

BIOLOGY GRADE - 12

Unit – 1

- In which of the following groups of organisms are all the members unicellular?
A. Algae B. Fungi C. Bacteria D. Viruses
- If an HIV patient takes a drug that inhibits the function of the viral reverse transcriptase enzyme, which of the following processes would be primarily affected?
A. Energy of the virus into the patient's cells C. Copying if RNA into DNA
B. Copying if DNA into RNA D. Protein synthesis
- Some countries demand foreign travelers to produce HIV-free certificate before letting them enter the country. What do we call this type of disease control mechanism?
A. Legislative B. Physical C. Cultural D. Biological
- Which one of the following statements is **correct** about HIV?
A. It is a bacteriophage C. It is a DNA virus
B. It is a retrovirus D. It infects plants and animals alike
- Identify from the following a biological control method of malaria?
A. Use of fishes to feed on mosquito larvae
B. Use of DDT spraying to kill mosquitoes
C. Using crop rotation system in farms
D. Hand picking and physical removal of weeds and affected plants
- Identify the disease that is not correctly paired with the substance whose deficiency causes the disease?
A. Beriberi –Nicotinic acid C. Night blindness – Vitamin A
B. Scurvy – Vitamin C D. Rickets- Vitamin D
- With which type of agricultural crops is nitrogen fixing bacteria more associated?
A. Legumes B. Cereals C. Vegetables D. Fruits
- Which of the following cellular structures is NOT found in gram-positive bacteria?
A. Outer membrane B. Plasma membrane C. Periplasmic space D. Peptidoglycan
- Of the following, which cell type is attacked by HIV
A. Red blood cell B. Sperm cell C. Egg cell D. T-helper cell
- If one regulation includes an orange in his daily diet, which deficiency disease would be avoided?
A. Night blindness B. Pellagra C. Beriberi D. Scurvy
- Which of the following diseases of the livestock is associated with tsetse flies?
A. Rinderpest B. Trypanosomiasis C. Blackleg D. Anthrax
- What is the cause of infectious diseases?
A. The parental C. Carcinogenic substances
B. Microorganisms D. Bad lifestyles
- Choose the alternative that illustrates the medical application of biotechnology?
A. Bio- fuel production C. Biosensors for testing blood glucose level
B. DNA finger printing technology D. Protein production from single cells
- Among the following human diseases, identify the one that is transmitted through a vector?
A. Leprosy B. Chancroid C. Gonorrhoea D. Leishmaniasis
- A number of viruses, including HIV, have more than one strain. This shows that viruses are?
A. Capable of living outside their hosts C. Capable of mutation
B. Capable of reproduction D. Obligate parasites

16. Which of the following are rod-shaped bacteria?
A. Cocci B. Spirochaetes C. Spirilla D. Bacilli
17. What are bacteriophages?
A. Bacteria B. Viruses C. Protozoa D. Fungi
18. Which one of the following is the major killer of AIDS patients?
A. Pneumonia C. Anemia
B. Opportunistic infection D. malnutrition
19. Among the following infectious human diseases, identify the one that is caused by a virus?
A. Yellow fever B. Pneumonia C. Cholera D. Typhoid fever
20. Which of the following is the right vector to transfer alien genes to bacteria through genetic engineering?
A. Plasmids B. Snails C. Mosquitoes D. Bactria
21. Why are T-lymphocytes more vulnerable to HIV infection?
A. Thin cell membrane C. HIV receptor protein
B. gp 120 on their surface D. Large pores in their cell membrane
22. Which of the following statements is **true** about bacteria?
A. Bacteria found in the human body are all parasitic
B. All bacteria are harmful because they spoil foods
C. All bacteria cause diseases to plants, animals and human in some way
D. Some bacteria living in the human body make vitamins needed by the body
23. Which one of the following is the mode of reproduction in bacteria?
A. Mitosis B. Binary fission C. Conjugation D. Lysogenization
24. If AIDS patients are given anti-retroviral drugs that are targeted against the protease enzyme, which one of the following stages of the HIV life cycle would be inhibited?
A. Entry into the host cell C. Integration of viral parts into a whole virus
B. Reverse transcription D. Their enzymes do not denture at the temperature
25. Choose the disease that is caused by what is known as the “droplet infection”?
A. Flu B. AIDS C. Cholera D. Malaria
26. Which of the following is the best collective name for all bacteria with spherical shapes?
A. Cocci B. Bacilli C. spirochaetes D. Streptococci
27. In which part of the cell do Gram-positive and Gram-negative bacteria differ regarding their staining property with gram’s stain?
A. Cytoplasm B. Cell membrane C. Cell wall D. Nucleus
28. To which of the following groups does HIV belong?
A. Plasmids B. Retroviruses C. DNA viruses D. Bacteriophages
29. What are the individual strands of a fungal mycelium called?
A. Fungus B. Spores C. Hyphae D. Hydra
30. What is the main mode of transmission of diseases such as cholera and typhoid fever?
A. Sexual intercourse C. Blood-to-blood contact.
B. Bites of animal vectors. D. Drinking contaminated water
31. Viruses are better characterized as:
A. Decomposers Producers C. Carnivores D. Parasites
32. Which one of the following steps in the life cycle of HIV is blocked if an antiretroviral drug that inhibits the reverse transcription enzyme is given to an AIDS patient?
A. Formation of DNA from RNA

- B. The entry of HIV into CD4 cells
 - C. The assembly of parts into HIV particle
 - D. The integration of HIV DNA into host chromosome
33. What are the most frequent causative agents of food poisoning?
- A. Bacteria B. Protozoa C. Viruses D. Worms
34. Which of the following human diseases can be prevented by taking proper diets?
- A. Degenerative diseases C. Social diseases
 - B. Genetic diseases D. Deficiency diseases
35. Which of the following practices does **NOT** normally transmit HIV?
- A. Sexual intercourse through anus C. Blood transfusion
 - B. Sharing injection needles D. Shaking hands
36. What is the important role played by microorganisms such as bacteria and fungi in the ecosystem?
- A. Antibiotic production C. Forming organic substance
 - B. Recycling of nutrients D. Supplying energy to the ecosystem
37. To which of the following groups do those bacteriophages that integrate their DNA into the chromosome of their bacterial host belong?
- A. Virulent viruses C. Lysogenic viruses
 - B. Lytic viruses D. Non-parasitic viruses
38. Which group of micro-organisms causes the disease known as athlete's foot?
- A. Bacteria B. Fungi C. Protozoa D. Viruses
39. Under which of the following groups can the fungi be more conveniently placed?
- A. Autotrophs B. Heterotrophs C. Prokaryotes D. Plants
40. What is the advantage of using HAART (highly active anti-retroviral therapy) for the treatment of HIV?
- A. It gives a lasting immunity to HIV. C. It prevents re-infection by HIV.
 - B. It prevents mutation of HIV. D. It helps to break the life cycle of HIV.
41. On which one of the following principles are most of the anti-HIV drugs currently in use working?
- A. Inhibition of enzyme action C. Digesting of viral particles
 - B. Degradation of viral particles D. Phagocytosis of the virus
42. If a new anti-HIV drug is to be developed to prevent the virus from entering the host cell, which one of the following processes should the drug target?
- A. Reverse transcription C. Assembly of viral parts into a whole viral
 - B. Binding of GP 120 and CD4 D. Integration of viral DNA into host DNA
43. Which of the following groups of bacteria consists of rod shaped cells?
- A. Gram-positive B. Bacilli C. Cocci D. Spirilla
44. Which of the following do viruses share with cells?
- A. Cell wall B. Cytoplasm C. Nucleic acid D. Protoplasm
45. Which of the following is true about protozoa?
- A. They are a group of bacteria C. They represent both plant and animals
 - B. They are one-celled plants D. They are unicellular animals
46. Choose the characteristics that viruses share with living things.
- A. They are made up of many specialized cells C. They contain chlorophyll
 - B. They contain genetic material D. They reproduce by mitosis
47. Which stage in the life cycle of HIV is inhibited by the antiretroviral drug known as integrase-inhibitor?
- A. Conversion of viral RNA to DNA

- B. Replication of the viral genome
 - C. Insertion of the viral genome into host genome
 - D. Release of the viral progeny from the cell
48. From which organism is the first antibiotic used in medicine produced?
- A. Gram negative bacteria
 - B. Members of the fungi
 - C. Genetically modified protozoa
 - D. Higher plants
49. What does the absence of chloroplasts in a unicellular organism indicate?
- A. Reproduction by sexual means
 - B. Autotrophic nutrition
 - C. Heterotrophic nutrition
 - D. Complete lack of metabolic processes
50. . Which colour do gram positive bacteria stain with Gram stain?
- A. Red
 - B. Purple
 - C. Pink
 - D. White
51. Among the following organisms, which one belongs to the prokaryotes?
- A. Paramacium
 - B. Streptococcus
 - C. Spirogyra
 - D. Tapeworm
52. Which of the following features makes human T-lymphocyte cells more vulnerable to HIV attack?
- Presence of ;
- A. Cell membrane
 - B. CD₄ on the membrane surface
 - C. DNA on the chromosome
 - D. Pores in the cell membrane
53. Which of the following group of micro-organisms does not contain parasitic membrane?
- A. Bacteria
 - B. Algae
 - C. Fungi
 - D. Protozoa.
54. Which one of the following shows the feeding method of decomposers
- A. Saprobiotic nutrition
 - B. Autotrophic nutrition
 - C. Parasitic nutrition
 - D. Intracellular digestion
55. The T- lymphocyte cells of AIDS are destroyed by
- A. multiplication of HIV inside the cell
 - B. the immune system of host organism itself
 - C. infection of opportunistic organisms
 - D. the CD4 receptors on cell surface
56. Which stage in the life cycle of HIV is disrupted if AIDS patients are treated with adrug that has a protease inhibiting activity?
- A. Entry of virus into the host
 - B. Integration of viral DNA into host DNA
 - C. Conversion of viral RNA TO DNA
 - D. Assembly of viral parts into whole virus
57. Which of the following is a routine method used by clinics to test people for HIV infection?
- A. Microscopic examination for the virus
 - B. Testing for human anti-HIV antibody
 - C. Counting the number of white blood cells
 - D. Measuring the amount of hemoglobin
58. One of the following is true about bacteriophages that have lysogenic life cycle
- A. They are RNA viruses
 - B. They multiply in the host immediately after infection
 - C. They integrate their nucleic acid in to that of the host
 - D. Progeny viruses are released by chronic release method
59. . Which of the following disease is correctly matched with its causative agent?
- A. Malaria - fungus
 - B. AIDS - virus
 - C. Ringworm - protozoa
 - D. Syphilis - worm
60. Which step in the HIV life cycle is disrupted by an anti-retroviral drug that competitively inhibits the reverse transcriptase enzyme?
- A. Entry in the host cell
 - B. Formation of DNA from RNA
 - C. Assembly of viral parts in to virus
 - D. Integration of viral DNA in to host DNA
61. In what way would AIDS patients benefit from treatment with anti-retroviral drugs?
- A. Reduction of HIV replication
 - C. Provision of cure for AIDS

- B. Immunizing against HIV D. Killing of opportunistic infectious agents
62. Which of the following is the best collective name for all bacteria with spherical shapes?
A. Spirochaetes B. Bacilli C. Cocci D. Streptococci
63. Which of the following diseases is transmitted by mosquitoes?
A. Diabetes melitus B. Kaposi's cancer C. Rabies D. Malaria
64. Which micro-organism group belongs to the unicellular fungi?
A. Mushrooms B. Bacteria C. Cyanobacteria D. Yeasts
65. Among the following micro-organism which one is a fungus?
A. Plasmodium B. Yeast C. Paramecium D. Amoeba
66. Which of the following is the common characteristic of all microorganisms?
A. All are microscopic C. All are prokaryotic
B. All are bacteriophilic D. All are autotrophic
67. Which one of the following do viruses share with living organisms?
A. Nucleus covered with a membrane C. Organelles such as ribosome
B. Hereditary information D. Plasma membrane
68. What is the shape of group of bacteria known as bacilli?
A. Spiral B. Rod C. Spherical D. Cork-screw
69. Among the following, which group of micro-organisms is playing the major role in the recycling of nitrogen in ecosystem?
A. Fungi B. Protozoan C. Green algae D. Bacteria
70. Among the following microorganism, which one is NOT considered a true living organism?
A. Bread molds B. Bacteria C. Viruses D. Yeast
71. The type of bacteria found in long chains of spherical organisms is _____.
A. staphylococcus B. coccus C. bacillus D. streptococcus
72. Bacteria are prokaryotes, meaning that _____.
A. they have ribosomes
B. their internal organization is similar to that of our own cells
C. their DNA is stored within a membrane-bound nucleus
D. they have only the cell membrane to carry out complex processes
73. From which of the following diseases can one be protected by sleeping under the cover of a mosquito net?
A. Sleeping sickness B. AIDS C. Malaria D. Athlete's foot
74. Which of the following has the highest risk of HIV transmission?
A. Hand shaking B. needle sharing C. towel sharing D. toilet sharing
75. Which of the following human cell types is attacked by HIV?
A. RBCs B. WBCs C. T-lymphocytes D. leukocytes
76. Which of the following group of viruses copy their RNA to DNA?
A. Bacteriophage B. DNA viruses C. RNA viruses D. Retroviruses
77. In which of the following do we use genetically modified bacteria for purposes other than human health?
A. Production of insulin C. production of herbicides
B. Production of antibiotics D. production of vaccines
78. What is the name of a major group of eukaryotic organisms that obtain their nutrition using extracellular digestion?
A. Viruses B. Fungi C. Bacteria D. Algae

