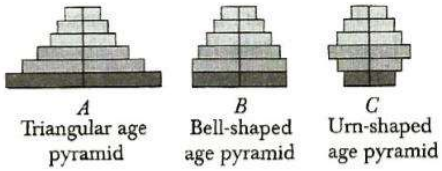
GPLUS EDUCATION

Date :
Time : **BIOLOGY**
Marks :

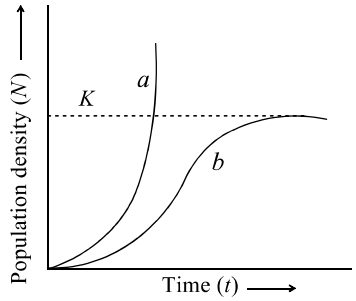
13.ORGANISMS AND POPULATIONS

Single Correct Answer Type

1. When two related populations occupy geographically or spatially separate areas, they are called
   a) Allopatric population b) Quantum population
   c) Saltational population d) Parapatric population
2. The maximum growth rate occurs in
   a) Stationary phase b) Senescent phase c) Lag phase d) Exponential phase
3. If $b = 65$ and d is $= 45$, $N = 100$ than find out dN/dt
   a) 2000 b) 1000 c) 200 d) 100
4. Interspecific interaction could be
   a) Beneficial b) Detrimental c) Neutral d) All of these
5. I. The human liverfluke, a nematode parasite, depends on two intermediate hosts (snail and pig) to complete its life cycle
   II. The malaria parasite needs a vector (mosquito) to spread to other hosts
   III. The female mosquito is not considered parasite, however it needs our blood for reproduction
   IV. In case of brood parasitism, the eggs of parasitic birds (*e. g.*,cuckoo) are not detected and ejected from the nest because of parasite's eggs resemble the hosts eggs in morphology and colour
   V. A population of frogs protected from all predators would increase indefinitely.
   Which statements are correct?
   a) I and II b) II and III c) III, IV and V d) I, II, III and IV
6. The relationship between the alga *Microcystis* and the surroundings fauna correspond to
   a) Amensalism b) Parasitism c) Predation d) Exploitation
7. The logistic population growth model $\frac{dN}{dt} = rN\left(\frac{K-N}{N}\right)$, describes a populations growth when an upper limit to growth is assumed. This upper limit of growth is known as population …A… and as $'N'$ gets larger, $\frac{dN}{dt}$ …B…
   a) A-carrying capacity; B-decrease b) A-carrying capacity; B-increases
   c) A-reproductive fitness; B-increases d) A-reproductive fitness; B-decreases
8. Climate is the
   a) Average weather b) Dynamic weather c) Static weather d) None of these
9. Basic unit of ecological hierarchy is
   a) Species b) genus c) Population d) Individual organism
10. Age pyramid A, B and C indicates



    a) A-Expanding population, B-Stable population, C-Declining population
    b) A-Expanding population, B-Declining population, C-Stable population
    c) A-Stable population, B-Declining population, C-Expanding population
    d) A-Declining population, B-Stable population, C-Expanding population
11. Which option is correct for curve a and b?



Equation for Curve (a)	equation for curve (b)	Type of curve (a)	Type of curve (b)
a) $\frac{dN}{dt} = r - N$ Logistic curve	$\frac{dN}{dt} = rN\left(\frac{N-K}{K}\right)$	Exponential curve	b) $\frac{dN}{dt} = rN$ Logistic curve $\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)$ Exponential curve
c) $\frac{dN}{dt} = rN$ J-shaped curve	$\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)$	S-shaped curve	d) Both (b) and (c)

12. Population is the total number of
    a) Interbreeding individuals of a species found in particular place
    b) Interbreeding individuals of a species found in same geographical area
    c) Interbreeding individuals of a species found in different geographical area
    d) All of the above
13. Ecotype is
    a) Equivalent to the ecotone and niche
    b) Genetically distinct adapted population to a particular habitat of a species
    c) Phenotypically adapted population to a particular habitat
    d) All are correct statement regarding ecotype
14. American lakes visiting flamingoes and resident fishes compete for their common food …A… in the lake resources …B… limiting for competition to occur; in interference competition, the feeding efficiency of one species might be …C… due to the interfering and inhibitory presence of the other species, even if resources (food and space) are abundant
    Choose the correct option for A, B and C
    a) A-zooplankton, B-need to be, C-increased
    b) A-zooplankton, B-need not be, C-reduced
    c) A-phytoplankton, B-need to be, C-rReduced
    d) A-phytoplankton, B-need to be, C-increased
15. Mass of living matter at a trophic level in an area at any time is called
    a) Detritus b) Humus c) Standing state d) Standing crop
16. The term 'Niche' was first used by
    a) Elements b) Grinnel c) Warming d) Odum
17. Which competition is more intense?
    a) Intraspecific competition b) Interspecific competition
    c) Both (a) and (b) d) Predation
18. Newly developed pathogens are more damaging to host because host are called
    a) Distant pathogen b) Cronic pathogen
    c) Instant pathogen d) Genetic improved pathogens
19. Find dN/dt for exponential growth for previous question
    a) 3 b) 4 c) 5 d) 6
20. In the association between two organisms, if one organism is benefitted and the other is not benefitted, this relationship is known as
    a) Symbiotism b) Mutualism c) Commensalism d) parasitism

21. Ephemerals are xerophytes that are
    a) Drought resisting b) Drought enduring c) Drought escaping d) None of these
22. Resource partitioning includes
    a) Temporal partitioning b) Spatial partitioning
    c) Morphological partitioning d) All of the above
23. The size of the clay particle is less than
    a) 0.02 mm b) 0.002 mm c) 0.2 mm d) 2.0 mm
24. Major biomes of India includes
    I. tropical rainforest II. Alpine region
    III. deciduous forest IV. Desert
    V. Himalayan region
    VI. sea coast
    Choose the correct combination for given question
    a) I, III, IV and V b) I, II, III and IV c) II, III, IV and VI d) I, III, IV and VI
25. Plats which behave as mesophytes in rainy season and as xerophytes in summers are called
    a) Xerophytes b) Mesophytes c) Trophophytes d) Phreatophytes
26. A species inhabiting different geographical area is known as
    a) Allopatric b) Sympatric c) Biospecies d) Sibling species
27. The integral form of the exponential growth equation as $N_t - N_0 e^{rt}$
    A. Population density after time t
    B. Population density at time zero
    C. Intrinsic rate of natural increase
    D. The base of natural logarithms (2.71828)
    Identify A, B, C and D from the given equation
    a) A-*r*, B-*e*, C-*No*, D-*NE* b) A-N_t, B-*No*, C-*r*, D-*e* c) A-*No*, B-*NE*, C-*r*, D-*e* d) A-*No*, B-*NE*, C-*e*, D-*r*
28. A female fig wasp enters the syconium of a fig, pollinates the flowers and lays eggs in the ovaries of some of the flowers. The young larvae grow up, eat (and kill) some, but not all of the seeds and complete their life cycle.
    The fig is completely dependent on fig wasps to pollinate its flowers and the fig wasp requires figs to complete its life cycle
    The interaction between figs and fig wasps has aspects of
    I. mutualism
    II. host-parasite interaction
    III. competition
    IV. ammensalism
    V. protocooperation
    Select the correct option
    a) I and II b) I and III c) V and VI d) III and IV
29. Population growth curve in most animals, except humans is
    a) S-shaped b) J-shaped c) J-shaped with tail d) S-shaped with tail
30. *Nosema notabilis* is an example for
    a) Commensalism b) Symbiosis c) Ectoparasitism d) Hyperparasitism
31. Ecosystem is the interaction of
    a) Species with environment b) Individual with environment
    c) Biological community with environment d) All of the above
32. Populations evolve to maximise their reproductive fitness are also called
    a) Mendel's fitness b) Darwinian fitness c) Lamarck's fitness d) Individual fitness
33. Ecologist say that niche is like a species …A…, while habitat is like a …B… there A and B indicate
    a) A-education; B-occupation b) A-appearance; B-physiology

c) A-occupation; B-address
d) A-physiology; B-anatomy

34. Population interactions

Organism A	Organism B	Name of interaction
+	+	Mutualism
−	−	*A*
+	−	Predation
+	−	*B*
+	0	Commensalism
−	0	*C*

'+' sign for beneficial interaction
'−' sign for harmful (detrimental) interaction
'0' sing for neutral interaction
Find out what could be *A*, *B* and *C*
a) A-Amensalism, B-Parasitism, C-Competition
b) A-Competition, B-Parasitism, C-Amensalism
c) A-Competition, B-Amensalism, C-Parasitism
d) A-Amensalism, B-Competition, C-Competition

35. Individual alive at the beginning of 1 year to 2 year age interval is 800. During this interval 200 individual die. Then find out the death rate
a) 200
b) 800
c) 0.4
d) 0.25

36. Temperature is very significant to the living beings because of
a) Kinetics of locomotion depends on temperature
b) Kinetics of enzymes depends on temperature
c) High temperature facilitates digestion
d) Low temperature facilitates digestion

37. Mycorrhiza is a mutualistics association of plants root with fungi. The association occurs in
a) 83% dicots
b) 79% monocots
c) Nearly all gymnosperm
d) All of these

38. Autecology is the study of relationship between
a) Population and its environment
b) Communities and its geographical area
c) Ecosystem and its environment
d) None of the above

39. Soil has five components. The proportions of different components are

Mineral Matter	Organic Matter	Soil Moisture	Soil Atmosphere	Soil-Organism
a) 40%	10%	25%	25%	Variable
b) 40%	10%	25%	25%	10%
c) 40%	10%	35%	15%	10%
d) 30%	20%	25%	25%	10%

