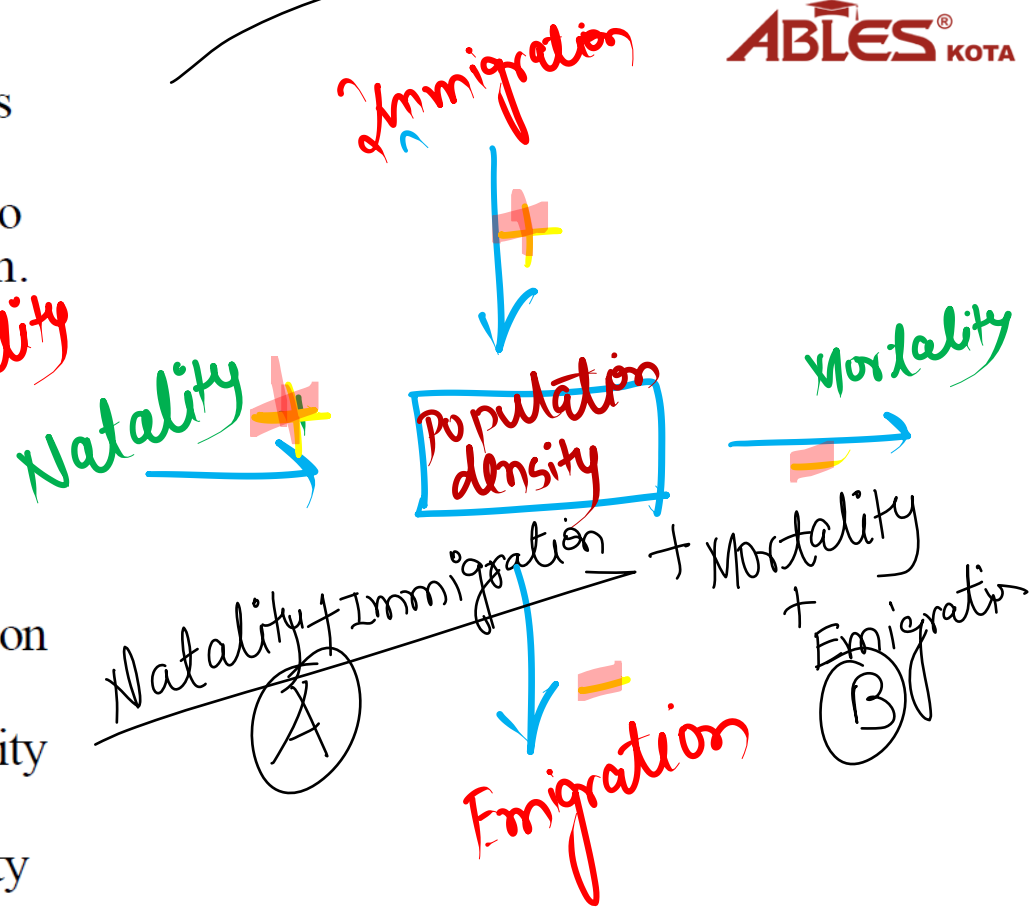
- (b) "B" is more recent showing that population is very young.
- (c) "A" is the earlier pyramid and no change has occurred in the growth rate.
- (d) "A" is more recent and shows slight reduction in the growth rate.

*AI PMT 2009*

The density of a population in a given habitat during a given period, fluctuates due to changes in four basic processes. On this basis choose the correct option to fill up A and B boxes in the given diagram.

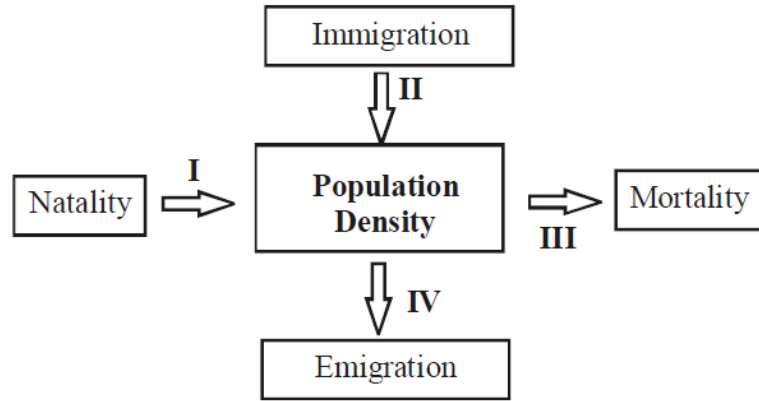


- (a)  $A = \text{Natality} + \text{Immigration}$ ,  $B = \text{Mortality} + \text{Emigration}$
- (b)  $A = \text{Natality} + \text{Mortality}$ ,  $B = \text{Immigration} + \text{Emigration}$
- (c)  $A = \text{Birth rate} + \text{Death rate}$ ,  $B = \text{Mortality} + \text{Emigration}$
- (d)  $A = \text{Natality} + \text{Emigration}$ ,  $B = \text{Mortality} + \text{Immigration}$





Identify I to IV which affect the population density.



- |     | <b>I</b> | <b>II</b> | <b>III</b> | <b>IV</b> |
|-----|----------|-----------|------------|-----------|
| (a) | Increase | Decrease  | Increase   | Decrease  |
| (b) | Decrease | Increase  | Decrease   | Increase  |
| (c) | Increase | Increase  | Decrease   | Decrease  |
| (d) | Decrease | Decrease  | Increase   | Increase  |

If  $N$  is the population density at time  $t$ , then its density at time  $t + 1$  is

(a)  $N_{t+1} = N_t + [(B + I) + (D + E)]$

(b)  $N_{t+1} = N_t - [(B + I) + (D + E)]$

(c)  $N_{t+1} = N_t + [(B + I) - (D + E)]$

(d)  $N_{t+1} = N_t - [(B + I) - (D + E)]$

<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>C</b>	<b>C</b>	<b>D</b>	<b>A</b>	<b>C</b>	<b>D</b>	<b>D</b>	<b>A</b>	<b>C</b>	<b>C</b>