79. In what main ways do retroviruses such as HIV differ from other types of RNA viruses?
- They require a host cell to reproduce
 - They have genes resistant to mutation
 - They reversely copy RNA to DNA
 - They are free living viruses
80. Which of the following is usually taken as a signal for the final stage of HIV infection?
- Outbreak of some genetic diseases
 - Uninfected T-helper cells present
 - No infection by other parasitic diseases
 - Signs of the disease Kaposi's sarcoma
81. Which of the following is essential in order for a virus to replicate?
- The capsid must enter the host cell cytoplasm.
 - The genome must be released into the cytoplasm
 - The host cell must be undergoing mitosis
 - The host cell must lack cell membrane
82. Which of the following is NOT an industrial use of bacteria?
- Food processing
 - Genetic engineering
 - Recycling of minerals through the ecosystem.
 - Waste water treatment
83. Which of the following is responsible for rapid evolution in RNA viruses?
- High stability of its RNA
 - Reverse transcription of its RNA
 - High mutation rate of its RNA
 - Accurate replication of its RNA
84. Retroviruses are able to reverse transcribe RNA to DNA in order to:
- Command the host cell in the production of genomes similar to that of the hosts.
 - Replicate without any interruption
 - Control the formation of viral protein and DNA that can be assembled into virus particle
 - Control the formation of viral protein and RNA that can be assembled into virus particle
85. What is the nutritional mode of those bacteria which decompose dead organic matter and thus recycle nutrients?
- Parasitic
 - Saprobiotic
 - Autotrophic
 - Symbiotic
86. The best way to control HIV/AIDS is:
- Adequate distribution of condoms
 - Adequate distribution of antiviral drugs
 - Breaking the transmission pathway
 - Awareness creation
87. In which organ of the human body are more bacteria found?
- Lungs
 - Stomach
 - Large intestine
 - Small intestine
88. From which group of microorganisms was the first antibiotic produced?
- Gram-negative bacteria
 - Gram-positive bacteria
 - Viral agents
 - Fungal organism
89. In what way does an antiretroviral drug help AIDS patients? It
- Stop the multiplication of HIV
 - Kills opportunistic infectious agents
 - Stimulates multiplication of T-helper cells
 - Provide immunity
90. Which one of the following human diseases is NOT correctly matched with its mode of transmission?
- Malaria – vector
 - Cholera – contaminated water
 - Sleeping sickness – physical contact
 - Influenza – droplet infection
91. Which clinical test is routinely performed to diagnose patients for AIDS?
- Culturing opportunistic infectious agent
 - Serological test for anti-HIV antibody
 - Culturing the virus on special medium
 - Determining hemoglobin amount
92. What is the main method of transmission of botulism?
- Direct contact
 - Droplet infection
 - Eating contaminated food
 - Drinking contaminated water
93. From which groups of microorganisms was the first antibiotic produced?

- A. Members of viruses
 - B. Members of the fungi
 - C. Gram-negative bacteria
 - D. Gram-positive bacteria
94. What is a capsid?
- A. The genetic material of a virus
 - B. The DNA of a virus
 - C. The RNA of a virus
 - D. the protein shell of a virus
95. The active sludge method of Sewage treatment is based on the principle of
- A. Decomposition and removal of organic matter
 - B. Removal of polluting organic matter through filtration
 - C. Denitrification
 - D. Anaerobic respiration
96. When is reverse transcriptase a useful enzyme? When
- A. Nutrients are scarce
 - B. There are no host cells presents
 - C. Spikes are forming in the new virus
 - D. an RNA viruses converts its RNA to DNA
97. In what way do rertoviruses different from the other RNA viruses?
- A. Their genetic material is RNA
 - B. They are parasitic
 - C. They copy RNA to DNA
 - D. they are smaller to size
98. Which of the following is a correct statement about the difference between a bacterium and a virus?
- A. DNA is present in the former, but absent in the latter
 - B. The former is cellular, but the latter is acellular
 - C. Protein is absent in the former, but present in the latter
 - D. The former cause malaria, but the latter cause cholera
99. Which of the following statement is NOT correct?
- A. Employers may not dismiss an employee because their HIV status
 - B. HIV positive people are forced by law to disclose their HIV status
 - C. There is no medication that can reduce your chances of contracting HIV
 - D. Mothers can give their babies HIV by means of breastfeeding
100. Which one of the following happens during integration of viruses in host cells?
- A. The virus takes over the host cell machinery
 - B. The virus attaches to a host cell receptor
 - C. the viral DNA enters the host cell
 - D. the viral DNA is inserted into the host DNA

Biology Grade - 12

Unit – 2

1. What is the appropriate term that collectively refers to the fungi and bacteria that change the dead organic matter to the small elemental units?
A. Producers B. Carnivores C. Autotrophs D. Decomposers
2. Which one of the following terms is used to refer to the maximum number of individuals that a given environment can support over a long period of time without degradation of the environmental resources?
A. Limiting factor B. Carrying capacity C. Climax community D. Density
3. Which biome of the world is characterized by less than 250mm of annual rainfall and plants called ephemerals?
A. Desert B. Deciduous forests C. Coniferous forests D. Tropical rain forests
4. To which of the following global biomes would you classify the upper part of the bale mountains environment?
A. Desert biome B. Deciduous forest biome C. Alpine biome D. Savanna biome
5. Which one of the following is true about a population whose size is maintained at the carrying capacity of its environment?
A. It grows at its biotic potential
B. Its growth rate eventually declines
C. It overshoots the environmental resistance
D. It maintains a dynamic equilibrium with the environment
6. Which one of the following is the starting point of primary succession?
A. Abandoned farm land C. Forests cleared by humans
B. Forests destroyed by fire D. Land never been colonized before by life
7. Which mammalian pest has economic importance in Ethiopia?
A. Quelea B. Beetles C. Rodents D. Desert locust
8. Which of the following sources of energy is renewable?
A. Mineral coal C. Bio-fuel such as ethanol
B. Petroleum D. Natural gases such as methane
9. Which group of two words means the same in meaning?
A. Autotroph and producer C. Autotroph and carnivore
B. Autotroph and consumer D. heterotrophs and producer
10. In which biome of the world are epiphytes and lianas commonly found?
A. Savanna B. Desert C. Tundra D. Tropical rain forest
11. The name given to the pioneer plants that begin primary succession on very dry substratum like bare rock, sand or cooled volcanic lava is:
A. Hydrophytes B. Mesophytes C. Halophytes D. Xerophytes
12. In which biome of the world are ephemerals and succulents more common?
A. Savanna B. Desert C. Deciduous forest D. Temperate grassland
13. In order for a population to grow at its biotic potential, which one of the following should be available?
A. Strong environmental resistance C. Maximum density independent effect
B. Maximum density dependent effect D. Unlimited supply of resources
14. One of the following is **true** about mutualistic interaction between two species?

- A. One species benefits and the second harmed C. Both species benefit
 B. One species benefits and the second remains unaffected D. Both species are harmed
15. In which aspect of biodiversity are such measures like richness abundance and taxonomic diversity in populations commonly applied?
 A. Ecosystem diversity B. Cultural diversity C. Genetic diversity D. Species diversity
16. Which of the following terms is synonymous with a producer?
 A. Omnivore B. Herbivore C. Carnivore D. Autotroph
17. Which of the following plant groups is a good pioneer colonizer in primary successions that start with bare rocks?
 A. Mosses B. Lichens C. Liverworts D. Weeds
18. Which of the following methods of avoiding predation by animals is mimicry
 A. Resembling another organism C. Producing warning colouration
 B. Fighting away the energy D. Running away from the energy
19. In an ecosystem, the presence of which of the following groups is essential in order for the others to be present?
 A. Autotrophs B. Herbivores C. Decomposers D. Omnivores
20. What is a biome?
 A. A group of interacting individuals of the same species
 B. The total life zone of the earth's surface
 C. A group of populations that interact with the physical environment
 D. A region of the earth characterized by distinctive life forms
21. What does the feeding relationship in the ecosystem consists of?
 A. Many stages of community succession
 B. Always a network of interconnected food chains
 C. One organism feeds on another but itself eaten by another one
 D. Recycling of solar energy between the source and the trophic levels
22. Which one of the following belongs to the category of heterotrophic organisms?
 A. Algae B. Fungi C. Higher plants D. Mosses
23. Which of the following is a mismatch between a biome and what it contains?
 A. Savanna – large herbivores C. Desert – cacti
 B. Deciduous forest – evergreen trees D. Tropical rainforest – high biodiversity
24. In an ecosystem that consists of grasses, birds, grasshoppers and frogs, Which of the following food chain is possible?
 A. Grass → frog → grasshopper → birds
 B. Grass → grasshopper → frog → birds
 C. Grass → birds → grasshopper → frog
 D. Birds → frog → grasshopper → Grass
25. If a forest is protected in order to conserve wild coffee in the forest, what sort of conservation do we call this?
 A. In situ conservation B. Ex situ conservation D. On farm conservation D. Cryopreservation
26. Which of the following makes a food web of an ecosystem different from a food chain?
 A. Presence of many tropic levels
 B. Clear sign of the cycling of materials
 C. Presence of many interconnected food chains

- D. Presence of many organisms through which energy passes
27. How do plants contribute to the carbon cycle?
- A. When they respire, they release CO_2 into the atmosphere
 - B. When they photosynthesize, they consume CO_2 from the atmosphere
 - C. They do not contribute to the carbon cycle
 - D. Only A and B are answers
28. The carbon dioxide produced during the respiratory cycle and other processes is largely absorbed by which of the following?
- A. The ozone layer
 - B. Plants
 - C. Animals
 - D. The sky
29. Which one of the following has a unidirectional flow in an ecosystem?
- A. Nitrogen
 - B. Carbon dioxide
 - C. Phosphorus
 - D. Energy
30. Which term better capture the concept of variety of organisms present in a whole continent as well as all the genes found in them?
- A. Niche
 - B. Biodiversity
 - C. Ecosystem
 - D. Biome
31. All other factors remaining the same, which of the following decreases the size of a population?
- A. Birth rate that is greater than death rate
 - B. Emigration rate that is less than immigration rate
 - C. Immigration rate that is greater than death rate
 - D. Emigration rate that is greater than death rate
32. Which of the following is expected to have a positive effect on the biodiversity of Ethiopia?
- A. Diverse ecology
 - B. Extensive deforestation
 - C. Overgrazing by livestock
 - D. Logging and fuel wood removal
33. Which one of the following terms is most appropriate to collectively refer to all plants, animals and micro-organisms found in Muneas Forest in Ethiopia?
- A. Ecology
 - B. Ecosystem
 - C. Population
 - D. Community
34. What is biomass?
- A. The number of species in a given biome
 - B. The total weight of living matter in a given area
 - C. The density of a species in a given area
 - D. The total energy found in plants and animals in an ecosystem
35. In a given ecosystem, member of which one of the following feeding groups release nutrients that are locked up in organic molecules?
- A. Herbivores
 - B. Producers
 - C. Carnivores
 - D. Decomposers
36. What is the collective name for plants that are well adapted to live in very dry environments?
- A. Epiphytes
 - B. Xerophytes
 - C. Mesophytes
 - D. Hydrophytes
37. In which of the following biomes are epiphytes typically present as characteristic elements?
- A. Tundra
 - B. Boreal forest
 - C. Cold desert
 - D. Tropical rainforest
38. Which of the following is more likely to ensure the conservation of all the rest?
- A. Soil conservation
 - B. Plant conservation
 - C. Wildlife conservation
 - D. Watershed conservation
39. How do animals obtain nitrogen?
- A. By absorbing nitrates and ammonia from the soil
 - B. From the proteins in the organisms they consume
 - C. By absorbing nitrogen gas from the atmosphere