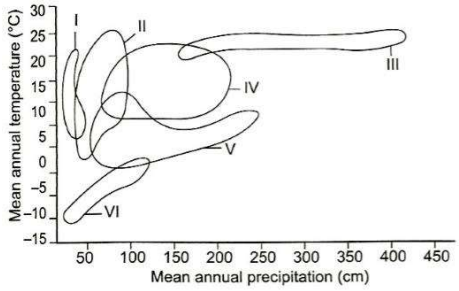
40. 'Cryptically-coloured' (camouflaged) is a technique through which prey can
a) Feed abundantly
b) Lessen the impact of predator
c) Increase their number
d) Increase their reproductive fitness

41. Competition for light, nutrients and space is most severe between
a) Closely related plants growing in different area
b) Closely related plants growing in same area
c) Distantly related plants growing in same habitat
d) Distantly related plants growing in same habitat

42. Many parasites have evolved to be …A… in such a way that both host and the parasite tend to …B… that is, if the host evolves special mechanisms for rejecting or resisting the parasite, the parasite has to evolve mechanisms to …C… and neutralize them, in order to be successful with the same host species
Choose the correct option for A, B and C
a) A-host-specific, B-evolve, C-counteract
b) A-host-specific, B-coevolve, C-counteract

c) A-source specific, B-coevolve, C-counteract d) A-source specific, B-evolve, C-counteract

43. In the given figure, identify coniferous forest, Arctic alpine tundra and tropical forest respectively



a) I, VI and III b) V, VI and III c) IV, III and I d) I, II and III

44. The change in population size at a given time interval t, is given by the expression
$N_t = N_0 + B + I - D - E$
I, B and D stand respectively for
a) rate of immigration, mortality rate, natality rate
b) rate of immigration, natality rate, rate of emigration
c) mortality rate, natality rate, rate of immigration
d) rate of immigration, natality rate, mortality rate

45. Which of the following is true regarding exponential growth?
a) No population can grow exponential for long
b) Exponential growth slows down as the population nears its log phase
c) Bacterial colonies have been observed to maintain exponential growth always
d) Exponential growth is a commonly observed in large, slow-growing species such as humans and elephants

46. Mycorrhizal represents an intimate mutualistic relationship between
a) Fungi and stem of higher plants b) Fungi and roots of higher plants
c) Fungi and leaves of higher plants d) Fungi and leaflets of higher plants

47. If in a pond there are 20 lotus plants of last year and through reproduction 8 new plants are added. Then the birth rate is
a) 0.8 offspring per lotus per year b) 0.2 offspring per lotus per year
c) 0.4 offspring per lotus per year d) 0.6 offspring per lotus per year

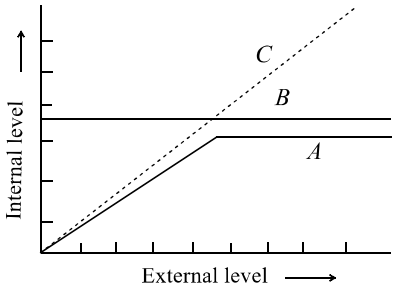
48. Any species growing …A… growing under unlimited resource conditions can reach enormous population densities in a short time. Darwin showed how even …B… growing animal like elephant could reach enormous numbers in absence of check and that characteristics of organism is called C
Choose the correct option for A, B or C respectively
a) A-logistically, B-fast, C-carrying capacity b) A-logistically, B-slow, C-biotic potential
c) A-exponential, B-slow, C-biotic potential d) A-exponential, B-fast, C-biotic potential

49. July 11th is observed as
a) World population day b) No tobacco day
c) World environment day d) World health day

50. Light is
a) Visible part of electromagnetic spectrum
b) Non- visible part of electromagnetic spectrum
c) IR part of electromagnetic spectrum
d) UV part of electromagnetic spectrum

51. Pedology refers to study of
a) Soil b) Water c) Population d) Fossils

52. Identify the lines present in the given graph A, B and C



a) A-Partial regulators, B-Regulators, C-Endotherms
b) A-Partial regulators, B-Ectotherms, C-Endotherms
c) A-Partial regulators, B-Regulators, C-Conformes
d) A-Conformers, B-Ectotherms, C-Partial regulators

53. Submerged hydrophytes show
a) stomata
b) Abundant air sacs
c) Well developed mechanical tissue
d) Secondary growth

54. Under a particular set of selection pressure, organisms evolve towards the most …A… reproductive strategy. Some organisms breed only …B… in lifetime while others breed …C… in life time
Choose the correct option for A, B and C
a) A-efficient, B-once, C-many
b) A-efficient, B-many, C-once
c) A-deficient, B-many, C-once
d) A-deficient, B-once, C-many

55. Weather is the
a) Long term property of the atmosphere
b) Short term property of the atmosphere
c) Unchanged property of climate
d) Unknown property of climate

56. Sea plants are an example of
a) Xerophyte
b) mesophyte
c) hydrophyte
d) Submerged plant

57. Halophytes are
a) Fire-resistant
b) Cold-resistant
c) Salt-resistant
d) Sand-loving

58. Adaptation may be
a) Morphological
b) Physiological
c) Behavioural
d) All of these

59. …A… regulators are able to maintain homeostasis by means which ensures constant body temperature, constant osmotic concentration, etc. All …B… and …C…. and is very few lower vertebrate and invertebrate species are indeed capable of such regulation (thermoregulation and osmoregulation)
Evolutionary biologists believe that the 'success' of mammals is largely due to their ability to maintain a constant body …D… and thrive whether they live in Antarctica or in the Sahara desert
Choose the correct option for A, B, C and D
a) A-Behavioural, B-vertebrates, C-invertebrates, D-temperature
b) A-Behavioural, B-bird, C-mammals, D-temperature
c) A-Physiological, B-bird, C-mammals, D-temperature
d) A-Behavioural, B-vertebrates, C-invertebrates, D-morphology

60. The physiological capacity to produce offsprings is called
a) Birth rate
b) Biotic potential
c) Crude natality
d) Mortality

61. How many horizons are present in the soil profile?
a) Two zones
b) Only one zone
c) Three zone
d) Four zone

62. In … phase population adopt itself to new environment and starts to increase its number
a) Log phase
b) Lag phase
c) Decline phase
d) Stationary phase

63. The association of animals when both partners are benefitted is
a) Commensalism
b) Amensalism
c) Mutualism
d) parasitism

64. Factors which determine to the large extent the vegetation of any area are
I. pH of soil

II. mineral composition of the soil
III. water holding capacity of soil
IV. weather condition
Choose the correct option
a) I and II b) II and III c) I, II and III d) I, II, III and IV

65. The most ecologically relevant environmental factor
a) Soil b) Water c) Temperature d) Light

66. The closely related morphologically similar sympatric population, but reproductively isolated are designated as
a) Demes b) Clones c) Sibling species d) clines

67. Term 'ecology' was given by
a) Reiter b) Cuvier c) Haeckel d) Malthus

68. Regulators are also called
a) Endotherms b) Exotherms c) Ectotherms d) Either (b) or (c)

69. Diapause is
a) Stage of development b) Stage of suspended development
c) Stage of delayed morphology d) Rapid developmental stage

70. The population of an insect species shows an explosive increase in numbers during rainy season followed by its disappearance at the end of the season. What does this show?
a) S-shaped or sigmoid growth of this insect
b) The food plants mature and die at the end of rainy season
c) Its population growth curve is of J-type
d) The population of its predators increases enormously

71. Which of the following is categorised as a parasite in true sense?
a) Koel (cuckoo) b) Housefly c) Human foetus d) Head louse

72. Ratio between mortality and natality is called
a) Population ratio b) Vitla index c) Density coefficient d) Census ratio

73. Behavioural adaptation to environment in desert lizards are
I. Burrowing soil
II. Losing heat during high temperature
III. Active during morning and evening
IV. Insulating body due to thick fatty dermis
Select the correct pair
a) I and III b) III and IV c) I and II d) II and IV

74. Commensalism is the interaction in which
a) One species benefits and other is neither harmed nor benefitted
b) One species do not benefits and other is harmed
c) One species do not benefits and other is not harmed
d) One species benefits and other is also benefitted

75. Why a population fluctuate when it reaches to carrying capacity?
a) Due to limiting factors b) Due to exponential growth
c) Due to unlimited natural resources d) Due to increased reproductive rate

76. Niche overlap indicates
a) Active cooperation between two species
b) Two different parasites on the same host
c) Sharing of one or more resources between the two species
d) Mutualism between two species

77. Small fish get stuck near the bottom of a shark and derives its nutrition from it. This kind of association is called as

a) Antibiosis b) Commensalism c) Predation d) parasitism

78. Find out the population density when N is 1000 and S is 100 m^2
a) 10 b) 100 c) 1 d) 1000

79. Temperature decreases progressively from the
a) Equator towards the poles b) Poles towards the equator
c) Plain towards mountain d) Both (a) and (c)

80. A population growing in a habitat with limited resources shows four phases of growth in the following sequence
a) Acceleration-Deceleration -Lag phase-Asymptote
b) Asymptote- Acceleration-Deceleration -Lag phase
c) Lag phase- Acceleration-Deceleration- Asymptote
d) Acceleration- Lag phase- Deceleration- Asymptote

81. Photosynthetically Active Region (PAR) have the electromagnetic region of
a) 300-700 nm b) 400-700 nm c) 200-700 nm d) 300-600 nm

82. Population density is the population per unit
a) Area b) Land area c) Water area d) Desert area

83. Which of the following is inappropriately defined?
I. Host is an organism which provides only food, shelter to another organism
II. Amensalism is a relationship in which one species is benefitted, whereas the other is unaffected
III. Predator is an organism that catches and kills other organism for food of same species
IV. Parasite is an organism which always lives inside the body of other organism and may kill it
Select the correct option
a) I and II b) III and IV c) I, II, III and IV d) I, III and IV

