ABHINAV ACADEMY

UDUPI

CET25B11 ORGANISMS AND POPULATIONS

Class 12 - Biology

Time Allowed: 1 hour and 30 minutes **Maximum Marks: 75**

1. Penicillin and streptomycin are responsible for: **[1]**

   a) Beneficial interactions
   b) Neutral interactions
   c) Negative interactions
   d) Positive interactions

2. Which of the following statements is false regarding predators? **[1]**

   a) Predators help in maintaining species diversity in a community.
   b) Predators keep prey population under control.
   c) Herbivores (predators) have a greater advantage since the plants cannot run away to avoid predation.
   d) If a predator is not efficient, then the prey population would become extinct.

3. In Competition, the superior competitor eliminates the inferior one, this statement is called: **[1]**

   a) Allen's rule
   b) Darwinian fitness
   c) Living ability
   d) Gause's principle

4. Association of animals when both partners are benefitted is called _____. **[1]**

   a) Commensalism
   b) Ammensalism
   c) Colony
   d) Mutualism

5. Orchid growing on a mango branch is example of: **[1]**

   a) Commensalism
   b) Competition
   c) Predation
   d) Mutualism

6. Select the statement which explains best parasitism. **[1]**

   a) One organism is benefited.
   b) One organism is benefited, other is affected
   c) Both the organisms are benefited
   d) One organism is benefited, other is not affected

7. In deep lakes, littoral, limnetic and profundal zones represent: **[1]**

   a) Community dynamism
   b) Community stability
   c) Community stratification
   d) Trophic organization

8. Cuscuta is an example of : **[1]**

   a) Competition
   b) Mutualism
   c) Commensalism
   d) Parasitism

9. Species can be identified on the basis of: **[1]**

a) Reproductive isolation
b) Species diversity
c) Demecology
d) Interbreeding

10. J-shaped growth curve is characteristic of **[1]**

a) yeast cells grown under lab conditions.
b) small population of reindeer experimentally reared in natural environment.
c) human beings.
d) primates.

11. In asymptote state, population is: **[1]**

a) Increasing
b) Changing
c) Stabilized
d) Decreasing

12. Which of the following could be most intense and strongest? **[1]**

a) interspecific competition
b) intraspecific competition
c) natural selection
d) intercommunity competition

13. Interaction between clown fish living among the stinging tentacles of sea anemone is an example of- **[1]**

a) Mutualism
b) Parasitism
c) Amensalism
d) Commensalism

14. Studies had revealed that human population growth curve is: **[1]**

a) S-shaped
b) F-shaped
c) J-shaped
d) U-shaped

15. A few normal seedlings of tomato were kept in a dark room. After a few days they were found to have become whitecoloured like albinos. Which of the following terms will you use to describe them? **[1]**

a) Etiolated
b) Embolised
c) Mutated
d) Defoliated

16. Age groups among human population includes all except **[1]**

a) Post-reproductive
b) Pre-reproductive
c) Embryonic phase group
d) Reproductive

17. Ratio between mortality and natality is called: **[1]**

a) Vital index
b) Density coefficient
c) Population ratio
d) Census ratio

18. Mycorrhiza is an association between: **[1]**

a) Leguminous roots and Rhizobium.
b) Algae and fungi.
c) Protozoan and algae.
d) Higher plant roots and Glomus.

19. The term Darwinian fitness among populations living together signifies: **[1]**

a) Carrying capacity
b) Population density
c) Reproductive fitness
d) Growth fitness

20. In a population, unrestricted reproductive capacity is called: **[1]**

a) Carrying capacity
b) Birth rate
c) Biotic potential
d) Fertility

21. A sedentary sea anemone gets attached to the shell lining of hermit crab. The association is : **[1]**

a) Symbiosis
b) Ectoparasitism
c) Commensalism
d) Amensalism

22. Lichens are association of: **[1]**

a) Alga and bacterium
b) Algae (Cyanobacteria) and fungus
c) Fungus and alga
d) Fungus and virus

23. Asymptote is a logistic growth curve is obtained when: **[1]**

a) k > N
b) k = N
c) k < N
d) Value of ' r ' approaches zero.

24. 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? **[1]**

a) The population of its predators increases enormously.
b) S-shaped or sigmoid growth of this insect.
c) The food plants mature and die at the end of the rainy season.
d) Its population growth curve is of J-type.

25. Which of the following is a ectoparasite? **[1]**

a) Lice on humans is an ectoparasite.
b) Mosquito
c) Cuckoo and crow
d) Mistletoe

26. Age of pyramid with broad base indicates: **[1]**

a) Low percentage of old individuals.
b) High percentage of young individuals.
c) High percentage of old individuals.
d) Low percentage of young individuals.