- D. Through a mutualistic relationship with nitrogen-fixing bacteria
40. How is it possible for different species to coexist in an ecosystem?
- Each species has a specific biome of its own
 - Each species occupies a different niche within the ecosystem
 - There is no competition for resources among species in an ecosystem
 - All resources are equally shared among species in an ecosystem
41. What is the best term that refers to the maximum number of individuals that a given environment can support over a long period of time without degradation
- Density
 - Climax community
 - Carrying capacity
 - Limiting factor
42. In Ethiopia, Which of the following groups of the vertebrates is the most diverse in terms of species number?
- Birds
 - Mammals
 - Reptiles
 - Amphibians
43. Which of the following land biomes occupies a large part of Brazil, parts of equatorial West Africa and Southeast Asia?
- Acacia forest
 - Deciduous temperate forest
 - Coniferous forest
 - Tropical rainforest
44. Which of the following is a threat to the survival of small population?
- Habitat destruction
 - Breeding in captivity
 - Disease resistance
 - Absence of competition
45. Which one is a biotic factor that can influence a plant?
- The PH of the soil
 - A pollinating animal
 - CO₂ concentration
 - The amount of radiant energy
46. Which of the following is **NOT** recycled between organisms and the environment in an ecosystem?
- Energy
 - Carbon
 - Nitrogen
 - Phosphorus
47. What is the term refers to all parts of the earth where living things are found?
- Population
 - Ecosystem
 - Biosphere.
 - Environment
48. Which one of the following is **NOT** one of the roles that microorganisms play in ecosystems?
- Nutrient recycling
 - Carbon fixation
 - Nitrogen fixation
 - Energy recycling
49. Which one of the following demographic factors affects the number of human population globally?
- Natality
 - Migration
 - Emigration
 - Immigration
50. Which one of the following is the main source of the greenhouse gases that are concentrating in the atmosphere of the earth?
- Burning of fossil fuels.
 - Photosynthesis by aquatic plants.
 - Plants growing in greenhouses
 - Respiration by animals and plants.
51. Which group of organisms found in Ethiopia is represented by the highest number of endemic taxa?
- Mammals
 - Amphibians
 - Birds
 - Plant
52. When do populations of living organisms show exponential growth?
- When the resources are plentiful.
 - Whenever they enter a new environment.
 - When they face strong competition from other species.
 - When the carrying capacity of the environment is reached.
53. Which of the following terrestrial biomes experiences hot days and cold nights?
- Tundra
 - Tropical rainforest
 - Desert
 - Grasslands

54. Which of the following statements is true about the nitrogen cycle?
- Plants fix nitrates from atmospheric nitrogen.
 - The nitrogen used by animals largely comes from plants.
 - Nitrogen is consumed by bacteria and removed from the soil.
 - Nitrogen-fixing bacteria reduce the total amount of available nitrogen
55. What is the average projected rate of loss of biodiversity every 50 years?
- 5%
 - 10%
 - 20%
 - 50%
56. What could be main reason behind the currently observed slow or stable rate of population growth in the industrialized countries?
- Good family planning
 - Increasing death rate
 - Poor health conditions
 - High rate of child death
57. Which alternative contains only crops known to have been domesticated within Ethiopia?
- Guizotia abyssinica, zea mays, pisum sativum
 - Vicia faba, Carica papaya Musa paradisiacal
 - Oriza sativa, Triticum aestivum solanum tuberosum
 - Coffea arabica Eragrostis tef, Ensete ventricosulum
58. Which stage in a primary ecological succession contains more biodiversity?
- The third seral stage
 - The climax community
 - the second seral stage
 - the pioneer community
59. The tropical rainforest largely found in South America and Africa can be best characterized by a combination of which environmental features?
- Low rainfall and low temperature
 - Low rainfall and High temperature
 - High rainfall and High temperature
 - High rainfall and low temperature
60. Which of the following terms mean stages in an ecological succession?
- Pioneers
 - Climaxes
 - Seres
 - Niches
61. Which factors are involved in the determination of climax vegetation?
- Temperature and precipitation
 - Radiation and reflection
 - Grazing and browsing animals
 - Predators and preys
62. How do human beings increase biodiversity?
- By reducing species richness
 - By promoting habitat uniformity
 - By increasing genetic variability
 - By narrowing ecological variability
63. Which of the following can be given as a good reason for finding large numbers of plant and mammals species in Ethiopia today?
- Lack of ecological distribution
 - Presence of many biomes and habitats
 - Environmental free from predation
 - Good ecological and biodiversity management
64. Which component of soil fertility is improved when farmers grow legumes in crop rotation?
- Phosphorus
 - Nitrogen
 - Sulfur
 - Carbon
65. One of the following biomes in Africa is supporting large wild mammals such as elephants, giraffes and lions.
- The Congo Rainforest
 - The Savanna Grassland
 - The Rain Forest of western Ethiopia
 - The Sahara Desert
66. In which of the following aspects is the tropical rainforest biome poor?
- Species diversity
 - Amount of sunlight
 - Annual precipitation
 - soil fertility
67. Which of the following is **NOT** usually true as an ecological succession progresses to advanced seral stages?

- A. More ecological niches are formed C. Species become more diverse.
 B. The depth of the soil increases. D. Less population is supported.
68. In which one of the four phases of population growth is the number of the population the highest?
 A. Lag phase B. Log phase C. Constant phase D. decline phase
69. What is the type of community called when it has reached has final and most complex stage of a succession?
 A. Pioneer community B. Climax community C. Seral community D. Secondary community
70. Which of the following is an ecosystem?
 A. A tropical rainforest C. The African continent
 B. All the organisms in a given area D. The non-living components of an environment
71. What is the main reason for the high species richness of plants and mammals observed in Ethiopia?
 A. Lack of predatory C. Presence of several biomes within the country
 B. Lack of disturbance D. Efficient management of the ecological resources
72. In which of the following are flowers and fruits found?
 A. Ferns and relatives B. Gymnosperms and ferns C. Mosses and conifers D. Monocots and dicots
73. Which one of the following concepts contains all the others?
 A. Species B. Genus C. Population D. Community
74. If the age pyramid of a certain country is narrowing at the base, what does this tell about the trend of the population size of the country? The population size is:
 A. Declining B. Growing fast. C. Increasing slowly. D. Stablising
75. Which of the following parts of plant roots is harbouring nitrogen fixing bacteria?
 A. Root nodule B. Root hair C. Root tip D. Root cap
76. Which of the following statements is true about matter and energy in the ecosystem?
 A. Both matter and energy are recycled C. Matter is not recycled; energy is recycled
 B. Matter is recycled; energy is not recycled D. Energy is recycled more than matter does
77. Which of the following forms of nitrogen is readily utilizable by green plants?
 A. Atmospheric nitrogen B. Nitrite C. Ammonium ion D. Nitrate
78. What is the ultimate source of energy for all organisms living on the earth?
 A. Water B. Nitrogen C. Oxygen D. The sun
79. In Which one of the following ways the Tundra biome differs from desert biome?
 A. It is treeless biome C. It has little biodiversity
 B. It receives little precipitation D. It has permanently frozen subsoil
80. Which of the following applies to the tropical rainforest?
 A. Low rainfall and high temperature C. Low rainfall and low temperature
 B. High rainfall and high temperature D. High rainfall and low temperature
81. Which of the following resources is needed by an ecosystem from outside in order to sustain itself?
 A. Producers B. Micronutrients C. Stomach D. Large intestinal
82. Among the following which one has little or no contribution to the loss of biodiversity?
 A. Overgrazing by domestic animals C. Clearing forests to grow crops
 B. Growing crops of improved varieties D. Growing crops of landraces
83. Which of the following can create strong inter-specific competition if shared by two or more species?
 A. Habitat B. Ecosystem C. Niche D. Predator
84. Suppose sites A, B, C and D have simpson's Index of Diversity (d) values of 20, 8, 16 and 3, respectively, which site is dominated by one or just a few species?

99. Which of the following industries can reduce more CO₂ emission by shifting to the use of enzymes in the manufacturing process?
- A. Bread making B. Cheese making C. Leather making D. Manufacturing cosmetics
100. What are the possible consequences of deforestation of the tropical rainforest?
- A. An increase in existing ecological niches B. Reduction in species diversity of an area
B. Increased removal of CO₂ from the atmosphere D. An increase in the amount of nitrogen in the soil
101. If an area is dominated by just one species having very many individuals, what would be its index of diversity?
- A. Fluctuating B. High C. Low . D Unpredictable
102. Which of the following terms refers to the movement of individual out of a population?
- A. Mortality B. Immigration C. Emigration D. Natality
103. Among the vertebrates found in Ethiopia, which class has the highest percentage of endemic species?
- A. Amphibians B. Reptiles C. Birds D. Mammals
104. Which of the following processes involved in the water cycle is carried out by green plants.
- A. Evaporation B. Precipitation C. Condensation D. Transpiration
105. In which biome are epiphytes typically present as a characteristic element?
- A. Tropical montane forest C. The tundra enviroment
B. Cold deseret woodlands D. Boreal deciduous forests
106. If a country has a larger number of young people relative to the number of old people , to which category of counties does it belong?
- A. Industrial B. Hunter - gatherer C. Post-industrial D. Developing
107. Which of the following is an important way by which green plants mitigate the greenhouse effect
- A. Use of fire ood to replace coal C. Removing CO₂ from the atmosphere
B. Releasing water to the atmosphere D. Releasing oxygen to the atmosphere
108. In Ethiopia animals diversity , which group is represented by the highest number of orders, families, genera and species
- A. Birds B. Amphibians C. Fish D. Mammals
109. Why is it that many grassland areas sometimes revert to woodlands or forests?
- A. Low rainfall B. Abscence of grazing C. Cold weather D. Intensive
110. Which of the following ecosystems is highly dominated by a single species?
- A. Maize field B. A grazing land C. A forest D. A lake.
111. Which of the following terms best describes the kind of ecological successions that occurs on an abandoned agricultural field?
- A. Primary succession C. Pioneer succession C. Ecological evolution D. Secondary succession
112. What is the important role of bacteria in the ecosystem?
- A. They cause human disease C. They cause animal diseases
B. They recycle nutrients D. They are used in industry
113. Where would the carbon from a burning forest primarily go to?
- A. Atmosphere B. Herbivores C. Vegetation D. Water
114. In a biological succession, which of the following plant types usually form the climax community?
- A. Lichens B. Mosses C. Annual herbs D. Trees
115. Among the following factors, which one is becoming the greatest threat to the biodiversity on earth?
- A. Carbon emission B. Wildfire C. Pathogens D. Human activities
116. What do we call the place where organisms live in their ecosystem?

1. Abiotic B. Biotic C. Habitat D. Niche
117. Which of the following is NOT recycled in the ecosystem?
A. Sulphur B. energy C. carbon D. phosphorus
118. Which of the following is a type of ecological succession that starts from a cleared forest area?
A. hydrosere B. primary C. secondary D. pioneer
119. Which of the following is the major role played by bacteria and fungi in the ecosystem?
A. Causing diseases B. nutrient cycle C. fixing CO₂ D. producing antibiotics
120. Among the following, which one is held most responsible for the present fast depletion of the world biodiversity?
A. Herbivores B. carnivores C. Grazers D. humans
121. Which of the following demographic factors can increase the size of the world population?
A. Natality B. migration C. emigration D. immigration
122. Which of the following processes is most important to release nutrients from dead organic matter into the soil?
A. Fixation B. decomposition C. excretion D. respiration
123. Which of the following biomes supports the highest diversity of plant and animal life?
A. Tropical rainforest B. deciduous forest C. grassland D. African savannah
124. Biomes where trees predominate are called _____.
A. Polar biomes B. desert biomes C. forest biomes D. grassland biomes
125. The goals of biodiversity conservation includes all of the following EXCEPT
A. Protective individual species
B. Introducing exotic species into new environments
C. Preserving habitats and ecosystem
D. Making sure local people benefits from conservation efforts
126. The maximum growth rate characteristic of a species is called _____.
A. Limiting factor B. Biotic potential C. carrying capacity D. exponential growth pattern
127. The total amount of living tissue within a given tropic level in called
A. Organic mass B. energy mass C. tropic mass D. biomass
128. What mode of feeding do soil organisms that release nutrients from dead organic matter into the soil have?
A. Photoautotrophic B. saprophytic C. chemoautotrophic D. parasitic
129. Which group of bacteria reduces nitrate to nitrogen gas in the nitrogen cycle?
A. Nitrogen fixing bacteria C. denitrifying bacteria
B. Ammonium ion forming bacteria D. photosynthetic bacteria
130. When farmers are using fewer and fewer number of crop varieties, what would happen to the genetic diversity of a crop plants?
A. It would get eroded C. it would be more divers
B. It would be more conserved D. nothing would happen to it
131. Which part of Ethiopia are lions, elephants and giraffes found more commonly?
A. In the afroalpine and subafroalpine zone
B. In the highland areas of northern Ethiopia
C. In the grassland of southwestern Ethiopia
D. In central and northern parts of the rift valley
132. The main of factors that determines the type of terrestrial biomes in a certain geographical area are:
A. Soil and vegetation formation C. complexity if ecological succession