84. 5th June is celebrated as
a) Water day b) World environment day
c) Conservation day d) World earth day

85. Radiation below the visible range are called
a) UV b) IR c) Both (a) and (b) d) Radiowaves

86. Characters of a population
I. Proportion of reproductive age group is higher than the individuals in pre-reproductive age group
II. Number of post-reproductive individuals are moderate
III. Declining or diminishing population
Above characters shown indicates which type of age pyramid?
a) Bell-shaped age pyramid b) Triangular age pyramid
c) Sphere-shaped age pyramid d) Urn-shaped age pyramid

87. Competition of species leads to
a) extinction b) Mutation
c) Greater number of niches are formed d) symbiosis

88. Model is
a) The species which mimic b) Object to which mimic resemble
c) Both (a) and (b) d) Neither (a) nor (b)

89. Census is
a) Official counting of population b) Individual counting of population
c) Individual counting of males only d) Individual counting of females only

90. In bacteria, fungi and lower plants, various of thick-walled …A… are formed, which help them to survive …B… conditions-these germinate on availability of suitable environment. In higher plants …C… and some other vegetative reproductive structures serve as means to tide over periods of stress besides helping in dispersal-they germinate to form new plants under favourable moisture and temperate conditions
Choose the correct option for A, B and C

a) A-Spores, B-Unfavourable, C-Seeds
b) A-Seeds, B-Unfavourable, C-Spores
c) A-Seeds, B-Favorable, C-Spores
d) A-Spore, B-Favourable, C-Seeds

91. Biotic community is the assemblage of populations of
a) Same species which live in particular area
b) Different species which live in particular area
c) Different species which live in different area
d) Same species which live in different area

92. Ecology is the branch of biology which deals with interaction between
a) Organisms and their environment
b) Organisms only
c) Human and other organisms
d) Human and their environment

93. Life history traits of organisms have evolved in relation to the constraints imposed by which components of habitat
a) Organic components b) Abiotic components c) Biotic components d) Both (b) and (c)

94. I. Salt concentration (parts par thousand) in sea water is …A…
II. Salt concentration (parts per thousand) in hypersaline water is …B…
Choose the correct option for A and B
a) A–30-35%; B–>1000%
b) A–>100%; B–30-35%
c) A–>100%; B–<10%
d) A–<10%; B–<10%

95. B-horizon is also called
a) Top soil region b) Below soil region c) Sub-soil region d) Upper soil region

96. The birth and death rates of four countries are given below. Which one will have the least population growth rate?

Country	Birth rate / 1000	Death / 1000
M	15	5
N	25	10
O	35	18
P	48	41

a) P b) O c) N d) M

97. Plant grows best in the
I. acidic soil
II. basic soil
III. neutral soil
IV. slightly acidic soil
Choose the correct combination
a) I and II b) II and III c) III and IV d) I and III

98. When food and space for a population are unlimited?
I. Each species has the ability to realize fully its inherited potential to grow
II. Then it is equal to $dN/dt = dN$
III. It is described by J-shaped curve
IV. It is described by S-shaped curve
V. Than it has greater intrinsic rate for resources
VI. There are more competition among themself
Choose the incorrect statements
a) I, II and III b) II, IIII and IV c) IV and VI d) IV, V and VI

99. Photosynthesis in *Opuntia* is done by
a) Leaves b) Stem c) Roots d) Shoot

100. Choose the incorrect statements
a) Parasite might render the host more vulnerable to predation by making it physically weak
b) Majority of the parasites harm the host and reduce the population density

c) Ideal parasite should be able to thrive with in host without harming it
d) Malarial parasite does not need a vector (mosquito) to spread to other host

101. Pollination is an example of
a) Mutualism b) Protocooperation c) Synergism d) Commensalism

102. Root cap is not found in
a) Mesophytes b) Xerophytes c) Hydrophytes d) Halophytes

103. Which model is considered a more realistic one?
a) Logistic model b) Exponential model c) Geometric model d) J-shaped model

104. Salt concentration (parts par thousand) is less than 5% in
a) Sea water b) Inland water c) Hypersaline water d) Freshwater

105. An interaction favourable to both population, but no obligatory to either is
a) Proto-cooperation b) Mutualism c) Commensalism d) Parasite

106. Phenomenal and rapid increase of population in a short period is called
a) Natural increase b) Population growth c) Population explosion d) None of these

107. Life on earth originated in
a) Air b) Water c) Soil d) All of these

108. The soil with poorest water holding capacity is
a) Clay b) Loam c) Sandy d) None of these

109. Differentiation of various tissue and organs in response to light is called
a) Morphogenesis b) Photomorphogenesis
c) Organogenesis d) Embryogenesis

110. In a population, unrestricted reproductive capacity is called
a) Biotic potential b) Fertility c) Carrying capacity d) Birth rate

111. Level of competition between species depends on
I. availability of resources
II. population density
III. group interaction of organism
Choose the correct combination
a) I and II b) I and III c) II and III d) I, II and III

112. Concept of mimicry was given by …A…
Father of Indian Plant Ecology …B…
Term 'ecology' coined by …C…
Here A, B and C refers to
a) A-Haeckel, B-Ramdev Mishra, C-Reiter
b) A-HW Bates, B-Ramdev Mishra, C-Ernst Haeckel
c) A-HW Bates, B-Birbal Sahani, C-Ernst Haeckel
d) A-HW Bates, B-Birbal Sahani, C-Reiter

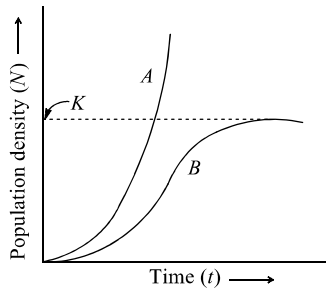
113. Partial regulators are the organism which
a) Can regulate body temperature to larger extent of environmental condition
b) Can regulate body temperature to limited extent of environmental condition
c) Can regulate body temperature only over a limited range of environmental condition
d) None of above

114. Which is the characteristics of desert plant adaptation?
a) Thick cuticle on their leaf surface b) Stomata arranged in deep pits
c) Stomata remain closed during day d) All of the above

115. A population growing in a habitat with …A… resources show initially a …B… phase, followed by phase of acceleration and deceleration and finally an asymptote, when the population density reaches the …C… .
Choose the correct option for A, B and C
a) A-limited, B-lag phase, C-carrying capacity

b) A-limited, B-stationary phase, C-carrying capacity
c) A-unlimited, B-lag phase, C-carrying capacity
d) A-unlimited, B-log phase, C-carrying capacity

116. Graph *A* and *B* indicates



a) A-Logistic growth; B-Exponential growth
b) A-Exponential growth; B-Logistic growth
c) A-Geometric growth; B-Logistic growth
d) Either (b) or (c)

117. Altitude sickness is
a) Genotypic adaptation
b) Phenotypic adaptation
c) Physiological adaptation
d) Cold hardening

118. Plants grown on sandy soil, are grouped under
a) Lithophytes b) Psammophytes c) Hydrophytes d) Xerophytes

119. Ecology is basically concerned with how many levels?
a) One b) Three c) Four d) Five

120. An unrestricted reproductive capacity is called
a) Birth rate b) Biotic potential c) Carrying capacity d) Fertility

121. Asymptome stage of the population is the stage of population in which the population is
a) Changing b) Decreasing c) Increasing d) Stabilised

122. Conformers are inactive in adverse conditions due to
a) Inability to move
b) Inability to digest property
c) Inability to maintain homeostasis
d) Ability to maintain homeostasis

123. $dN/dt = rN\left(\frac{K-N}{K}\right)$
A – Population density at time t
B – Intrinsic rate of natural increase
C – Carrying capacity
Identify A, B and C from given equation
A B C
a) $N\ K\ r$ b) $N\ r\ K$ c) $K\ N\ r$ d) $K\ r\ N$

124. A secondary compound are the part of the plants
a) Normal metabolism
b) Secondary metabolism
c) Evolution
d) Genetic difference

125. The plants that grow on saline soils with high concentration of $NaCl_2$, $MgSO_4$ and $MgCl_2$ are called
a) Succulents b) Mesophytes c) Xerophytes d) Halophytes

126. Age structure of a population influences population growth because
a) Different ago group have different reproductive capabilities
b) Different age group have same reproductive capabilities
c) More young individual indicate decreasing population
d) All of the above

127. Choose the wrong statements
I. Two species may not live in same habitat
II. The more dissimilar the niches of two species the stronger is their competition
III. Two species can occupy the same niche in geographical area

IV. No two species may occupy the same ecosystem

The correct option is

a) I, II and III b) II, III and IV c) I, II, III and IV d) III and IV

128. For better survival of the human population, which of the following steps is most important?

a) Reduction in the use of various resources b) Afforestation

c) Conservation of wild life d) Ban on mining activity

129. Photosynthetic yield is maximum at the

a) Equator region b) Polar region c) Both (a) and (b) d) Arid region

130. No population of any species in nature has its disposal …A… resources to permit exponential growth. This leads to competition between individuals for …B… resources. Eventually, the …C… individual will survive and reproduce.

Choose the correct option for A, B and C

a) A-limited, B-limited, C-fittest b) A-limited, B-unlimited, C-fittest

c) A-unlimited, B-limited, C-fittest d) A-unlimited, B-unlimited, C-fittest

131. Schimper's second low related to

a) Local distribution of plants

b) Geographical distribution of plants

c) Geographical distribution of animals

d) Geographical distribution of animals and plants

132. Which of the following statements regarding species interdependence are true?

I. An Association of two species where one is benefitted and other remains unaffected is called mutualism.

II. An interspecific association where both partners derive benefit from each other is called commensalism.

III. A direct food relation between two species of animals in which one animal kills and feeds on another is referred as predation.