27. The principle of Competition-Exclusion was stated by: **[1]**

a) G. F. Gause
b) Verhulst and Pearl
c) C. Darwin
d) MacArthur

28. Exponential growth in plants can be expressed as: **[1]**

a) $W_1 = W_0$ ert
b) $W_1 = W_0 e^{rt}$
c) $Lt = L_0 + rt$
d) $Le = Lt^{rt}$

29. Which of the following is correctly matched? **[1]**

a. Stratification- Population
b. Aerenchyma - Opuntia
c. Age pyramid - Biome
d. Parthenium hysterophorus - Threat to biodiversity

a) Age pyramid - Biome
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30. If the stronger partner is benefitted and the weaker partner is harmed, it is known as: **[1]**

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

31. When the number of immigration and births is more than emigration and deaths. Growth curve of population will show: **[1]**

a) Steady phase
b) Declining phase
c) Exponential phase
d) Lag phase

32. $\frac{dN}{dt}rN$ equation is applicable to population growth. **[1]**

a) Logistic
b) Not related to population
c) Exponential
d) Both Exponential and Logistic

33. Eudynamys laying eggs in nest of crow indicates: **[1]**

a) Mutualism
b) Social parasitism
c) Ectoparasitism
d) Endoparasitism

34. N_2 - fixing bacteria in non-legume plants are: **[1]**

a) Rhizobia
b) Aspergillus
c) Frankia
d) Plasmodium

35. Natality is balanced by mortality. There will be: **[1]**

a) Overpopulation
b) Decrease in population growth
c) Increase in population growth
d) Zero population growth

36. Lichens represent symbiotic relationship between: **[1]**

a) Fungi and higher plants
b) Alga and fungi
c) Viruses and bacteria
d) Alga and bacteria

37. In which of the following interactions, both partners are adversely affected? **[1]**

a) Competition
b) Mutualism
c) Parasitism
d) Predation

38. Population growth curve is sigmoid, if the growth pattern is: **[1]**

a) Accretionary
b) Geometric
c) Exponential
d) Logistic

39. If + sign is assigned to beneficial interaction - sign to detrimental and **0** sign to neutral interaction., then the population interaction represented by + - refers to : **[1]**

a) Commensalism
b) Amensalism
c) Parasitism
d) Mutualism

40. One of the following pair of animals, is an example of commensalism: **[1]**

a) Golden jackal-Tiger
b) Sacculina-crab
c) Ascaris-man
d) Plasmodium-Anopheles

41. Mediterranean orchid Ophrysensures pollination by **[1]**

a) Brood parasitism
b) Sexual deceit and co-evolution
c) Co-evolution, sexual deceit and pseudo-copulation
d) Pseudocopulation only

42. Which of the following is not true for a species? **[1]**

a) Members of a species can interbreed.
b) Gene flow does not occur between the populations of a species.
c) Each species is reproductively isolated from other species.
d) Variations occur among members of a species.

43. Species-Area relationship is represented on a log scale as: **[1]**

a) linear
b) hyperbola
c) rectangular hyperbola
d) inverted

44. To avoid decline or death of bacterial cells in the culture we must: **[1]**

a) Renew the culture medium
b) Provide medicines into the medium
c) Change lab conditions
d) Obtain new bacterial cells with fresh inoculums

45. Population density of terrestrial organisms is measured in terms of individuals per: **[1]**

a) $Metre^5$
b) $Metre^3$
c) $Metre^2$
d) Metre

46. In fish Catla catla, the specific name is identical with the generic name. It is an example of: **[1]**

a) Synonym
b) Autonym
c) Homonym
d) Tautonym

47. One of the critical mechanisms by which environment controls the population of a species is: **[1]**

a) Fecundity
b) Environmental resistance
c) Biotic control
d) Mortality

48. The change in population size at a given time internal t, is given by the expression Nt = No + B + I - D - E, where I, B and D stand for: **[1]**

a) Emigration rate, natality rate, mortality rate
b) Immigrate rate, natality rate, mortality rate
c) Mortality rate, natality rate, immigration rate
d) Immigrate rate, mortality rate, natality rate

49. Abundance of a species population within its habitat is called: **[1]**

a) Regional density
b) Niche density

c) Relative density
d) Absolute density

50. In a growing population of a country: **[1]**

a) Pre-reproductive individuals are more than the reproductive individuals.
b) Reproductive and pre-reproductive individuals are equal in number.
c) Pre-reproductive individuals are less than the reproductive individuals.
d) Reproductive individuals are less than the post-reproductive individuals.