- B. Soil and biological diversity D. precipitation and temperature
133. Which of the following is the most unlikely action that would be expected from Ethiopians who have been given adequate biological literacy?
- A. Engagement in activities resulting in biodiversity loss
B. Supporting activities concerned with food security
C. Awareness about climate change and its problem
D. Engagement in biological resource conservation
134. Which one of the following group of organisms had higher species diversity during the past geologic times than at present?
- A. Angiosperms B. Insects C. Birds D. Cytoplasmic streaming
135. The concentration of which of the following gases is on the increase in the atmosphere in recent years than before?
- A. Carbon dioxide B. Oxygen C. Nitrogen D. Ozone
136. What kind of nutrition do most of the decomposers have in general?
- A. Autotrophic nutrition B. Chemosynthetic nutrition C. Endosymbiont nutrition D. Saprobiont nutritio
137. In the energy pyramid, which group of organisms has the least amount of energy?
- A. Tertiary producers B. primary producers C. herbivores D. Animals
138. The amount of organic matter present at a given time per unit area is called:
- A. Carbon sequestration B. Carbon foot print C. standing crop D. productivity
139. The practice of modern agriculture that reduces crop biodiversity is:
- A. Overgrazing C. growing few high yielding varieties
B. Forest clearing D. growing landraces
140. Why do micro organisms decompose dead organic matters?
- A. To drive energy for their own use B. to release mineral nutrients for the plants
B. To clean up the ecosystem D. to keep the balance of atmospheric gases
141. Which of the following is NOT true about the flow of energy in the ecosystem?
- A. It passes from one trophic level to the next C. it leaves the ecosystem in the form of heat
B. It enters the ecosystem in the form of light D. it is recycled by decomposers
142. Through which of the following processes do all living organisms contribute to carbon cycle?
- A. Cellular respiration B. photosynthesis C. decomposition D. combustion
143. In ecological context, which of the following is a population?
- A. All living organisms in a habitat C. all the producers in a habitat
B. All individuals of same species in a habitat D. all the consumer in a habitat
144. Which of the following is NOT in situ conservation of biodiversity?
- A. Biosphere reserves B. Sanctuary C. botanical garden D. National parks
145. Which of the following represents the population growth curve of a species with limited resources?
- A. Competitive exclusion B. exponential C. lognormal D. logistic
146. Carbon cycle is important in nature because:
- A. The amount of energy before and after a reaction must be the same
B. It consumes oxygen and nitrogen in the atmosphere
C. It is used in energy capture and recapture
D. It continuously reused and recycles carbon in the ecosystem.
147. How quickly a population would increase or decrease in size is probably least influenced by the presence of:
- A. Adequate supply of oxygen C. severe inter-specific competition

- B. Carnivores and herbivores D. disproportionate human races
148. What major consequence does primary ecological succession involve normally?
 A. Number of species present decrease C. complexity of food webs increase
 B. Abiotic factors becomes less favourable D. habitats become harsher and deteriorated
149. What does a low value for Simpson's index of diversity normally indicate to the researcher?
 A. An area dominated by one or just a few species
 B. An area with high number of endemic species
 C. A biodiversity hotspot with abundant species
 D. An area with plants but no species of animals
150. A country with high youth population but a low old age population and low infant population shows:
 A. A population with wide base and narrow bases C. an inverted pyramids
 B. A population pyramid with bulge in the middle D. a pyramids assuming a rectangular shape
151. Suppose the age pyramid of a population has a broad base with a narrow top, which of the following is NOT true about the population?
 A. It is fast growing C. it has high life expectancy
 B. It is dominated by young people D. it has a high birth rate
152. Which of the following term especially refers to an ecological succession that starts in an aquatic environment?
 A. Hydrosere B. primary succession C. xerosere D. secondary succession
153. Of the following activities which one is considered to have an indirect negative effect on biodiversity?
 A. Charcoal making and illegal logging C. monoculture farming with improved crop varieties
 B. Deforestation for cultivation & urbanization D. human and livestock population growth
154. Current human concerns such as famine, pestilence, and environmental degradation would be solved through the use of
 A. Terracing B. irrigation C. aquaculture D. biological principle
155. What is the other name for the primary consumer of the ecosystem?
 A. Carnivores B. Herbivores C. Green plants D. predators
156. The following are Simpson's Index of species diversity calculated for four areas containing the same types of species, which index value is from the area dominated relatively by a few number of species?
 A. 8.0 B. 6.0 C. 3.5 D. 2.5
157. What is another name for secondary consumer?
 A. Producer B. Herbivore C. Carnivore D. decomposer
158. Both photosynthesis and respiration are involved in:
 A. Nitrogen cycle B. Phosphorus cycle C. Water cycle D. Carbon cycle
159. Which of the following statements best describes the role of bacteria in the nitrogen cycle? Bacteria turn:
 A. Oxygen into nitrogen for plants to use
 B. Nitrogen into a usable form for the plant use called ammonia
 C. Nitrogen into a usable form in a process called transpiration
 D. Carbon dioxide into oxygen during the process of photosynthesis
160. Which one of the following terms best describes the number of different species in the biosphere or in a particular area?
 A. Biodiversity B. Genetic diversity C. Ecosystem diversity D. Species diversity
170. Which of the following pairs of processes add CO₂ to the atmosphere?
 A. Combustion and respiration C. respiration and photosynthesis

- B. Photosynthesis and fossilization D. decomposition and combustion
171. Which bacteria genus fixes nitrogen in the nodule of legumes plant?
 A. Agrobacterium B. Escherichia C. Rhizobium D. Azobacter
172. Which of the following agricultural practice does not have a genetic effect on biodiversity?
 A. Use of pesticide C. Growing improved variety
 B. Use of insecticide D. Growing landraces
173. What is the general name of crop plants that add nitrogen to the soil because of their symbiotic association with certain types of bacteria?
 A. Nodules B. Legumes C. Cereals D. Herbs
174. The most abundant inorganic molecule in the atmosphere that traps heat is:
 A. H_2S B. O_2 C. H_2O D. CO_2
175. If you were to travel from the Arctic Circle to Equator, what sequence of biomes would you most likely pass through?
 A. Tundra, temperate forest, taiga, tropical rain forest
 B. taiga, tundra, temperate forest, tropical rain forest
 C. Tundra, taiga, temperate forest, tropical rain forest
 D. tropical rain forest, temperate forest, taiga, Tundra
176. The fact that Ethiopia is a general center of biological diversity which of the following diversity is expressed?
 A. The many mountain, valleys, rivers and scenic beauty.
 B. High number of endemic wild and domestic plant species
 C. Wide range of altitude and climate
 D. The number of different biomes in the country
177. Under ideal condition and unlimited resources, continuous population growth pattern is known as:
 A. Density dependent growth C. Exponential growth
 B. Logistic growth D. population distribution growth
178. Occurrence of endemic species in Ethiopia is due to:
 A. The fact that these species have been extinct from other regions
 B. Continental separation
 C. The fact that there is no terrestrial route to these places
 D. Retrogressive evolution
179. As an ecological succession passes from a lower to a higher seral stage, which of the following will NOT happen?
 A. The community gets more complex C. Species get more diverse
 B. Ecological niches increase D. Soil nutrient is depleted
180. What is the population growth phase of the current world population?
 A. Exponential phase B. Lag phase C. Decline phase D. Static phase
181. What is the biome of the world where succulent plants are commonly found?
 A. Hot desert B. Thorn forest C. Deciduous forest D. Temperate grasslands
182. The following statements are correct regarding ecological succession EXCEPT:
 A. Ecological succession is a random process.
 B. The food chain relationship becomes more complex
 C. The role of decomposers becomes more & more complex
 D. Species diversity increase as succession proceeds

Biology Grade - 12

Unit – 3

- Which type of chromosome mutation causes the human genetic defect known as trisomy 16?
A. Duplication B. Translocation C. Deletion D. Chromosome insertion
- What is the function of DNA polymerase?
A. It hydrolyse the DNA molecule C. It convert the DNA molecules to RNA
B. It forms DNA by joining nucleotides D. It joins two RNA molecules to form DNA
- Which of the following is commonly called the code of life?
A. Cell B. Organelle C. Nucleus D. DNA
- Which of the following chromosomal errors creates a cell with an exact chromosome?
A. Non-disjunction B. Inversion C. Deletion D. duplication
- Which of the following carcinogenic agents is a common cause of skin cancer in humans?
A. Ultraviolet radiation B. DNA viruses C. RNA viruses D. Chemical mutagens
- For what purpose do molecular biologists use the technology known as polymerase chain reaction or PCR?
A. To insert DNA into plasmids? C. To insert plasmids into bacteria
B. To multiply copies of DNA molecule D. To produce DNA from RNA
- Which of the following techniques is more appropriate to produce genetically modified organism?
A. Sexual hybridization C. Artificial insemination
B. Genetic engineering D. vegetative propagation
- What is the name of the process of synthesizing mRNA along a DNA template?
A. Transformation B. Transcription C. Translation D. Translocation
- If a cell having $2n = 40$ chromosomes divides mitotically, how many chromosomes are expected each daughter cell?
A. 10 B. 20 C. 40 D. 80
- During which stage of meiosis do members of homologous pairs of chromosomes separate?
A. Prophase I B. Anaphase I C. Metaphase II D. Anaphase II
- The DNA of a certain organism has guanine as 30 percent of its bases. What percentage of its bases would be counted for by adenine?
A. 10% B. 20% C. 30% D. 60%
- Scientists successfully transferred and inserted a bacterial gene to rice plants and produced the “Golden rice”, a transgenic rice with very high content of vitamin A the grain. Which research technique did they apply in this process?
A. Normal breeding C. Protoplast fusion
B. Grafting bacteria to rice D. Genetic engineering
- In order to produce progeny that are genetically identical to their parents as well as to each other, which of the following methods is appropriate for breeders to use?
A. Hybridization B. Inbreeding C. Artificial insemination D. Cloning
- Suppose in a population at Hardy-Weinberg equilibrium the frequencies of allele A = 0.5, and allele a = 0.5, what are the percentages of genotypes AA, Aa and aa, respectively?
A. 36%, 16%, 48% C. 25%, 50%, 25%
B. 16%, 36%, 48% D. 36%, 48%, 16%
- How many codons are there in the genetic code?

- A. 4 B. 16 C. 64 D. 256
16. In humans' what are the chances that the body at birth would be a boy or a girl?
A. 1:1 B. 1:2 C. 1:3 D. 3:1
17. The strand that is complementary to the DNA sequence give as TAACCG:
A. AUUGGC C. TAAGCG
B. ATTGGC D. GCCAAT
18. What are GMOs?
A. Processed foods B. Transgenic organisms C. Recombinant DNA D. General marine organisms
19. In a DNA strand of 3000 bases, 40% of the molecules are known to belong to guanine. Base. How many adenine base molecules are present in the same DNA strand?
A. 120 B. 300 C. 600 D. 1200
20. How many sperm cells are formed from 10 primary spermatocytes?
A. 10 B. 20 C. 40 D. 80
21. Which of the following hereditary phenomena was not discovered by Mendel
A. Linkage of genes C. Segregation of genes
B. Dominance of genes D. Independent assortment of genes
22. On which of the following evolutionary ideas do Lamarck and Darwin fully agree?
A. Life is a result of natural processes C. Acquired characteristics are inherited
B. Natural selection leads to evolution D. Evolution occurs by the use-and disuse of body parts
23. Which biotechnological process has practical applications in criminal investigation?
A. Bio- fuel production C. DNA finger printing
B. Single cell protein technology D. Using the following to test blood glucose level
24. Choose the cells of the human body that are results of meiosis?
A. Bone cells B. Brain cells C. Egg cells D. Muscle cells
25. Among the following traits of the garden pea studied by Gregor Mendel, identify the one that did not express itself in the F₁ generation?
A. Yellow pod colour C. Round seed shape
B. Violet flower colour D. Axial flower position
26. In the cell cycle, which of the following phases is divided into G₂ stages?
A. Interphase B. Prophase C. Metaphase D. Telophase
27. Which of the following does not happen during the cleavage of a zygote?
A. The cells double their contents before division C. The nucleus divides mitotically
B. The ratio of the size of the nucleus to the cytoplasm increase D. Growth occurs
28. Suppose a lady has given birth to four boys in a row. What is the chance that her next child will be a girl?
A. 100% B. 75% C. 50% D. 25%
29. Which of the following mechanisms can separate two genes located on the chromosome?
A. Backcrossing B. Crossing C. Segregation D. Independent assortment
30. How do the two strands of DNA combine to form a molecule?
A. A best of one strand pairs with a complementary base of the other strand
B. The phosphate of one strand combines with the phosphate of the other strand
C. The sugar of one strand combines with the complementary sugar of the other strand
D. A ribose sugar combines with a deoxyribose sugar on the same DNA strand
31. What are the three components of a DNA molecule?
A. Glucose, nitrogen and phosphorus C. Sugar, phosphate group, nitrogenous base