IV. A relationship between two species of organisms where both are partners are benefitted from each other is called symbiosis.

a) I and II only b) III and IV only c) I and III only d) II and III only

133. Organisms which breed only once in their lifetime

a) Pacific salmon fish b) Bamboo c) Both (a) and (b) d) None of these

134. In a population, the condition at which the rate of addition of new members is more than the rate of individuals lost indicates

a) Zero population growth b) Exponential growth

c) Fluctuating growth d) Declining growth

135. In the absence of an external source of water, Kangaroo rat in North American desert is capable of meeting all its water requirements through

a) Internal fat oxidation b) Taking liquid food

c) Reducing his activities d) Hibernation

136. Even a plant species, which makes its own food, cannot survive alone; it needs soil microbes to breakdown the …A… matter in soil and return the …B…. nutrients for absorption. And then, how will the plant manage pollination without an animal agent? It is obvious that in nature, animals, plants and microbes cannot live in …C… but interact in various ways to form a biological community

Choose the correct option for A, B and C

a) A-inorganic, B-organic, C-isolation b) A-organic, B-inorganic, C-isolation

c) A-organic, B-inorganic, C-community d) A-inorganic, B-organic, C-community

137. The growth of a population without limit at its maximal rate and also that, rates of immigration and emigration are equal, then it is called

a) Carrying capacity b) Biotic potential c) Positive growth d) Negative growth

138. Which of the following characters explain the bell-shaped curve?
    a) The number of pre-reproductive individual equal to the number of reproductive individual
    b) Past reproductive individual are comparatively few
    c) Growth is zero
    d) All of the above
139. Carrying capacity is the capacity of
    a) Habitat that has resources to sustain certain number of individuals
    b) Population to reproduce and competitiveness
    c) Population to reproduce
    d) Individuals to fit among the natural environment
140. In which regions of the world are hot deserts located?
    a) Equator and Tropic of cancer
    b) Equator and tropic of Capricorn
    c) Polar region
    d) Tropic of cancer and Tropic of Capricorn
141. Population density of a population in a given habitat during a given period fluctuates due to change in
    a) Natality and mortality
    b) Immigration
    c) Emigration
    d) All of these
142. Statements
    I. Recent studies support competition as suggested in 'Gauses's Competitive Exclusion Principle'
    II. Gause's hypothesis says if two species compete for same resources then one will be eliminated by another species
    III. More recent studies point out that species facing competition might evolve mechanisms that promote co-existence rather than exclusion
    IV. Gause's competitive exclusion principle is effective when resources are in excess
    V. Unlimited resources give better opportunity for adaptation
    Choose the correct combination of statements
    a) I, II and III
    b) II, III and IV
    c) III, IV and V
    d) I, IV and V
143. Different organism are adapted to their environment in terms of not only survival but also reproduction. This statement belongs to
    a) Physiological ecology
    b) Species ecology
    c) Population ecology
    d) All of these
144. Which determines the flora and fauna of a place?
    a) Weather
    b) Climate
    c) Both (a) and (b)
    d) Habitat
145. Eurythermals are the organism which
    a) Can tolerate wide range of temperature
    b) Can tolerate low range of temperature
    c) Cannot tolerate low range of temperature
    d) Cannot tolerate wide range of temperature
146. Plants growing on sand and gravel are called
    a) Eremophytes
    b) Psammophytes
    c) Psilophytes
    d) Oxylophytes
147. In aquatic environment the types of benthic animals are determined by
    a) Type of water
    b) Type of sediment characteristics
    c) Light availability
    d) Nutrient availability
148. The growth rate of a population stabilizes after
    a) Logarithmic phase
    b) Stationary phase
    c) Carrying capacity
    d) Negative acceleration phase
149. Why exotic species become invasive sometime and starts spreading fast because of
    a) Natural predators
    b) Abundant natural competitor
    c) Invaded land does not have its natural predators
    d) Mutation in their genome
150. In commensalism
    a) Both partners are harmed
    b) Weaker partner is benefitted
    c) Both partners are benefitted

d) None of the partners is benefitted

151. Bell-shaped age pyramid indicates that
   a) Number of pre-reproductive and reproductive individual is almost equal
   b) Post-reproductive individuals are comparatively fewer
   c) The population size remains stable
   d) All of the above
152. There are two optional ways of exploitation. One way is parasitism. Which is the other one?
   a) Antibiosis b) Competition c) Predation d) Commensalism
153. Population size of Siberian cranes at Bharatpur wetlands in any year is
   a) 1000 b) <10 c) >100 d) = 1000
154. Prickly pear cactus species introduced into Australia in
   a) 1920 b) 1930 c) 1925 d) 1929
155. Pattern of population results in a J-shaped curve obtained in
   a) Logistic growth b) Exponential growth c) Sigmoid growth d) All of these
156. If non-limiting conditions are provided then what will happen?
   a) Natality increases and mortality decreases b) mortality decreases
   c) Natality increases d) Mortality increases
157. In which one of the following habitats does the diurnal temperature of soil surface vary most?
   a) Shrub land b) Forest c) Desert d) Grassland
158. Ectothermic animals are also called
   a) Poikilothermal b) Cold-blooded c) Both (a) and (b) d) Isothermic
159. Highest level of biological hierarchy in the given options is
   a) Biome b) Ecosystem c) Individual d) Species
160. Character displacement take place when there is
   a) Geographic displacement b) Geographic overlapping
   c) Geographic non-overlapping d) Habitat displacement
161. Climate is the
   a) Short term property of atmosphere b) Long term property of atmosphere
   c) Unchanged property of atmosphere d) All of the above
162. Gloger's rule related to the
   a) Colour b) Extremities c) Narrow wing d) Size
163. Positive growth or rapid increase in the population is indicated by
   a) Less number of young ones b) Large number of young ones
   c) Large number of old ones d) Large number of child birth
164. The soil which is transported by wind is known as
   a) Colluvial b) Eolian c) Alluvial d) glacial
165. When there are large number of post-reproductive or older individuals and lesser number of pre-reproductive individuals then that population is
   a) Growing b) Decline c) Stable d) None of the above
166. Human liverfluke (a trematode parasite) depends on which two intermediate hosts
   I. Snail
   II. Fish
   III. Pig
   IV. Mosquito
   Choose the correct combination
   a) I and III b) II and III c) III and IV d) IV and V
167. Prickly pear cactus (an exotic species) can brought under control (in Australia) by using
   a) Babul eating predators b) Kikar eating predators
   c) Cactus feeding predators d) Intensive herbicides

168. Which of the following is correct range of latitudes for temperate region?
a) 45° to 66° b) 0° to 20° c) 20° to 40° d) 60° to 80°

169. Population is
a) Group of similar interbreeding individuals in a particular area which complete for similar resources
b) Group of dissimilar individuals in a particular area
c) Group of slightly similar individuals in a particular area
d) Intrabreeding species together make population

170. Ecological hierarchy comprises, which of the following sequence
a) Population → Species → Community → Ecosystem → Biosphere
b) Species → Population → Community → Ecosystem → Biosphere
c) Species → Population → Biosphere → Community → Ecosystem
d) Species → Population → Biosphere → Ecosystem → Community

171. In India, human population is heavily weighed towards the younger age group as a result of
a) Short life span of many individuals and low birth rate
b) Short life span of many individuals and high birth rate
c) long life span of many individuals and high birth rate
d) long life span of many individuals and low birth rate

172. Aerenchyma is the characteristics feature of
a) Mesophytes b) Hydrophytes c) Xerophytes d) Aesophytes

173. Many fishes of freshwater can't live in sea water and *vice-versa* because of
a) Nutrient b) Osmotic problems c) Breathing problems d) Excretion problems

174. If b is represented → Birth rate
If d is represented → Death rate
If dN is represented → Increase or decrease in population size
Then exponential growth is represented by
a) $dN/dt = (b + d) \times N$ b) $dN/dt = (b - d) \times N$
c) $dN/dt = (d - b) \times N$ d) $dN/dt = (d - b)^N$

175. Predator helps to create checks on
a) Prey population b) Biological control of weeds and pests
c) Species diversity d) All of the above

176. Animals eating plants are categorised separately as …A…, they are in a broad ecological context, not very different from …B…
Choose the correct option A and B
a) A-herbivores; B-predator b) A-herbivores; B-omnivore
c) A-omnivores; B-herbivores d) A-omnivores; B-predator

177. Logistic growth occurs when there is
a) No resistance from increasing population b) Unlimited food
c) Fixed carrying capacity d) All of the above

178. The niche of a population is defined as
a) Set of condition that interacts b) Place where it lives
c) Set of conditions and resources it uses d) Geographical area that it covers

179. Geometric representation of age structure is characteristic of
a) Biotic community b) Population c) Landscape d) Ecosystem

180. When Darwin spoke of the struggle for existence and survival of the fittest in the nature, he was conveinced that
a) Intraspecific competition is a potent force in organic evolution
b) Interspecific competition is a potent force in organic evolution
c) Intensive reproduction is the potent force in organic evolution
d) Intensive predation is the potent force in organic evolution