51. Study of ecology of population is called: **[1]**

a) Demecology
b) Autoecology
c) Ecotype
d) Synecology

52. If non-limiting conditions are provided, then which happens? **[1]**

a) Natality increases and mortality decreases.
b) Natality increases
c) Mortality decreases
d) Mortality increases

53. Examples that show commensalism are: **[1]**

i. An orchid growing on mango tree
ii. Cuckoo bird and crow
iii. Cuscuta growing on Nerium tree
iv. Barnacles growing on a whale

a) (ii) and (iii)
b) (i) and (iv)
c) (i) and (ii)
d) (ii) and (iv)

54. Human population follows: **[1]**

a) S-shaped growth curve
b) J-shaped growth curve
c) Z-shaped growth curve
d) All of these

55. A protozoan reproduces by binary fission. What will be the number of protozoans in its population after six generations? **[1]**

a) 64
b) 24
c) 128
d) 32

56. The population explosion has occurred in the last: **[1]**

a) 500 years
b) 250 years
c) 300 years
d) 100 years

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

a) 05
b) 10
c) 15
d) Zero

58. Phytophagous insects will be categorized as **[1]**

a) Parasites
b) Competitors
c) Vectors
d) Predators

59. World Population Day is on: **[1]**

a) 11th July
b) 5th June
c) 21st March
d) 4th October

60. An example of predation is **[1]**

a) Dog gives birth twice in a year
b) Cuckoo laying eggs in crow's nest
c) Biological control of pest population
d) Penicillium whose toxins kill bacteria

61. July 11 is observed as: **[1]**

a) World Environment Day
b) World Health Day
c) No Tobacco Day
d) World Population Day

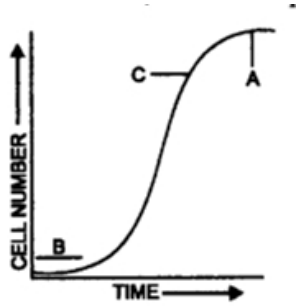
62. Sigmoid growth curve is represented by: **[1]**

a) $\frac{dN}{dt} = 1 - \frac{N}{K}$
b) Nt = No + B + I - D - E
c) $\frac{dN}{dt} = rN$
d) $\frac{dN}{dt} = rN(1 - \frac{N}{K})$

63. Two opposite forces operate in the growth and development of a population, one of these is ability to reproduce at a given rate. The force opposite to it is called **[1]**

a) Biotic potential
b) Mortality
c) Environmental resistance
d) Fecundity

64. Given below is a graph drawn on the parameters of growth versus time. A, B and C respectively represent. **[1]**



a) Steady state phase, lag phase and log phase.
b) Slow growing phase, lag phase and steady state phase.
c) Exponential phase, lag phase and steady state phase.
d) Lag phase, steady state phase and log phase.

65. Annual migration does not occur in: **[1]**

a) Arc tern
b) Salmon
c) Siberian crane
d) Salamander

66. The root-fungus association is: **[1]**

a) Rhizobia
b) Coleorhiza
c) Mycorrhiza
d) Rhizomorphs

67. Species facing competition might evolve a mechanism that promotes co-existence rather than exclusion and that mechanism can be: **[1]**

a) Resource partitioning
b) Competitive release

c) Intraspecific competition
d) Interspecific competition

68. N_2-fixing bacteria in legume plants are: **[1]**

a) Frankia
b) Rhizobia
c) Azotobacter
d) Coleorhiza

69. Antagonistic interactions will include: **[1]**

a) Neutralism
b) Symbiosis
c) Predation and parasitism
d) Commensalism

70. Exponential growth pattern in a population result into: **[1]**

a) Sigmoid curve
b) J-shaped curve
c) L-shaped curve
d) U-shaped curve

71. The formula of growth rate for population in given time is: **[1]**

a) $\frac{dt}{rN} = dN$
b) $\frac{rN}{dN} = dt$
c) $\frac{dt}{dN} = rN$
d) $\frac{dN}{dt} = rN$

72. If vital index is >100 then the population will **[1]**

a) decrease showing negative growth
b) remain static showing zero growth
c) decrease showing positive growth
d) increase showing positive growth

73. In India, human population has higher number of younger age group due to: **[1]**

a) Short life span and low birth rate
b) Long life span and low birth rate
c) Birth rate is equal to death rate
d) Short life span and high birth rate

74. Population ecology makes link with: **[1]**

a) Population genetics and evolution
b) Only population genetics
c) Evolution and origin of life
d) Population genetics and inheritance

75. In 2005, for each of the 14 million people present in a country, 0.028 were born and 0.008 died during the year. Using exponential equation, the number of people present in 2015 is predicted as: **[1]**

a) 18 millions
b) 25 millions
c) 17 millions
d) 20 millions