- B. Protein, carbohydrate and fat with base D. Monosaccharide, disaccharide, polysaccharide
32. Of the following information, which one was most important to the development of the techniques of modern genetic engineering
- A. The knowledge about recessive characters C. The discovery of lethal genes
B. The formulation of Punnett squares D. The knowledge about the structure of the DNA molecule
33. Which of the following molecules is capable of mutation?
- A. Nucleic acids B. Proteins C. Carbohydrates D. Lipids
34. Maize plant has $2n = 20$ chromosomes. What is the number of chromosomes in the endosperm tissue of maize?
- A. 10 B. 20 C. 30 D. 40
35. Suppose a lost found baby is claimed by the four families whose blood genotypes are shown. If the baby has blood type O, which of the families is the possible parent?
- A. AO and BB B. AA and OO C. AO and BO D. AB and OO
36. For what objective do geneticists engineer the Bt gene of bacillus thuringiensis into crop plants? To make the plant
- A. Resistant to insect pests C. Resistant to herbicides
B. Resistant to pesticides D. Produce food of improved quality
37. Which of the following alternatives best defines gene flow?
- A. The transmission of genetic information from one population to another
B. The movement of genetic material from the nucleus to the cytoplasm
C. The transmission of genetic information from the cytoplasm to the nucleus
D. The movement of genes from one chromosome to another
38. Regarding seed characteristics, suppose a heterozygous round yellow pea plant of Rr Yy genotype is selfed and produced 128 seeds, how many of the seeds are expected to be round yellow?
- A. 72 B. 64 C. 32 D. 16
39. How many daughter cells are produced from a single mitosis division?
- A. Two B. Four C. Six D. Eight
40. Which one of the following refers to a change in a gene?
- A. Mutation B. Replication C. Protein synthesis D. Transcription
41. Which of the following molecules requires a template molecule for its synthesis?
- A. Cellulose B. Protein C. Starch D. Glycogen
42. In the life cycle of sexually reproduction organisms, which of the following processes restores the chromosome number from haploid to diploid state?
- A. Fertilization B. Meiosis C. Chromosomes replication D. mitosis
43. Which of the following structures divides the cytoplasm of a plant cell into two halves?
- A. Nuclear membrane B. Cell plate C. spindle D. Cleavage furrow
44. In plant hybridization experiment which one of the following is the best way to prevent self-pollination?
- A. To remove the stamens C. To cross-pollinate flowers
B. To cover flowers with bags D. To make reciprocal crosses
45. Among the following choices, identify the ones that have identical DNA fingerprints?
- A. Parents and children C. Fraternal twins
B. Non-twin sibs D. Monozygotic twins
46. Suppose in a monohybrid cross 80F₂ plants were produced, what is the number of the plants that are expected to have the dominant and the recessive phenotypes?

- A. 70 dominant + 10 recessive C. 50 dominant + 30 recessive
 B. 60 dominant + 20 recessive D. 40 dominant + 40 recessive
47. Which of the following contains phosphate group in its molecule?
 A. Nucleotide B. Protein C. Cellulose D. Simple sugar
48. Choose the breeding method used by humans to produce new and improved varieties of plants and animals?
 A. Crossing-over B. Natural selection C. Artificial selection D. Independent assortment
49. If it is known that the total amount of DNA in a cell contains 300 nucleotides and adenine contributes to 80 of these, how many nucleotides go to guanine?
 A. 35 B. 70 C. 80 D. 140
50. What proportion of the number of chromosomes found in a normal cell of an angiosperm plant is expected in its endosperm tissue?
 A. Half B. Same C. Two times D. Three times
51. Which one is the correct direction of transfer of genetic information in most living things?
 A. Protein $\rightarrow$ DNA $\rightarrow$ mRNA
 B. DNA $\rightarrow$ Protein $\rightarrow$ tRNA
 C. Protein $\rightarrow$ RNA $\rightarrow$ DNA
 D. DNA $\rightarrow$ RNA $\rightarrow$ Protein
52. Which one of the following types of mutations is responsible for sickle cell anaemia?
 A. Addition of a base pair C. Substitution of a base pair
 B. Deletion of a base pair D. A shift in the reading frame of the genetic code
53. Which of the following phases of mitosis if blocked would produce a cell with twice as many chromosomes as the mother cell?
 A. Interphase B. Prophase C. Anaphase D. Telophase
54. Why is it that the typical diploid chromosome number of many organisms including human beings is an even number?
 A. It is only a coincidence
 B. Chromosomes duplicate equal number of chromosomes
 C. Both parents contribute equal number of chromosomes
 D. Meiosis reduces chromosomes number
55. If, due to incomplete dominance, the F_1 plants from a cross of red flowered X white flowered in the F_2 generation?
 A. 1 red: 2 pink: 1 white C. 1 red: 1 pink: 1 white
 B. 2 red: 1 pink: 1 white D. 3 red: 1 pink: 1 white
56. If it is known that the total number of the purine bases account for 50% of a DNA molecule and if each of the remaining bases are known to have the same proportion, what proportion is accounted for by thymine along in the same molecule?
 A. 25% B. 50% C. 75% D. 100%
57. How many different kinds of amino acids are there for protein synthesis?
 A. Twenty B. Twenty-four C. Twenty-six D. Thirty-two
58. As was shown by Gregore Mendel in garden pea, what percentage of the F_2 generation of a monohybrid cross has the recessive phenotype?
 A. 75% B. 50% C. 25% D. 12.5%

59. Which group of organisms has a system of protein synthesis in which transcription and translation take place at separate times?
- A. In all eukaryotic organisms. C. In multicellular animals only.
 B. Only in prokaryotic organisms. D. In both prokaryotic and eukaryotic organisms.
60. What do geneticists call the genotype in which the two alleles of a pair are identical?
- A. Dominant B. Recessive C. Homozygous D. Heterozygous
61. Which one of the following is **NOT** a mutation?
- A. DNA replication to form two daughter DNAs C. Gain of an extra chromosome by a cell.
 B. Deletion of a base pair from DNA. D. Loss of a chromosome by a cell.
62. Which of the following is the best way to check whether an individual having a dominant phenotype is homozygous or heterozygous for the trait?
- A. To cross it to a homozygous recess individual C. To cross it to a heterozygous individual
 B. To cross it to a homozygous dominant individual D. To self the individual
63. Which one of the following is referred to as the first law of Mendel?
- A. The occurrence of alleles in pairs.
 B. The dominance of one allele over the other
 C. The equal contribution of alleles by both parents
 D. Separation of allele during gamete formation
64. In DNA cloning technology, which of the following molecules serves as a vector of gene of interest to be transferred to be bacterial host?
- A. Bacterial DNA. B. Plasmid DNA. C. Nuclear DNA. D. Mitochondrial DNA
65. A genetic cross between two F₁ –hybrid pea plants having yellow seeds (dominant) will yield what percent green-seeded (recessive) plants in the F₂ generation?
- A. 0% B. 25% C. 50% D. 75%
66. What would most likely results if mitosis fails to be accompanied by cytoplasmic division?
- A. Two cells without nuclei C. One cell without nucleus
 B. Two cells each with one nucleus D. One cell with two identical nuclei
67. Which part of the angiosperm flower are both essential for the success of hybridization experiments?
- A. Sepal and petal C. Pollen and filament
 B. Stamen and petal D. Gynoecium and androecium
68. Among the following couple whose ABO blood genotypes are shown, which one can produce children of A, B, AB, O blood types?
- A. OO and AB B. BO and AA C. BO and AO D. BB and AO
69. Before making crosses, which part of the flower did Mendel remove to avoid self pollination?
- A. Stigma B. Ovule C. Ovary D. stamens
70. Which of the following is the correct F₂ phenotypic ratio of a monohybrid cross?
- A. 1 : 2 B. 1 : 1 C. 3 : 1 D. 2 : 2
71. One of the following is an important cause of gene mutation.
- A. Old age B. Alcoholic drinks C. Smoking D. Radiation
72. How many chromosomes do humans inherit from each of their parents?
- A. 23 chromosomes C. 46 chromosomes
 B. 23 pairs of chromosomes D. 46 pairs of chromosomes
73. Which of the following is **NOT** true about the gene called SRY?
- A. It is found on the Y – chromosomes. C. It determines maleness

- B. Testes develop in its presence

89. In a cross between round green pea of RRyy genotype and wrinkled yellow pea of rrYY genotype, what is the expected genotype of the F₁?
- A. RRyy B. rrYY C. RRYy D. RrYy
90. Which one of the following is the mechanism by which two genes located on the same chromosome are separated?
- A. Independent assortment B. Linkage C. Segregation D. Taking care of the larvae
91. During protein synthesis, where in the cell does transcription take place?
- A. Ribosome B. Endoplasmic reticulum C. Nucleus D. Golgi apparatus
92. Which of the following is **NOT** a term used to describe organisms that have had foreign genes added to them?
- A. Genetically modified organisms C. Transgenic organisms
B. Genetically engineered organisms D. Pathogenic organisms
93. Which field studies the way in which individual traits of organisms are transmitted from one generation to the next?
- A. Genetics B. Ecology C. Evolution D. Morphology
94. Which molecules carry the instructions for protein synthesis?
- A. Carbohydrates & lipid B. DNA & RNA C. Amino acids D. Enzymes
95. In protein synthesis, what is produced during transcription?
- A. Protein B. DNA C. mRNA D. Polypeptide
96. Which of the following types of chromosome mutations gives rise to an extra chromosome?
- A. Inversion B. Translocation C. Deletion D. Non-disjunction
97. Which of the following pairs of individuals have identical DNA fingerprints?
- A. Father and son C. Brother and sister
B. Mother and daughter D. Monozygotic twins
98. Which of the following mating produced children all having the same ABO blood phenotypes?
- A. AO x AB B. BB x OO C. AO x BO D. AA x BO
99. If a DNA contains 10% thymine, what is the percentage of cytosine in the DNA?
- A. 10 % B. 30 % C. 40% D. 90 %
100. Which the following are the two major constituents of eukaryotic chromosomes
- A. DNA and RNA B. DNA and Protein C. DNA and Carbohydrate D. RNA and Lipid
101. What is the process called when bacteria directly contact cell to cell and exchange their genetic information ?
- A. Conjugation B. Transformation C. Co - transformation D. Transduction
102. What do you call a group of genetically identical plants produced by vegetative reproduction?
- A. Family B. Clone C. Hybrid D. Genus
103. A cow was found to yield much higher milk than any of the breeds of the parental cattle. What could be the most probable reason for this?
- A. Dominant genes B. Hybrid vigor C. Recessive genes D. Co-dominance genes
104. When the F₁ hybrid of a monohybrid cross is back crossed with the homozygous recessive parent , what percentage of the offspring would be homozygous recessive?
- A. 0% B. 25% C. 50% D. 75%
105. Which of the following is the correct constitution of the sex chromosome of a normal woman?
- A. XY B. XX C. XO D. XXY
106. Which of the following is true about gene mutation?

- A. Altering the DNA sequence of a gene C. Change in the position of a block of genes
 B. Addition of genes to a chromosome D. Loss of genes from a chromosome
107. What is the circumstance that causes the health condition known as sickle-cell anaemia?
 A. DNA denaturation B. Haemoglobin mutation C. RNA mutation D. Phosphate mutagenesis
108. Which of the following sequence represents the correct change in number of chromosomes during fertilization?
 A. $n + n \rightarrow 2n$ B. $2n \rightarrow 2n$ C. $n \rightarrow n$ D. $2n \rightarrow n + n$
109. Which of the following is true about sex determination in birds?
 A. They have the heterozygotic X and Y chromosomes
 B. Males have heterozygotic W and Z chromosomes
 C. Females have the homozygote WW chromosomes
 D. They have the heterozygotic W and Z chromosomes
110. What percentage of the F₂ progeny of a monohybrid cross is expected to have the recessive phenotype?
 A. 100% B. 75% C. 25% D. 50%
111. Which of the following crosses will produce progeny with the phenotype ratio of 3 : 1?
 A. Crossing the F₁ to the dominant parent C. Crossing two homozygote individuals
 B. Crossing the F₁ to the recessive parents D. Crossing two heterozygote individuals
112. Which one of the following terms refers to the failure of sister chromatids to separate from one another during anaphase?
 A. Non-disjunction B. Replication C. Deletion D. Double inversion
113. In cell division, what is the phase that comes following the metaphase called?
 A. Extraphase B. Prophase C. Anaphase D. Telophase
114. If a codon on a messenger RNA is UUU, what is the complementary anticodon on the transfer RNA?
 A. UUU B. GGG C. CCC D. AAA
115. If a clone is produced by transferring a nucleus of animal A to an enucleated egg of animal B and the egg is then implanted in the uterus of animal C, which animal would the clone resemble most?
 A. Animal C B. Animal B C. Animal A D. Other animals
116. If it is known that the total amount of DNA in a cell is 300 units and that adenine alone contributes 70 of these units, how many units go to cytosine?
 A. 40 units B. 70 units C. 80 units D. 35 units
117. Suppose two heterozygous round yellow (RrYy x RrYy) pea plants were crossed and 128 seeds were produced, how many of the seeds expected to be heterozygous round yellow?
 A. 64 seeds B. 32 seeds C. 96seeds D. 128seeds
118. Which characteristic of RNA makes it suitable for moving out of the nucleus?
 A. Inability to replicate B. Absence of thymine C. Its unstable nature D. Smallness of its size
119. Which aspect of biotechnology is considered strictly genetic engineering?
 A. Providing gene therapy C. Production of new types of plants
 B. Monoclonal antibodies D. Mapping of the human genome
120. How do different nucleotides of nucleic acids form a strand?
 A. By hydrolysis synthesis C. By condensation reaction
 B. By peptide linkages D. By disulphide bridges
121. Supposing that 1000 individuals were produced from a cross between Bb and bb, how many of them are expected to have the Bb genotype?