181. Genetic drift operates in
    a) Small isolated population
    b) Large isolated population
    c) Fast reproductive population
    d) Slow reproductive population
182. Which of the following is not true for a species?
    a) Members of a species can interbreed
    b) Variations occur among members of a species
    c) Each species is reproductively isolated from every other species
    d) Gene flow does not occur between the populations of a species
183. Zero growth means
    a) Natality balance mortality
    b) Natality is more than mortality
    c) Natality is less than mortality
    d) Natality is zero
184. Ecological age groups of a population are
    I. pre-reproductive
    II. reproductive
    III. post-reproductive
    IV. old-age group
    V. adolescent age group
    VI. infertile age group
    Choose the correct option for given statements
    a) I, II and III
    b) III, IV and V
    c) IV, V and VI
    d) I, V and VI
185. Sigmoid growth curve is represented by
    a) $dN/dt = rN$
    b) $dN/dt = rN(1 - N/K)$
    c) $Nt = N_O + B + I - D - K$
    d) $dN/dt = 1 - N/K$
186. In which one of the following pairs is the specific characteristic of soil not correctly matched?
    a) Laterite - Contains aluminium compound
    b) Terra - Most suitable for roses
    c) Chernozems - Richest soil in the world
    d) Black Soil - Rich in calcium carbonate
187. All aquatic vertebrates and most molluscs and cry fishes are
    a) Thermoconformers
    b) Osmoconformers
    c) Oxyregulators
    d) All of these
188. Average temperature of thermal springs and deep sea hydrothermal vents exceeds
    a) 50°C
    b) 60°C
    c) 70°C
    d) 100°C
189. In the oceans, the environment is perpetually dark at
    a) More than 100 m
    b) More than 500 m
    c) Less than 100 m
    d) Less than 500 m
190. Regulators are the their animals which
    a) Does not maintain their body homeostasis
    b) Can maintains their body homeostasis
    c) Can regulate their heart beat
    d) Can regulate their circulation
191. Population A-Have the intrinsic rate of natural increase is 0.2
    Population B-Have the intrinsic rate of natural increase is 0.3
    Population C-Have the intrinsic rate of natural increase is 0.4
    Population D-Have the intrinsic rate of natural increase is 0.5
    Which population will increase fastest among all of the given population?
    a) D
    b) C
    c) B
    d) A
192. Humus is present in
    a) Horizon-A
    b) Horizon-O
    c) Horizon-B
    d) Horizon-C
193. Ecosystem components includes
    a) Biotic
    b) Abiotic
    c) Both (a) and (b)
    d) Species
194. Monarch butterflies are highly distasteful to predator due to
    a) Its ugly look
    b) A special chemical present in his body
    c) Both (a) and (b)
    d) A poison secreted by their special glands
195. Species living in a restricted geographical area is

a) Sympatric b) Allopatric c) Sibling d) keystone

196. Pneumatophores have lenticels for
a) Excretion b) Gaseous exchange c) Reproduction d) All of these

197. Temperature gradient over earth surface is
a) 6.4 to 6.5°C per 1000 m altitude b) 6.4 to 6.5°C per 1000 m latitude
c) 7.5 to 9.5°C per 1000 m latitude d) 7.5 to 9.5°C per 1000 m altitude

198. Abiotic factors affects the
I. Structure of organisms
II. Physiology of organisms
III. Behaviour of organisms
a) I and II b) II and III c) I, II and III d) I and III

199. Which one of the following is a matching pair of certain organism(s) and the kind of association?
a) Shark and sucker fish - Commensalism
b) Red algae and fungi in liches - Mutualism
c) Orchids growing on trees - Parasitism
d) *Cuscuta* (dodder) growing on other flowering plants - Epiphysis

200. Nature and properties of soil in different places vary due to
a) Climate b) Weathering process c) Topography d) All of these

201. Zero growth of population is indicated by
a) Less number of child birth
b) Less number of reproductive females
c) Reproductive individual are equal to pre-reproductive individuals
d) Less number of male then females

202. Why mammals of the colder region generally have shorter ears and limbs?
I. To minimize their surface volume ratio
II. To minimize heat loss
III. To maximize their surface volume ratio
IV. To maximize heat loss
Choose the correct combination from the given option
a) I and II b) II and III c) III and IV d) I and IV

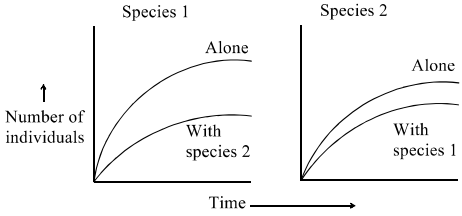
203. The productivity and distribution of plants mainly depends on
a) Soil b) Temperature c) Water d) Light

204. Which one is the edaphic factor in biosphere?
a) Light b) Temperature c) Water d) Soil

205. The most important factor which determined the increase in human population in India during the 20th century.
a) Natality b) Mortality c) Immigration d) Emigration

206. Population density of terrestrial organisms is measured in terms of individuals per
a) m^3 b) m^4 c) m d) m^2

207. In laboratory experiments, two species of the protest *Paramecium* were grown alone and in the presence of the other species. The following graphs show growth of species 1 (left) and species 2 (right), both alone and when in mixed culture



Interpretation of these graphs shows that

a) Competitive exclusion occurred in these experiments
b) Both species are affected by interspecific competition but species 1 is affected less
c) Both species are affected by interspecific competition but species 2 is affected less
d) Both species are affected equally by interspecific competition

208. I. Population evolve to maximise their reproductive fitness, also called Darwinian reproductive fitness (higher r value), in the habitat in which they live
II. The population growth rate r is inversely related to generation time
III. The housefly, which has a short life span and produces a large number of eggs, could be considered as a 'K' selected species
IV. Under a particular set of selection pressures, organisms evolve towards the most efficient reproductive strategies
V. Life history traits of organisms have evolved in relation to the constraints imposed by biotic and abiotic factors in their habitat
Select the combination of correct statements
a) I, II and III b) I, III and IV c) III, IV and V d) All except III

209. Two opposite forces operate in the growth and development of every population, one of them relates to the ability to reproduce at a given rate. The force opposing is called
a) Biotic potential b) Environmental resistance
c) Morbidity d) Fecundity

210. When the value of 'r' is significantly low as compared to other. It is better known by
a) Competition exclusion b) Resource partition
c) Interference competition d) Competition release

211. Which one is the example of sexual parasite?
a) An male agler fish (*Photocorynus*) b) Male *Bonellia*
c) Male *Schistosoma* d) All of the above

212. An overwhelming majority …A… of animals and nearly all plants cannot maintain a constant internal environment. Their body temperature …B… with the ambient temperature. In aquatic animals, the osmotic concentration of the body fluids …C… with that of the ambient water osmotic concentration. These animals and plants are simply conformers
Choose the correct option for A , B and C
a) A-98%, B-Changes, C-Constant b) A-97%, B-Constant, C-Changes
c) A-96%, B-Changes, C-Constant d) A-99%, B-Changes, C-Changes

213. Good soil is that which
a) Holds whole of the water that enters into it b) Allows percolating the water slowly from it
c) Allows water to pass very quickly from it d) Allows limited amount of water to retain into it

214. Living in same habitat, organisms of same species of form
a) Biosphere b) Community c) Population d) niche

215. Which of the following factors increase, the size of a population?
a) Natality and immigration b) Natality and mortality
c) Mortality and immigration d) Natality and emigration

216. Population size is more technically called
a) Population density b) Demography
c) Population growth d) Population dynamics

217. If natality is represented by – B
If mortality is represented by – D
If immigration is represented by – I
If emigration is represented by – E
If population density is represented by – N
Then population density at time t+1 is represented by

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

218. How seals can survive in polar climate where the temperature prevails below 0°C?
a) They have long hairs on their body surface
b) They have thick layer of fat below their skin
c) Both (a) and (b)
d) They have genetic regulation for avoiding cold climate

219. Identify the basic levels of ecology
I. Organisms II. Populations
III. Communities IV. Biomes
V. Human VI. Vertebrates
Choose the correct option
a) I, II and III b) II, III and IV c) I, II, III and IV d) I, II, III and V

220. What is true about the isolated small tribal populations?
a) There is a decline in population as boys marry girls only from their own tribe
b) Hereditary diseases like colour blindness do not spread in the isolated population
c) Wrestlers who develop strong body muscle in their life time pass this this character on to their progency
d) There is no change in population size as they have a large gene pool

221. Reproductive isolation between segments of a single population is termed as
a) Sympatry b) Allopatry
c) Population divergence d) Disruptive divergence

222. Predators also help in …A… species diversity in a community, by …B… the intensity of competition among competing prey species. Here *A* and *B* can be
a) A-exceeding; B-increasing b) A-maintaining; B-reducing
c) A-reducing; B-maintaining d) A-maintaining; B-increasing

223. Humus is formed by
a) Partial degradation of organic matter
b) Complete degradation of organic matter
c) Complete degradation of inorganic matter
d) Partial degradation of organic matter

224. An indirect competition for shared resources such as a particular nutrient is called
a) Mutualism b) Exploitation c) Advantageous d) Symbiosis

225. Population size more technically called …A… (designated as N) need not necessarily to be measured in …B… only
Choose the correct option for A and B
a) A-population natality; B-numbers b) A-population mortality; B-numbers
c) A-population density; B-numbers d) A-population density; B-pyramid

226. Phenotypic variants formed in a population due to change in environment are called
a) Ecophenes b) Ecotypes c) Sciophytes d) Heliophytes

227. Certain characteristic demographic features of developing countries are
a) High fertility, low or rapidly falling mortality rate, rapid population growth and a very young age distribution
b) High fertility, high density, rapidly rising mortality rate and a very young age distribution
c) High infant mortality, low fertility, uneven population growth and a very young age distribution
d) High mortality, high density, uneven population growth and a very old age distribution

228. The permanent decrease in population number occurs due to
a) Migration b) Natality c) Emigration d) Mortality

229. Exotic species are also called

I. introduced species
II. alien species
III. non-indigenous species
IV. non-native species
Choose the correct combination
a) I, II and III b) II, III and IV c) I, III and IV d) I, II, III and IV

230. Keystone species deserve protection because these
a) Are capable of surviving in harsh environmental condition
b) Indicate presence of certain minerals in the soil
c) Have become rate due to over exploitation
d) Play an important role in supporting other species

231. There is more competition for survival between
a) Different animals of same niche b) Same animals of same niche
c) Different animals of different niche d) Same animals of different nche

232. Find odd one out, according to parasitism.
a) Lice b) *Plasmodium* c) Bedbug d) Mite

233. They are dominant plants of the cold desert
a) Shrub and small trees b) Low stature shrub and perennial grass
c) Tall trees and herbaceous plants d) Low stature shrub and herbaceous plants.