- A. 1000 B. 500 C. 50 D. 0
122. A dihybrid cross of round (dominant) yellow (dominant) maize seeds gave all four possible phenotypes. What were the genotypes of the parental plants?
- A. Heterozygous genotypes for the shape and colour C. Heterozygous colour & homozygous shape
B. Homozygous genotypes for shape & colour D. Heterozygous shape & homozygous colour
123. If a plant is known to have a diploid chromosome number of 12, how many chromosomes would each of its male gametes have?
- A. 3 B. 6 C. 12 D. 24
124. Individuals of which blood type CANNOT contribute O allele to their children?
- A. Type A B. Type B C. Type AB D. Type O
125. The process by which the genetic information contained in a gene is copied into messenger RNA is-----
- A. Mutation B. Transcription C. Translation D. Replication
126. Which of the following gives better evidence for resolution of disputed fatherland?
- A. Genetic fingerprinting C. Gene cloning technique
B. Antigen-antibody reaction D. DNA hybridization
127. Which one of the following nucleotide pair bonds can be normally found in a DNA molecule?
- A. Adenine-Guanine B. Guanine- Cytosine C. Cytosine- Uracil D. Adenine Cytosine
128. Which of the following is true?
- A. Two parents with A and B blood groups can have children with type AB only
B. Two of the alleles that determine human ABO blood group are co-dominant
C. A gene may have many alleles but an individual has only one allele per gene
D. A homozygous red bull & a homozygous white cow produce all red offspring when the alleles are incompletely dominant
129. Which of the following biotechnologies has been used by human for thousands of years?
- A. Genetic engineering B. Alcohol fermentation C. Monoclonal antibodies D. Gene transfer
130. Which of the following is the sex chromosome constitution of human males?
- A. XX B. XY C. ZZ D. ZW
131. Which of the following parts of the flower did Mendel remove from young flowers to prevent self-pollination?
- A. Stamen B. sepal C. petals D. Ovaries
132. What kinds of cross is performed to determine whether the parent was homozygous or heterozygous?
- A. Monohybrid cross B. dihybrid cross C. back cross D. double cross
133. Among the following ABO blood group genotypes, which one produces two type of antigens?
- A. $I^A I^O$ B. $I^B I^O$ C. $I^A I^B$ D. $I^B I^B$
134. Which of the following methods do animal breeders use to produce domestic animals with hybrid vigor?
- A. Feeding with nutritive food C. mating together related animals
B. Giving proper veterinary D. crossbreeding their animals
135. When Mendel crossed a tall pea plant with a short plant, the F1 progeny were all tall. What F1 did he obtain when he made the reciprocal cross?
- A. Short plant B. tall plants C. extra-tall plants D. plants of average height
136. If a heterozygous tall pea plant (Tt) is crossed with a short pea plant (tt), what percentage of the progeny is expected to be short?
- A. 100% B. 75% C. 50% D. 25%
137. Which of the following nitrogenous bases of nucleic acid is a purine base?

- A. Adenine B. Uracil C. Cytosine D. Thymine
138. Which of the plant with the following genotypes is heterozygous?
 A. BBYY B. BbYy C. bbyy D. YYBB
139. What happened when enzymes become denaturated?
 A. They can normally catalyse the reaction
 B. Their active site are changed
 C. Rate of the reaction increases
 D. Bonds holding amino acids are unaffected
140. At which of the following generations of crosses between dominant and recessive homozygote parents are all the progeny heterozygous?
 A. P1 generation B. F1 generation C. F2 generation D. F3 generation
141. If in a DNA molecule consisting of 1000 base pairs, there are 300 adenine bases, how many guanine bases will be present?
 A. 200 B. 400 C. 600 D. 700
142. Which form of mutation is responsible for the disease known as leukemia?
 A. Duplication B. insertion C. inversion D. deletion
143. Mutation may be described as:
 A. phenotypic change C. change in genetic structure
 B. continuous variation D. change due to hybridization
144. Which of the following is true?
 A. Recessive alleles are only expressed in the homozygote.
 B. Dominant alleles are expressed only in the heterozygote.
 C. Recessive alleles are expressed in the heterozygote
 D. Genetically modified organisms are never used to manufacture vaccines
145. During meiosis, which process makes the four chromatids of a homologous pair of chromosomes genetically different from one another?
 A. Independent assortment B. segregation C. crossing over D. linkage
146. One of the following is not true about protein synthesis in eukaryotes.
 A. Bothe transcription and translation take place in the cytoplasm
 B. Translation takes place in the cytoplasm
 C. Transcription takes place in the nucleus
 D. mRNA is modified after transcription
147. One goat is heterozygous, long hair (Rr), and its mate carries homozygous short hair (rr). What is the probability of the offspring having short hair?
 A. 25% B.50% C. 75% D. 100%
148. The type of enzyme used in recombinant DNA technology to split a specific sugar phosphate bond of a DNA double helix is called:
 A. Restriction enzyme B. esterase C. lipase D. ligase
149. Which of the following nucleotide sequences contains four pyrimidine bases?
 A. UAGCGGUAA B. GATCAATGC C. GCUAGACAA D. both B & C
150. If two heterozygous tall pea plants crossed, how many of the offspring would be phenotypically tall plants?
 A. 75% B. 25% C. 50% D. 0%
151. How can biotechnology be applied to reduce the use of inorganic fertilizer in agriculture?
 A. By using the golden rice and producing organic fertilizers from beta-carotenes

- B. By selecting and propagating varieties with high growth rates and high productivity.
 - C. By using thermostable enzyme of genetically engineered bacteria used in washing powder
 - D. By using enzymes produced by genetically engineered bacteria used in the food industry
152. If two parents with genotype 'Aa' are cross bred and that there is no codominance in the inheritance pattern, what population of the offspring would have genotypes exactly like that of their parents?
- A. 50%
 - B. 75%
 - C. 100%
 - D. 25%
153. Which of the following is an example of a cell formed by reduction of division?
- A. Nerve cells
 - B. Kidney cells
 - C. Bone cells
 - D. Sperm cells
154. When an organism containing a gene which does NOT belong to it and is derived from somewhere else, the organism is said to be:
- A. Hybrid
 - C. Transgenic
 - D. Mutant
 - D. Clonal
155. If colour blindness is sex linked and a colour-blind man marries the daughter of a colour-blind person, which of the following is their progeny?
- A. None of the daughters are colour – blind
 - C. All her daughter are colour-blind
 - B. All her sons are colour-blind
 - D. Half of her sons are colour-blind
156. Transfer of a gene or genes through a virus is called:
- A. Transformation
 - B. Transduction
 - C. Genetic engineering
 - D. Conjugation
157. If allowed to self-pollinating, which of the following pea genotype would produce progeny with 9:3:3:1 phenotypic ratio?
- A. RRYy
 - B. RrYY
 - C. RRYy
 - D. RrYy
158. How many nucleotides are needed to form codons for a protein that is 100 amino acids long?
- A. 100 nucleotides
 - B. 200 nucleotides
 - C. 300 nucleotides
 - D. 640 nucleotides
159. Which of the following statements about transgenic organisms is correct?
- A. A bacterium that contains genes from another organism
 - B. A plant that has been cross-pollinated with another plant
 - C. An animal that has been reared in isolation in the laboratory
 - D. Any organism in which a foreign gene is added to its genome
160. Which of the following happens if a nucleolus is missing in a cell?
- A. Nuclear process will be blocked
 - C. Endoplasmic reticulum will be unfolded
 - B. DNA synthesis will be enhanced
 - D. Ribosomal function will be disrupted

Biology Grade - 12

Unit – 4

- Some species gradually evolve into a new species without splitting into two or more species. Which mode of evolution is operating in this case?
A. Allopatric speciation C. Convergent speciation
B. Sympatric speciation D. phyletic speciation
- Which one of the following animals is found at a lower level of evolutionary advancement than the rest?
A. Tilapia B. Hornbill C. Crocodile D. Rat
- Washing hands with antibacterial soap kills, some bacteria while other bacteria become resistant due to mutation. Which branch of biology is best illustrated by this example?
A. Feeding of bacteria C. Sexual reproduction of bacteria
B. Morphology of bacteria D. Evolutionary change in bacteria
- When a bell-shaped curve results from the analysis of a certain variable in a population, what type of natural selection is probably taking place in the population with regard to the variable?
A. Disruptive selection C. Divergent selection
B. Directional selection D. Stabilizing selection
- Compared to the others, which one of the following plants is found at a higher level of evolutionary advancement?
A. Conifer B. Moss C. Tree fern D. Grass
- The many species of Galapagos finches were each adapted to eating different foods. This is an example of:
A. Gene flow C. Adaptive radiation
B. Sympatric speciation D. All of the above
- Main moths recognize females of their species by sensing chemical signals called pheromones. This is an example of:
A. Behavioral isolation C. Habitat isolation
B. Gamete isolation D. Mechanical isolation
- Which group of hominids is called the handy human?
A. Homo sapiens B. Homo erectus C. Homo habilis D. Australopithecus
- Which of the following agricultural practices is expected to impose more genetic changes on crops?
A. Cultivation B. Domestication C. Sowing D. Harvesting
- Which of the following physiological properties of life is primarily concerned with the perpetuation of species?
A. Response to stimuli B. Respiration C. Excretion D. Reproduction
- What kind of selection does a bell shaped curve in a variable indicate?
A. Disruptive selection C. Divergent selection
B. Unidirectional selection D. stabilizing selection
- In the miller and Urey's stimulation experiment to study organic molecules formation in primeval atmosphere of the earth, all the following gases were used except which?
A. Ammonia C. Oxygen
B. Hydrogen D. Methane
- The bones in human hands, fippers of the whale and wings of the bats are known as what?
A. Linker fossils C. Analogous structures

- B. Homologous structures D. Vestigial structures
14. According to Lamarck's theory of evolution, what is the origin of new structures that are necessary for evolution?
- A. Mutation C. Natural selection
B. Gene recombination D. Use and disuse of body parts
15. If the DNA of the following animals is hybridized to human DNA, with which one of them would human DNA hybridize more?
- A. Horse C. Fish
B. Chimpanzee D. Mice
16. Which alternative best explains speciation
- A. Members of a species diverge genetically and produce new species
B. It is characterized by minor extinction events
C. A process that only results from interspecific hybridization
D. Two different species are able to interbreed in captivity
17. Which of the following is expected to produce new combinations of genes?
- A. Keeping a male goat and a female sheep in the same room
B. Hybridization of a tall variety of "teff" with a short variety
C. Vegetative propagation of fruit trees
D. Asexual reproduction of unicellular animals
18. To which biological species do Neanderthal humans belong?
- A. Homo erectus C. Homo sapiens
B. Homo habilis D. Ardi ramidus
19. Among the following fossil forms of the human evolutionary ancestors, which one was the first to develop the ability to walk upright?
- A. Homo erectus C. Aradipithecus ramidus
B. Homo habilis D. Australopithecus afarensis
20. Which evolutionary evidence was very unlikely to have been used by Darwin in the formulation of the theory of evolution?
- A. Comparative anatomy C. Fossils
B. Comparative biochemistry D. Geographical distribution
21. Which fossil shows the evolutionary link between reptiles and birds?
- A. Archaeopteryx C. Cyanognathus
B. Australopithecus D. Semouria
22. Suppose in a certain population natural selection removes individuals with average height, leaving tall and short individuals behind, which of the following modes of selection is in operation?
- A. Stabilizing selection C. Directional selection
B. Normalizing selection D. Disruptive selection
23. What percentage of the amount of carbon 14 originally present in a fossil would be left its second half life
- A. 75% B. 50% C. 25% D. 12.5%
24. Which one of the following modes of natural selection was responsible for the fast increases in the number of the black form of moths in Europe during industrial Revolution?
- A. Stabilizing selection C. Normalizing selection
B. Disruptive selection D. Directional selection

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- B. Their bodies decompose readily
 - C. They all lived in environments where sedimentation did not occur.
 - D. They were never common in environments in which they lived.
37. Carbon 14 has a half life of about 5730 years. Suppose a fossil contains only 12% of the amount of Carbon 14 normally present in living organisms, how old is the fossil?
- A. 5730 years B. 17190 years C. 11460 years D. 22920 years
38. What does the structural similarity between the flipper of whales and arms of humans show?
- A. Whales evolved from the human species
 - B. Whales are older than the human species
 - C. The human species began life in the oceans
 - D. Whales and humans had a common ancestry
39. Which of the following pairs of molecules can give information about how much two species are evolutionary related to one another?
- A. DNA and proteins C. starch and cellulose
 - B. Lipids and carbohydrates D. carbohydrates and proteins
40. Which are the most likely causes of variations within species?
- A. Mitosis and asexual reproduction
 - B. Overpopulation and overproduction
 - C. Vegetative propagation and cloning
 - D. Mutations and sexual reproduction
41. In which hominid species did scientists find the smallest brain size (cranial capacity)?
- A. Homo sapiens C. Homo erectus
 - B. Homo habilis D. Homo neanderthalensis
42. When two species are compared, which of the following sources of evidence is least information about the degree of relationships between the species?
- A. Nucleotide sequence of DNAs C. Amino acid sequences of proteins
 - B. Glucose sequence of polysaccharide D. DNA – DNA hybridization
43. What is the reproductive isolating mechanism called if two species of frogs do not interbreed because they cannot understand the mating calls of one another
- A. Seasonal isolation C. Temporal isolation
 - B. Behavioral isolation D. Isolation by distance
44. Which of the following theories explains evolutionary change of living things in terms of changes in their allele frequencies?
- A. Darwin's natural selection C. Inheritance of acquired characteristics
 - B. Spontaneous generation D. Neo-Darwinism
45. Among the following, which one of the best criterion to show that two populations belong to same species?
- A. Morphological similarity C. Inhabiting the same geographic area
 - B. Physiologically similarity D. Production of fertile offspring
46. In the process of the evolution of life on earth, which of the following four processes evolved last?
- A. Photosynthesis C. Chemosynthesis
 - B. Aerobic respiration D. Photo-autotrophism
47. Which of the following characteristics can show the evolutionary relationships among organisms?
- A. Structures having similar functions C. Structures having common origin

- B. Structures having same size D. Structures having different origins
48. If a new mutant allele arises in a certain population, which of the following factors determines if the allele is going to be adaptive or non-adaptive?
- The environment in which the population lives.
 - The rate at which the gene mutates.
 - The population in which the gene is found.
 - The use and disuse of the gene by the population.
49. Which of the following factors **NOT** important for evolutionary change of a population?
- Over reproduction
 - Existence of heritable variation
 - Insufficiency of natural resources
 - Survival of all that are born
50. During the course of evolution. Which of the following events came before all the others?
- Origin of dinosaurs and other reptiles.
 - Availability of free oxygen in the atmosphere.
 - Origin of the oldest eukaryotic organisms.
 - Origin of the first multicellular animals and plants.
51. What kind of natural selection is at work in a situation where individuals at both extreme ends of the range get better survival advantages than those around the middle?
- Stabilizing selection
 - Disruptive selection
 - Directional selection
 - Selection that removes the extremes
52. In which geologic period does the fossil record show more diverse and relatively higher forms of organisms?
- Devonian
 - Jurassic
 - Cretaceous
 - Permian
53. Which of the following can be taken as case for evidence of evolutions from the field of plant & animal breeding?
- Artificial breeding always creates new species
 - Artificial breeding only produces new organisms with higher yield
 - Artificial breeding shows that natural selection can produce variations
 - Artificial breeding can produce new variations in organisms
54. If a radioactive substance that weighs one kilogram has a half-life of 100 years, what would be the percentage of the substance left after 300 years?
- 50
 - 30
 - 25
 - 12.5
55. According to Lamarck's theory of evolution, what is the mechanism by which evolving organisms acquire new structures?
- Mutation
 - Hereditary variation
 - Use- and – disuse of parts of the body
 - Recombination of ancestral genes
56. What do you call structures that have the same evolutionary origin but now are different in structure or have different functions?
- Endemic
 - Homologous
 - Analogous
 - indigenous
57. Which of the following is prevented from taking place if populations are separated by a geographic barrier?
- Mutation
 - Evolution
 - Gene flow
 - Natural selection
58. The half-life of carbon-14 is about 5730 years. If a fossil is 17200 years old, about what percent of its original carbon-14 is still present in the fossil?
- 75%
 - 50%
 - 25%
 - 12%

59. Which of the following pairs are analogous structures?
- A. Wing of a bird & wing of a butterfly C. Wing of a bird & wing of a bat
B. Front leg of a horse & a human arm D. Front leg of a frog & wing of a bat
60. Among the following fossil hominid species, which one is the oldest of all?
- A. Homo erectus C. Ardipithecus ramidus
B. Australopithecus afarensis D. Australopithecus africanus
61. Which of the following conclusion can be drawn from the structural similarities observed between the flippers of whales and the arms of humans?
- A. The human species began life in the ocean
B. The human species and whales share a common ancestry
C. Whales are older than the human species
D. Whales have evolved from early humans that went back to the ocean
62. Which of the following did the early heterotrophs do that probably assisted the origin of autotrophs?
- A. They added oxygen and chlorophyll to the environment
B. They added carbon dioxide to the environment
C. They stored energy in the bonds of inorganic compounds
D. They manufactured food from carbon dioxide and oxygen
63. Which of the following is consistent with the understanding of human evolution
- A. Bipedalism was never important in human evolution.
B. Larger brain size had no contribution to the evolution of the human species
C. Human ancestry had no relation whatsoever with that of the chimpanzees
D. Fossils of Lucy and Ardi provided evidence for human origin.
64. Which of the following is true about mutations that occur in normal body cells?
- A. They never lead to cancerous cells. C. They never pass to the next generation
B. They never damage the affected cells. D. There is one way that they kill the affected cells.
65. Why is it that mutations are considered as one of the raw materials of evolution ?
- A. They contribute to new variations in organisms.
B. They are usually related to the environment in which they appear
C. They are mostly benefited to the organism in which they appear
D. They usually become the causes for species extinction.
66. From evolutionary view points, which of the following animals is expected to have hemoglobin proteins that least similar to that of human?
- A. Ape B. Cow C. Chicken D. Frog
67. Which of the following is an evolutionary requirement for two sub-population of a species to evolve into independent species?
- A. Free exchange of genes C. Geographical isolation
B. Free migration between population D. Absence of natural selection
68. Which of the following expression is more related to the phrase "survival of the fittest"?
- A. Natural selection C. Gene mutation
B. Mendelian inheritance D. Inheritance of acquired characteristics
69. If a substance that weighs 2,000 grams and has a half-life of 100 years is left with only 250 grams, for how long has the radioactive decaying activity been undergoing?
- A. 200 years B. 250 years C. 300 years D. 500 years

70. Suppose a fossil initially contains 100,000 atoms of a radioactive element whose half life is 10,000 years, after how many years would the number of atoms be 12500?
- A. Ten thousand years B. Twenty thousand years C. Thirty thousand years D. Forty thousand years
71. Which of the following came first in the course of organic evolution ?
- A. Photosynthetic organisms C. Land plants
B. Free oxygen in the atmosphere D. Multicellular organisms
72. What do you call structures that have same evolutionary origin even though they may now have different structural make ups or functions?
- A. Endemic B. Analogous C. Homologous D. Indigenous
73. Which of the following changes that happened during human evolution had the most contribution to the evolutionary success of *Homo sapiens*?
- A. Proportionately big brain size to the body size C. Big body parts big overall body mass
B. Long legs, arms and more upright body posture D. Fast running ability and overall physical strength
74. Why mutations are considered important in evolution?
- A. They are usually related to the environment C. They contribute to new variation in organisms
B. They are always beneficial to the organism D. They become causes for species migration
75. Which of the following pairs are **ANALOGOUS** structures?
- A. The human arm and the front leg of a mule C. The front leg of a frog and the wing of a bat.
B. The wing of a bird and the wing of a butterfly. D. The wing of a bat and the wing of a bird.
76. Choose the one that had the LEAST contribution to human evolution ?
- A. Development of bipedalism C. Adaptation to flight
B. Attaining opposable thumb D. Increasing brain size
77. How many years have passed since Darwin's book on the theory of evolution was published?
- A. About 50 years B. About 160 years C. About 120 years D. About 100 years
78. Which of the following can be understood about living things from the study of how breeders improve domesticated plants and animals.
- A. Living things tend to over-reproduce C. Natural resources are limited supply
B. Living things can be improved through selection D. Individuals compete for resources
79. What does an evolutionary selective pressure that acts around the mean do?
- A. It stabilizes B. It terminates C. It converges D. It disrupts
80. In his theory of evolution, the cause of which of the following concepts was MISSING in Darwin's explanation?
- A. Over-reproduction C. Hereditary variation
B. Struggle for survival D. Survival of the fittest
81. Suppose a piece of wood initially contains 100 grams of a radioactive substance, how many grams remain radioactive after 30 000 years provided that its half life is 10 000 years?
- A. 50 grams B. 25 grams C. 12.5 grams D. 6.25 grams
82. Which of the following is the idea contained in Neo-Darwinism which was not present in the original version of Darwin's theory of evolution?
- A. Organisms tend to over-reproduce C. Hereditary variation is caused by alleles
B. Organisms compete for scarce resources D. Fit individuals survive and produce more offspring
83. What kind of natural selection results in the removal of members of the population that are found just at one end of the range?
- A. Stabilizing selection B. Directional selection C. Disruptive selection D. Normalizing selection

84. Among the following ,whose evolutionary theory is based on the idea of natural selection?
 A. Darwin B. Aristotle C. Lamarck D. Redi
85. Which of the following statements is consistent with the concept of the gene pool?
 A. Species with large gene pool have low potential of adaptation
 B. Endangered species usually have small gene pool
 C. Large gene pool is a hindrance for livestock improvement
 D. Species with large gene pool are prone to diseases
86. Which of the following types of evolution would occur when unrelated populations happen to occupy similar niche in different geographic area?
 A. Divergent evolution B. Convergent evolution C. Sympatric evolution D. Adaptive evolution
87. Which of the following embryonic structures do the embryos of all vertebrates develop during their early development?
 A. Gill slits B. Teeth C. Gill D. Fins
88. Who suggested that living organisms can adapt themselves to their environment by modifying parts of their body through use -and disuse?
 A. Darwin B. Wallace C. Lamarck D. Haldane
89. Which of the following process contributes the least for evolution to take place?
 A. Geographic barrier B. Hereditary variation C. Mutation D. Asexual reproduction
90. During the evolution of the hominids, which of the following features developed before all the rest as evidenced from fossil records?
 A. Bipedalism B. Larger brain C. Ability to make tools D. Shorter arms relative to legs
91. Which of the following criteria strongly supports that all human races belong to a single, *Homo sapiens*?
 A. Larger brain size B. Bipedal gait C. Pentadactyl limbs D. Inter -fertility between races
92. Which of the following hominids had brain size comparable to that *Homo sapiens*?
 A. Lucy B. Ardi C. Neanderthalman D. Homo habilis
93. Which of the following do biologists consider ancestral to the higher organisms of today?
 A. Plantae B. Animalia C. Fungi D. Protista
94. Which of the following reproductive isolating mechanisms keeps the horse and donkey as the two independent species?
 A. Hybrid inviability C. hybrid infertility
 B. Ecological isolation D. habitat isolation
95. Which of the following groups are believed to be the first photosynthetic organisms to evolve on earth?
 A. Green plants B. green algae C. blue green algae D. lichens
96. Which of the following factors brings about change both during evolution and breeding of plants and animals?
 A. Limited resource C. selection
 B. Production of excess progeny D. competition
97. Which of the following was the most possible mode of evolution by which many species of Darwin's finches evolved on the Galapagos Island?
 A. Phyletic evolution C. convergent evolution
 B. divergent evolution D. sympatric evolution
98. Which of the following the result of similarity observed between the wings of bird and a pterodactyl?
 A. convergent evolution C. stablising selection
 B. directional selection D. divergent evolution

99. For which of the following can divergent evolution be taken as an alternative name?
- A. Allopatric speciation
 - B. Adaptive radiation
 - C. sympatric speciation
 - D. disruptive selection
100. Among the following four processes, identify the one that probably evolved before all the other?
- A. Aerobic respiration
 - B. Anaerobic respiration
 - C. oxidizing atmosphere
 - D. photosynthesis
101. Which of the following played an important role in the evolution of human being?
- A. Emergence of wings in addition to limbs
 - B. Development of even toes in the forearms
 - C. Development of feathers and hollow bones
 - D. Development of opposable thumb to grasp
102. Which of the following species isolating processes could lead to the evolution of a new species by the mechanism known as sympatric speciation?
- A. A river that change its course for many years
 - B. A new mountain range that was created many years ago
 - C. Population of a species having different breeding seasons
 - D. A land mass that separated two water bodies for many years
103. Which of the following characteristics can show the evolutionary relationship?
- A. Structure having similar functions
 - B. Presence of analogous structures
 - C. presence of homologous structures
 - D. structure having different origins
104. Which of the following is NOT true about the nature of the first form of organisms on earth? They are
- A. prokaryotic
 - B. unicellular
 - C. aerobic
 - D. anaerobic
105. In spite of their ability to form hybrids when mated, which one of the following factors is more important to keep the horse and the donkey as separate species?
- A. Their hybrid is not viable
 - B. Their hybrid is sterile
 - C. They cannot form hybrid zygotes
 - D. They are ecologically isolated
106. Based on similarity in number of amino acids found in haemoglobin, which one of the following animals has closer phylogenetic relations to human beings?
- A. Chicken
 - B. Horse
 - C. Frog
 - D. Gibbon
107. To which genus of primates are the Neanderthal humans classified?
- A. Genus homo
 - B. Genus Australopithecus
 - C. Genus Ardipithecus
 - D. Genus Zinjanthropus
108. The ultimate source of genetic variation is:
- A. Migration
 - B. mutation
 - C. genetic drift
 - D. selection
109. Which of the following combination is known as Neo-Darwinism?
- A. Natural selection and acquired inheritance
 - B. Natural selection and Mendelian law of inheritance
 - C. Acquired inheritance and Mendelian law of inheritance
 - D. Natural selection and Lamarck's theory of evolution
110. In the process of allopatric speciation, which of the following is the mechanism that prevents population from exchanging genes?
- A. Polyploidy
 - B. Temporal isolation
 - C. Seasonal isolation
 - D. Geographic barrier