234. Study of environmental and animal relation is
a) Ecosystem b) Phytosociology c) Biotic community d) Ecology

235. Sunlight is available as a source of energy. The sunlight is very much important in
a) Chemosynthesis b) Photosynthesis
c) Heterotrophic mode of nutrition d) All of the above

236. Which of the following is correct
I. In a population, birth rate and death rate refer to per capita births and death respectively
II. In nature, we rarely find isolated single individuals of any species
III. The size of population for any species is stable phenomena
IV. Ecological effects of any factors on a population growth are generally reflected in its size/population density
a) I and II b) II and III c) I, II and III d) I, II and IV

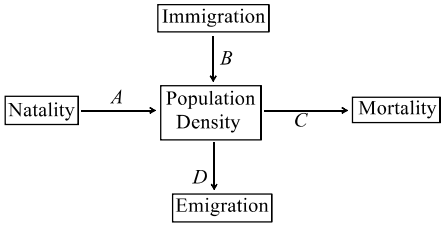
237. Organism which are restricted to low range of temperature are called
a) Eurythermals b) Stenothermals c) Amphithermals d) Coanothermals

238. Which one is incorrect regarding parasitism?
a) Parasite show special adaptation b) Ectoparasite show more complex life cycle
c) Endoparasite show more complex life cycle d) Koel is the example of brood parasite

239. The interaction of species with the environment is called as
a) Community b) Environment c) Ecosystem d) autecplogy

240. Diapause is stage of suspended development in lakes and ponds. Find out the season in which it occurs
a) Summer b) Winter c) Autumn d) Spring

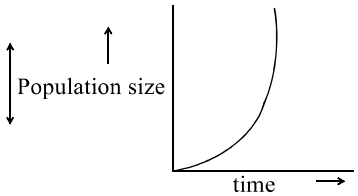
241. Study the figure and identify *A* and *B*



a) A-Increase, B-Decrease, C-Increase, D-Decrease
b) A-Decrease, B-Increase, C-Decrease, D-Increase

c) A-Increase, B-Increase, C-Decrease, D-Decrease
d) A-Decrease, B-Decrease, C-Increase, D-Increase

242. Below diagram indicates



a) Exponential growth curve
b) Logistic growth pattern
c) J-shaped curve
d) Both (a) and (c)

243. Examples of chemicals produced by plants as a defense against grazers and browsers
I. Nicotine
II. Caffeine
III. Quinine
IV. Strychnine
V. Opium
Choose the correct combination
a) I and II
b) I, II, III and IV
c) I, II and III
d) I, II, III, IV and V

244. Maximum survival and reproductive capacity shown by a population under optimal environmental conditions is called
a) Carrying capacity
b) Natality
c) Biotic potential
d) vitality

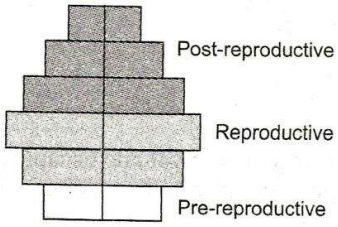
245. I. Birds
II. Family – Asteraceae
III. Polar bear
IV. Human
V. Lizards
VI. Amphibians
VII. Coconut
Identify stenothermals from the given examples
a) III, V, VI and VII
b) II, III, IV and VI
c) I, II, III and IV
d) VII, VI, V and I

246. Pseudo copulation occurs in
a) Maize
b) Ophrys
c) Mango
d) Papaya

247. The age of pyramid with broad base indicates
a) High percentage of young individuals
b) Low percentage of young individuals
c) High percentage of old individuals
d) Low percentage of old individuals

248. A high density of tiger population in an area can result in
a) Predation
b) Interspecific competition
c) Intraspecific competition
d) Proto cooperation

249. What type of human population is reprented by the following age pyramid?



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

250. Which horizon in soil profile is known as top soil?
a) O-horizon
b) A-horizon
c) B-horizon
d) C-horizon

251. $A \xrightarrow{\oplus}$ Population density (N) $\xleftarrow{\ominus} B$
If A increases the population density and B decreases then identify A and B

a) A-Natality; B-Mortality
b) A-Immigration; B-Emigration
c) Both (a) and (b)
d) A-Emigration; B-Immigration

252. I. Salmon II. Shark III. Sting ray
Which of them is/are stenohaline and euryhaline?

	Stenohaline	**Euryhaline**
a)	I, III	II
b)	I, II	III
c)	II, III	I
d)	I	II, III

253. Plants developing in dry condition are
a) Xerophytes b) Mesophytes c) Lithophytes d) Hydrophytes
254. Natality refers to the number of
a) Births during a given period
b) Death during a given period
c) Living individuals during a given period
d) Living individuals during their life span
255. I. Species level II. Population level
III. Individual level IV. Community level
Out of the levels given at a which level selection operates
a) I and II b) Only II c) III and IV d) Only IV
256. Association of animals belonging to different species, where both partners are benefitted, is called
a) Commensalism b) Mutualism c) Colony d) sympathy
257. In which condition the logistic and exponential growth of population have zero growth rate
a) When r is 0 b) When $b = d$ c) When $K = N$ d) All of these
258. Why no predator become proficient in acquiring prey?
a) Prey populations evolve antipredatory traits
b) Prey populations reproduce fastly
c) Predator populations reproduce fastly
d) Predators are to large to be fast enough
259. Hierarchy is
a) Categorisation of a group of living beings
b) Series of ordered groupings within system
c) Either (a) or (b)
d) None of the above
260. The percentage of soil volume occupied by pore space is called porosity of soil. It is minimum in
a) Sandy soil b) Clay soil c) Loamy soil d) silt
261. The inherent maximum capacity of an organism to reproduce or increase in number is called as
a) Biotic potential b) Ecosystem c) Population d) Ecology
262. The basic unit of study in ecology is
a) Population b) Organism c) Community d) species
263. Body compensates low oxygen availability at high altitudes by
I. increasing RBC
II. decreasing binding affinity of haemoglobin
III. increasing binding affinity of haemoglobin
IV. increasing breathing rate
V. decreasing breathing rate
Choose the correct option for given statement
a) I, II and III b) II, III and IV c) I, III and IV d) I, II and IV
264. The species of plants that play a vital role in controlling the relative abundance of other species in a community are called
a) Edge species b) Keystone species c) Pioneer species d) Seral species
265. If birth rate is 100, death rate is 10 and number of individuals in population group is 1000, then what will be the percentage of natural growth rate?
a) 0.09% b) 9.0% c) 0.9% d) 90%
266. A_0 layer is rich in

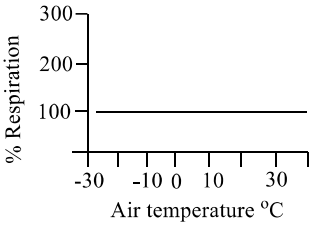
a) Minerals b) Humus c) Litter d) None of these

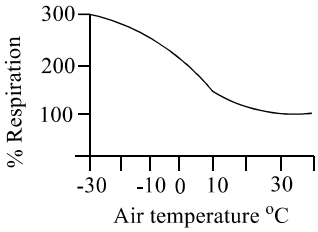
267. In most animals, the metabolic reactions proceed in a ...A... temperature range (in humans, it is 37°C). But there are microbes (archaebacteria) that flourish in hot springs and deep sea hydrothermal vents where temperature far exceed ...B...
Choose the correct option for A and B
a) A-narrow; B-100°C b) A-broad; B-100°C c) A-median; B-100°C d) A-broad; B-40°C

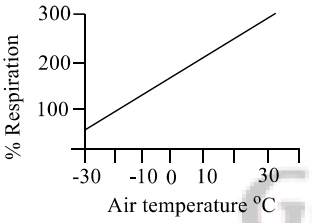
268. How many types of age pyramid are there?
a) Two types b) Three types c) Four types d) Five types

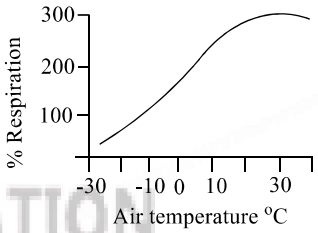
269. Competition occurs when
a) Closely related species compete for same resources
b) Unrelated species compete for same resources
c) Both (a) and (b)
d) Natural resources are unlimited

270. Which of the following graphs correctly depicts the rate of respiration of a non-hibernating mammal living in cold climate?

a)


b)


c)


d)


271. I. Some species of insects and frogs are critically coloured (camouflaged)
II. Some animals are poisonous
III. Monarch butterfly are distasteful
The above adaptations are against
a) Predation b) Mimicry c) Symbiosis d) Protection

272. Humus layer in soil composed of dead fresh organic matter called
a) Litter b) Duff c) Real humus d) Compost

273. I. Basking by desert lizards in sun
I. Hiding in burrow by some animals
II. Thermal gaping
Above are the examples of
a) Cursorial adaptation b) Behavioural adaptation
c) Fossorial adaptation d) Scansorial adaptation

274. I. Biochemical adaptation are seen in organisms living in great depth of the ocean to face crushing pressure
II. Allen's rule is explain mammals living in colder climates
III. Altitude sickness is caused because of body not getting enough oxygen due to low atmospheric pressure at high altitude
IV. Desert lizards lack behavioural means to manage to their body temperature
Choose the correct option for above adaptations
a) I, II and III b) I, II and IV c) II, III and IV d) I, III and IV

275. Lichens represents an intimate mutualistic relationship between

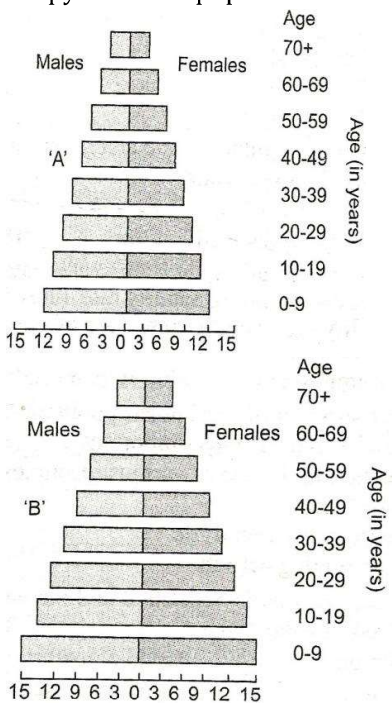
a) Fungus and bacteria
b) Fungus and photosynthetic algae
c) Fungus and archaebacteria
d) Fungus and plants

276. The science dealing with soil is
a) Edaphology b) Paedology c) Pedology d) All of these

277. Biological control methods adopted in agriculture pest control are based on the
a) Predator-prey interaction
b) Prey feeding habitat
c) Prey interaction with other predators
d) Predator-predator interaction

278. Exponential growth occurs when
a) There is only sexual reproduction
b) There is only asexual reproduction
c) There is a fixed carrying capacity
d) No inhibition from crowding

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

280. *Viscum album* grows on trees. This is an example of
a) symbiosis b) Parasitism c) Commensalism d) predation

281. *Trichonympha campanular* is the example of
a) Protocooperation b) Mutualism c) Commensalism d) All of these

282. 'Two closely related species competing for same resources cannot co-exist indefinately'. This law is also called
a) Gause's law
b) Competitive exclusion principle
c) Both (a) and (b)
d) Competition release principle

283. Chi-square test is
a) Calculated on percentage
b) Calculated on frequency
c) Both (a) and (b)
d) Calculated on original data

284. Which one of the following expressions is associated with a 'mangrove plant'?
a) Capable of absorbing water rapidly and retaining it
b) Capable of minimizing water loss and facilitating aeration to underground parts

c) Capable of reducing transpiration and able to store absorbed water
d) Presence of well organized leaves that are adapted to absorb nitrogenous matter

285. Epiphyte is an example of
a) Predation b) Competition c) Parasitism d) Commensalism

286. Barnacles growing on the back of whale is an example for
a) Mutualism b) Commensalism c) Parasitism d) Amensalism

287. How much percentage of animals on this earth are regulators?
a) 2% b) 3% c) 4% d) 1%

288. Plants of aquatic habitat is called
a) Hydrophytes b) Halophytes c) Mesophytes d) Megaphytes

289. Which of the following is an example of a defence used by plants against herbivores?
I. Production of caffeine, tannin quinine
II. More production of non-woody tissues
III. Productions of hairs, thorns, spines
IV. Production of hormone-like chemicals that interfere with insect metamorphosis
Select the correct pair
a) I and II b) II, III and IV c) I, II and III d) I, III and IV

290. Which type of age pyramid obtained when the population is growing?
a) Bell-shaped age pyramid b) Urn-shaped age pyramid
c) Triangular age pyramid d) Square-shaped pyramid

291. The formula of growth rate for population in a given time is
a) $dt/DN = rN$ b) $dt/rN = dN$ c) $rN/dN = dt$ d) $dN/dt = rN$

292. Genetically adapted population to a particular habitat is called
a) Ecotone b) Ecotype c) Biome d) Niche

293. Conformers are also called
a) Endotherms b) Ectotherms c) Both (a) or (b) d) Isotherms

294. The organism which tolerate wide range of salinity called ...A...
II. The organism which tolerate narrow range of salinity called ...B...
Choose the correct option for A and B
a) A–stenohaline; B–euryhaline b) A–euryhaline; B–stenohaline
c) A–isohaline; B–euryhaline d) A–heterohaline; B–isohaline

295. Hydrophytes are characterised by
a) Presence of sclerenchyma b) Presence of aerenchyma
c) Absence of aerenchyma d) Presence of root nodules

296. Interspecific interactions arise from the interaction of
a) Population of two different species b) Population of same species
c) Two individuals of same species d) Two individuals of different species

297. Gause's law is true only when
a) Resources are limited b) Resources are unlimited
c) Predator are limited d) Prey are unlimited

298. If natality rate is parallel to mortality rate then population
a) Slowly increases b) Remains stationary
c) Shows J-shaped curve d) Slowly decreases

299. Sex ratio is the
a) Ratio of females to males b) Ratio of males to females
c) Both (a) and (b) d) Ratio of infant girl to infant boy

300. Community is
I. Group of independent, interacting populations of same species
II. Group of independent and interacting populations of same species in specific area

III. Group of independent interacting populations of different species in a specific area
IV. Group of independent and interacting populations of different species in different area
Select the correct option
a) I, II and IV b) I, III and IV c) I, II and III d) Only III

301. r value for human population in 1981. In India was
a) 0.205 b) 0.0205 c) 0.00205 d) 2.05

302. Statements
I. Mutualistic relationship evolve when benefit of both species out weight the lost
II. Mutualism relationship evolve when benefits of both species under weight the lost
III. Human caused ecological balance by eradicating common parasite
IV. Human caused altering competition between species
Select the wrong pair from statements
a) I and III b) II and III c) I and IV d) II and IV

303. Biotic potential or potential natality means
a) Natural increase of population under ideal/optimum conditions
b) Potential of organism in a biome
c) Number of organisms in in a biome
d) Species of maximum number in a population

304. I. Many xerophytic plants have thick cuticle on leaf epidermis and sunken stomata
II. Some xerophytic plants have special photosynthetic pathway (CAM) that enables their stomata close during day
III. *Opuntia* has spines (modified leaves), photosynthetic phylloclade (stem)
IV. All adaptations are genetically fixed in all organisms
Choose the combinations of correct option
a) I, II, III and IV b) II, III, IV and V c) III, IV, V and I d) I, II, III and V

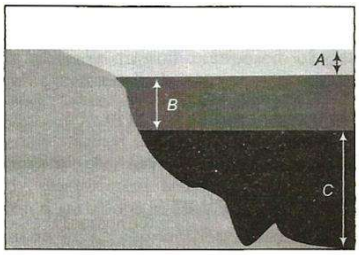
305. Formation of wide variety of habitats takes place by
a) Types of species inhibiting that area
b) Types of predation
c) Regional and local variation of environment conditions
d) All of the above

306. Population of any species is
a) A static phenomena b) A dynamic phenomena
c) Neither (a) nor (b) d) Both (a) and (b)

307. Smallest unit of ecology is
a) Organism b) Species c) Population d) Ecosystem

308. What is a keystone species?
a) A species which adds upto only a small proportion of the total biomass of a community, yet has a huge impact on the community's organization and survival.
b) A common species that has plenty of biomass, yet has a fairly low impact on the community's organization
c) A rare species that has minimal impact on the biomass and on other species in the community
d) A dominant species that constitutes a large proportion of the biomass and which affects many other species.

309. Identify A, B and C



a) A–Aphotic zone, B–Euphotic zone, C–Disphotic zone
b) A–Euphotic zone, B–Disphotic, C–Aphotic zone
c) A–Euphotic zone, B–Aphotic zone, C–Disphotic zone
d) A–Aphotic zone, B–Disphotic zone, C–Euphotic zone

310. Find out the correct ones
I. Mammals of colder climate generally have shorter ears and limbs to minimize heat loss
II. All organisms have behavioural adaptations that allow them to respond quickly to a stressful situation
III. Some organisms possess behavioural adaptations which allow them migrating temporarily to a less stressful situation
IV. Invertebrates and fishes live at great depths in the ocean have biochemical adaptation to cope with high pressure
a) I and II b) II and III c) I, III and IV d) I, II and IV

311. At high altitude we feels the sickness. The reason for sickness may be due to
a) Low atmospheric pressure b) High atmospheric pressure
c) High temperature d) Low temperature

312. What is probiosis?
a) Similar to antibiosis b) Similar to amensalism
c) Opposite to antibiosis d) Opposite to amensalism

313. A lake near a village suffered heavy mortality of fishes within a few days. Consider the following reasons for this
I. Lots of urea and phosphate fertilizers were used in the crops in the vicinity.
II. The area was sprayed with DDT by an aircraft.
III. The lake water turned green and stinky.
IV. Phytoplankton populations in the lake declined initially thereby greatly reducing photosynthesis.
Which two of the above were the main causes of fish mortality in the lake?
a) II and III b) III and IV c) I and III d) I and II

314. Logistic growth is represented by which equation
a) $\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)$ b) $\frac{dN}{dt} = rN\left(\frac{K-N}{N}\right)$ c) $\frac{dN}{dt} = rN\left(\frac{K+N}{K}\right)$ d) $\frac{dN}{dt} = rN\left(\frac{K}{K+N}\right)$

315. Desert lizards lack the …A… ability that mammals have to deal with the …B… temperatures of their habitat, but manage to keep their body temperature fairly constant by …C… means
Choose the correct option for A, B and C
a) A-morphological; B-high, C-behavioural b) A-physiological; B-high, C-behavioural
c) A-behavioural; B-high, C-physiological d) A-physiological; B-high, C-morphological

316. Plants growing in dry and saline soil are called
a) Xerophyte b) Hydrophyte c) Halophyte d) Heliophyte

317. Adaptation of parasite may be
I. loss of unnecessary organs
II. presence of adhesive organs
III. origin of suckers to cling to host
IV. loss of digestive system
V. high reproductive capacity

Choose the correct combination

a) I, III and IV b) II, IV and V c) I, IV and V d) I, II, III, IV and V

318. 5th June is celebrated as

a) Water day b) World environment day

c) Conservation day d) World earth day

319. Exponential growth in plants can be expressed as

a) $L_t = L_0 + rt$ b) $L_e = L_t rt$ c) $W_1 = W_0\, e^{rt}$ d) $W_1 = W_0 e\, rt$

320. Homeostasis is

a) Maintaining a constant internal environment

b) Maintaining a content internal environment

c) Both (a) and (b)

d) Maintaining circulation of blood

321. Ecology at the organism level is also called

a) Anatomical ecology b) Physiological ecology

c) Habitat ecology d) Niche ecology

322. Synecology is the study of relationship between

a) Group of various types of organism along with their environment

b) Individual species and its environment

c) Between biotic and abiotic factor

d) All of the above

323. Starfish pisaster is the important predator in intertidal communities of

a) American pacific coast b) Indian pacific coast

c) Middle pacific coast d) East Indian lakes

324. Under normal condition ...A... and ....B... are the most important factors influencing populations density ...C... and ...D... assuming importance only under special condition

Choose the correct option for A, B and C

a) A-mortality, B-natality, C-emigration, D-immigration

b) A-immigration, B-natality, C-emigration, D-mortality

c) A-emigration, B-natality, C-mortality, D-immigration

d) A-emigration, B-immigration, C-mortality, D-natality

325. If the strong partner is benefitted and the weak partner is damaged. It is known as

a) Predation b) Allelopathy c) Symbiosis d) Commensalism

326. Who stated that human population grows geometrically?

a) Malthus b) Darwin c) Cannon d) Lamarck

327. Attribute of the organisms (morphological, physiological and behavioural) that enables organism to survive and reproduce in its habitat is called

a) Phenotypic plasticity b) Adaptations c) Mimicry d) Surviving abilities

328. Altitude sickness occurs at high Mountains. This sickness have symptoms like

a) Nausea b) Fatigue c) Heart palpitations d) All of these

329. Heat loss or heat gain is a function of surface area. Since small animals have a ...A... relative to their volume, they tend to lose body heat very fast, when it is cold outside; then they have to expend ...B... to generate body heat through metabolism. This is the main reason why very small animals are ...C... found in polar regions

Choose the correct options for A, B and C

a) A-larger surface area, B-much larger, C-rarely

b) A-larger surface area, B-low energy, C-rarely

c) A-smaller, B-less energy, C-rarely

d) A-smaller, B-much energy, C-rarely

330. The organism which are present in tropical regions called

a) Mesotherms b) Megatherms c) Microthermas d) Hekistotherms

331. You never see any cattle or goat browsing on *Calotropis* due to
a) Its appearance b) Production of foul odour
c) Formation of cardiac glycosides d) Distastefulness of its leaves

332. The desert plants in order to tolerate water stress, show
a) Sunken stomata b) Reduced leaves
c) Well developed root system d) All of the above

333. The type of population, where pre-reproductive animals occur in large numbers, is
a) Declining b) Fluctuating c) Stable d) Growing

334. Pollinator mutualism are special interactions involving ...A..., which receive food or a place to lay eggs and ...B..., which receive pollen from other of their kind.
Choose of correct option for A and B
a) A-insects; B-plants b) A-plants; B-insects
c) A-prey; B-plants d) A-predators; B-plants

335. Competition is best defined as a process in which the fitness of one species (measured in terms of its '*r*' the intrinsic rate of increase) is significantly
a) Lower in presence of another superior species
b) Higher in presence of another superior species
c) Equal in presence of another superior species
d) Equal in presence of their own species

336. Which characteristics determine the percolation and water holding capacity of soils?
a) Soil composition b) Grain size c) Aggregation d) All of these

337. During the course of million of years of their existence most species should have evolved a relatively ...A... internal environment (within the body of organisms). This internal environment would permit all biochemical reactions and physiological functions to proceed with ...B... efficiency and therefore, increase the overall fitness of the species
The ability of an organism to keep the internal environment constant despite drastic changes in external conditions is called ...C...
Choose the correct option for A, B and C
a) A-constant, B-mineral, C-thermoregulation b) A-constant, B-maximal, C-homeostasis
c) A-variable, B-mineral, C-osmoregulation d) A-constant, B-versatile, C-homeostasis

338. To avoid the competive exclusion principle two similar species live in same area, they may evolve to become more different in order to
a) Reduce competition b) Increase competition
c) Use other species resources d) Drive the other species to extinction

339. Which one is right for logistic model for population growth?
I. Population growth rate increases as the size of population approaches the carrying capacity
II. All individual have same effect on population growth
III. There are unlimited natural resources
IV. As population increases the competition goes on increasing
Select the correct combination
a) I and II b) Only IV c) IV and III d) I and III

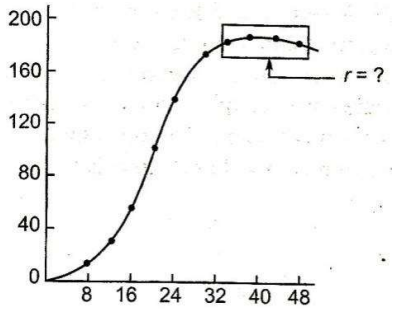
340. Choose the wrong statement
a) Natality and immigration increases the population density
b) Mortality and emigration decreases the population density
c) Adverse condition does not effect the population density
d) Food availability and predation pressure affect population density

341. Periodic departure and return of an individual in a population is known as
a) Immigration b) Migration c) Emigration d) Mutation

342. Which of the following supports a dense population of plankton and littoral vegetation?
a) Oligotrophic b) Eutrophic c) Lithotrophic d) Agroecotrophic

343. Reproductive value of an individual is greatest just before
a) First reproduction b) Death c) Birth d) Marriage

344. From the given graph of population growth select the correct option having correct value of 'r' and bar graph



a) $R = -ve \rightarrow$  b) $r = -ve \rightarrow$  c) $r = -ve \rightarrow$  d) $r = 0 \rightarrow$ 

345. Parasite lives on the other parasite called
a) Fittest parasite b) Parasite on parasite c) Hyperparasite d) Hypoparasite

346. In an area there are 200 *Parthenium* and is single banyan tree. Which of the conculsion (s) is/are correct?
I. Population density of banyan is low
II. Population cover area of banyan is high
III. In above cases the percentage of cover of biomass is more meaningful than population size
a) Only I b) I and II c) II and III d) All of these

347. Populations termed r-strategists
a) Have J-shaped growth curves b) Have type-III survivorship curve
c) Are usually pioneer species d) All of the above

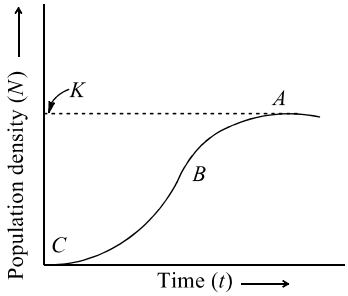
348. If the mean and the madian pertaining to a certain character of a population are of the same value, the following is most likely to occur
a) A normal distribution b) A bi-modal distribution
c) A T-shaped curve d) A skewed curve

349. Hibernation is
a) Winter sleep under ground b) Summer sleep under ground
c) Spring sleep under the water d) Winter sleep under the water

350. Environment factor (s) that characterize the habitat of ecosystem is/are
a) Abiotic components b) Biotic components c) Both (a) and (b) d) Temperature

351. Two species occupying same or overlapping area are called as
a) Sympatric b) Allopatric c) Parapatric d) Ring species

352. Given population growth curve represents the logistic growth curve. In this curve find out what does A, B and C indicates



a) A-Log phase, B-Log phase, C-Stationary phase

b) A-Log phase, B-Lag phase, C-Stationary phase
c) A-Stationary phase, B-Log phase, C-Lag phase
d) A-Stationary phase, B-Lag phase, C-Log phase

353. Positively photoblastic seeds germinate only in presence of
a) Soil b) Air c) Light d) All of these

354. UV radiation and IR radiation have the range of

	UV Radiation	**IR Radiation**
a)	More than 100 nm	Less than 400 nm
b)	Less than 400 nm	More than 700 nm
c)	Equal to 400 nm	Equal to 700 nm
d)	Less than 100 nm	More than 100 nm

355. Find out dN/dt, when carrying capacity is 400, population size is 300 and r is $= 0.01$
a) 0.01 b) 0.8 c) 0.75 d) 0.45

356. Predation is
a) A unnatural way of transferring of energy to higher trophic level
b) A natural way of transferring of energy to higher tropic level
c) Harmful to the natural balance
d) All of the above

357. In previous question $b - d$ represented by r, then $'r'$ may be called as
a) Intrinsic rate of natural increase b) Extrinsic rate of natural increase
c) Morphological rate of natural increase d) Phenotypical rate of natural increase

358. The organisms inhabiting a common environment belong to the same
a) Species b) Genus c) Population d) Community

359. NEERI is
a) National Ethological and Ecological Research Institute
b) National Eugenics and Ecological Research Institute
c) National Ecological and environment Research Institute
d) National Environmental Engineering Research Institute

360. Formation of major biomes such as desert, rainforest takes place by
a) Rotation of our planet around the sun b) Tilting of our planet to its axis
c) Both (a) and (b) d) Seasonal periodicity