111. Among the theories about the origin of life, which one better agrees with the concept of change in organisms and their genetic composition over generations being caused by meiosis, hybridization, natural selection and mutation?
A. Cosmozoan B. biochemical origin C. special creation D. spontaneous generation
112. Based on differences in DNA, which of the following animal is closer to human beings?
A. Frog B. zebra fish C. domestic pig D. domestic chicken
113. Which of the following is the primary contribution of Darwin to biological theory?
A. New alleles arise through mutation
B. Evolution is the change in gene frequencies over time.
C. Genes are the units of inheritance.
D. An important mechanism of biological evolution is natural selection
114. What is the possible cause or isolating mechanism for the formation of allopatric species?
A. Seasonal isolation B. geographical isolation C. temporal isolation D. behavioural isolation
115. Which of the following is the most accepted theory about the origin of life on earth?
A. Theory of spontaneous generation C. the cosmic theory
B. Theory of chemical evolution D. theory of special creation
116. In which of the following ways does mutation contribute most to evolution?
A. It preserve adaptive genes C. it create new allele
B. It form a new gene pool D. it help gene to recombine
117. Which of the following organic molecule is least informative about the evolutionary relationship between species?
A. Carbohydrate B. protein C. DNA D. RNA
118. What is the reason that Stanley Miller excluded free oxygen from the mixture of the gases that he used for his simulation experiment?
A. Primitive atmosphere was reducing
B. early organic molecule did not contain oxygen
C. Oxygen cannot react with the rest of the gases
D. the primitive atmosphere was full of oxygen
119. Which of the following features do analogous structures mostly share?
A. Phylogenetic similarity C. functional similarity
B. Developmental similarity D. ancestral similarity
120. The evolution of a species which is based upon the sum total adaptation changes could be preserved by:
A. Natural selection B. isolation C. human conservation D. speciation
121. Lamarck's theory of evolution is known as:
A. Natural selection C. inheritance of acquired characters
B. Survival of the fittest D. mutation theory
122. In which geological period is the evolution of human most probably believed to have happened?
A. Tertiary period B. Jurassic period C. Quaternary period D. Cretaceous period
123. Of which of the following points do Lamarck's and Darwin's theories of evolution agree?
A. Evolution produce new species C. Evolution occurs by natural selection
B. All living things tend to over reproduce D. New structures arise by use – and – disuse
124. One of the following sources of evidence provides a more direct support to the process of Charles Darwin's theory of evolution.
A. Physiology B. Anatomy C. Genetics D. Geographical distribution

125. Which of the following concept is attributed to Charles Darwin?
- A. Use and disuse of organs is of great importance in evolution
 - B. Every cells must come from a pre-existing cell
 - C. In the struggle for existence, the fittest would survive.
 - D. The gametes will carry only one of a pair of contrasting characters
126. Which of the following is the common idea held by all the creationists?
- A. Life is eternal
 - B. Life was created by a supernatural being
 - C. life came to earth from elsewhere in the universe
 - D. all life was created in six days
127. Among the following, which one had the cranial capacity of about the same size as that of Homo sapiens?
- A. Homo habilis
 - B. Homo erectus
 - C. Lucy
 - D. The Neanderthal man
128. If a radioactive substance that weighs 5600 grams and has a half life of 100 years is left with 700grams, for how long has the decaying activity been undergoing?
- A. 100 years
 - B. 200 years
 - C. 300 years
 - D. 500 years
129. Which one of the following phenomena supports Darwin's concept of natural selection in organic evolution
- A. development of transgenic animals
 - B. production of 'Dolly', the sheep by cloning
 - C. prevalence of pesticide resistant insects
 - D. development of organs from 'stem cells' for organ transplantation

Biology Grade - 12

Unit – 5

- Of the following patterns of innate behavior in animals, which is considered the simplest?
A. Instinctive behavior B. reflex action C. Taxis D. kinesis
- Which one of the following types learned behaviours requires a critical period to learn in the animal's life?
A. Important B. Habituation C. insight learning D. operant conditioning
- A chick that just emerged from an incubator tended to follow the person that it saw first. Which one of the following is the correct term for this kind of animal behavior?
A. Innate B. Kinesis C. Imprinting D. Positive taxis
- A goose was observed rolling the egg back to its nest. What kind of behavior is this?
A. Tropism B. Learned behavior C. innate behavior D. Social behavior
- We do not usually notice that we are wearing clothes even though the clothes are continuously touching our body. To which type of learned behaviors does this belong?
A. Innate behavior C. Habituation
B. Imprinted behavior D. Operant conditioning
- Of the following alternatives, which one could be taken as a better explanation for an organism's innate behavior? The behavior is
A. Displayed when the organism is subjected to a stimulus that is neither harmful nor rewarding
B. Seen during the early life of the organism like the emerging chicks that follow the first object they see
C. Pre-programmed by the organism's genes
D. Seen when an organism is made to associate an accident with a positively reinforcing reward
- In a honeybee colony, which one of the following is the duty of the queen?
A. Foraging B. Rearing the young C. Guarding the hive D. Reproduction
- In Pavlov's classical conditioning experiments with dogs, which of the following is the conditioned stimulus?
A. The sight of food C. The sound of the bell
B. The smell of food D. The salivation of the dog
- When is a behavior referred to as stereotyped?
A. An animal responds similarly to all stimuli
B. All members of a species respond in the same way to a stimulus
C. A behavior is easily earned
D. An animal ignores a stimulus because it is familiar with it
- Suppose a girl, after watching her mother making "injera" on several occasions, successfully did it herself, what type of learning is this
A. Sensitization B. Imprinting C. Habituation D. Latent learning
- Which of the following is **true** about innate behavior?
A. It is a non-adaptive behavior C. Members of a species behave similarly
B. It is learned behavior D. It is environmentally determined
- Which one of the following disciplines is studied in ethology?
A. Heredity B. Physiology C. Reproduction D. Behavior
- The unicellular organism, euglena, swims using its flagellum towards areas of increased light intensity. What is this kind of response to stimulus called?
A. Negative kinesis C. Negative phototaxis

- ## B. Positive kinesis

14. What is the plant growth substance which causes them to bend towards the light?

- A. Starch B. Photosynthesis C. Auxin D. Chlorophyll

15. In Pavlov's classical conditioning experiment on dogs, which one of the following is the unconditioned response?

- A. The sound of the bell before presenting food
B. The sight of the food from far away
C. The salivation of the dog at the sight of food
D. The salivation of the dog at the sound of the bell

16. It is said that a goat mother accepts and nurses as her own kid and young that she smalls at a certain critical period, and rejects all others. This is an example of:

- A. Habituation B. Imprinting C. Insight learning D. Sensitization

17. Among the following which one is a learned behavior?

- A. Reflex action B. Habituation C. Imprinting D. Fixed action pattern

18. With which of the following is true about hibernation?

- A. Hibernation is a means of surviving severe drought
- B. Animals in hibernation stop breathing completely
- C. Only poikilothermic animals hibernate
- D. Both poikilothermic and homeothermic animals hibernate

19. Wood lice increase their movement in different directions in response to increased light intensity. This is an example of which of the following?

- A. Positive taxis B. Negative taxis C. Kinesis D. Phototropism

20. What is the role of the worker honey bee just after it emerges?

- A. Forage for nectar, pollen and water.
B. Clean out dirty honeycomb.
C. Guard the hive
D. Build honeycomb.

21. During seasons of reproduction, the males of some species of birds produce colourful feathers to attract females what do ethologists call this method of communication in animals?

- A. Visual B. Chemical C. Auditory D. Touch

22. Which of the following types of movements in response to a stimulus has no specific direction?

- A. Taxis B. Kinesis C. Gravitropism D. Phototropism

23. In the classical conditioning experiment performed by Pavlov on dogs, which of the following alternatives is the unconditioned stimulus?

- A. The sound of the bell
B. The salivation at the sound of the bell
C. The smell of the food
D. The salivation at the smell of the food

24. Why is it that the woodlice are typically found under log, stones, bark and amongst leaf litter?

- A. To be sheltered in a dry windy environment
- B. To run away from the area where the air is humid
- C. To make sure that they are in the hottest place all the time.
- D. To reduce the rate at which water is lost from their bodies

25. Which one of the following do bees use to inform other bees about the location and distance of a new source of nectar they discover?

- A. Pheromones B. Waggle dance C. Buzzing noise D. Vibration of wings

26. Which of the following is **NOT** classified as a learned behavior?

- A. Insight B. Innate C. Latent D. Conditioned

27. What do we call the learned behavior if a mouse that had just escaped from the mouth of a cat jumped violently at a slight touch by a trivial object?
 A. Latent learning B. Sensitization C. Conditioning D. Imprinting
28. The group of the Ethiopian wolf which does **NOT** contribute to territory marking with their urine containing pheromones is _____
 A. Adult males B. Adult females C. Sub-adult males D. Sub-adult females
29. Which of the following is the correct route that connects a stimulus and a response?
 A. Receptor → coordinator → effector
 B. Coordinator → receptor → effector
 C. Receptor → effector → coordinator
 D. Effector → receptor → coordinator
30. To what kind of animal behavior can the spinning of a web by a spider be classified?
 A. Learned behaviour C. Experiential behaviour
 B. Instinctive behavior D. Accidental behavior
31. An experimental animal stopped responding to a stimulus that has been repeated so many times. What type of learned behavior is this?
 A. Latent learning B. Habituation C. Imprinting D. Operant conditioning
32. Behavior that is repeated on a daily basis is referred to as:
 A. Lunar B. Circadian C. Circannual D. Seasonal
33. Which of the following is more true about the male of the honey bee?
 A. It has no father B. It is diploid C. It is sterile D. It regulates the colony
34. In which of the activities of the honey bee colony are worker been involved?
 A. Laying eggs C. Reproductive functions
 B. Serving as queens D. taking care of the larvae
35. Which of the following behavioral biologist is known for his study about imprinting behavior in animals?
 A. W. Kohler B. B. F Skinner C. Ivan Pavlov D. Konard Lorenz
36. Baby ostriches tend to follow the first moving object that they see as they hatch out of the eggs. What kind of animal's behavior does this demonstrate?
 A. Positive B. Innate behavior C. Positive D. Learned behavior
37. Suppose when you first enter a room you notice unpleasant smell which you eventually forget about the presence, what is this behavior called?
 A. Latent learning B. Insight learning C. Habituation D. Operant conditioning
38. Which one of the following is an example of an orientational innate behavior?
 A. Kineses in woodlice C. Sudden withdrawal of limbs from hot objec
 B. Blinking of the eyes D. Nest building by weaver birds
39. In Pavlov's experiment on the classical conditioning of dogs, what does the reaction of the dogs to the sound o the bell represents?
 A. The conditioned stimulus C. The conditioned response
 B. The unconditioned stimulus D. The unconditioned response
40. Which of the following is not true about innate behaviors?
 A. Can be improved by trial and error C. Common to all members of the species
 B. Present at birth or on hatching D. Do not have to be learned
41. To which one of the following classes of stimuli do pheromones belong?

- A. Auditory B. Smell C. Visual D. Touch
42. Woodlice are observed avoiding light and heat by quickly moving to moist and darker areas. Which behavior of these animals helps them to detect differences in light intensity and move to darker and moist part of the habitat?
- A. Instinctive leaning B. Negative phototaxis C. Positive phototaxis D. Insight learning
43. If someone suddenly removes his/her hand from a very hot object, which of the following types of behavior is manifested?
- A. Reflex action B. Imprinting C. Learned behavior D. Sensitization
44. Which of the following involves trial and error learning?
- A. Operant conditioning B. Habituation C. Sensitization D. Classical conditioning
45. Which of following is a learned behavior?
- A. Sucking of a new born at mother's breasts
- B. Salivation by conditioned dogs at the sound of a bell
- C. Withdrawal of hands suddenly from hot objects
- D. Blinking the eyes when something gets into them
46. In classical conditioning experiment , what do e call the salivation behavior of dogs at the sight of food?
- A. Conditioned stimulus C. Conditioned response
- B. Unconditioned stimulus D. Unconditioned response
47. Which of the following is NOT true about a learned behavior?
- A. It is adaptive B. It varies among individuals
- B. It can be changed through experience D. It is learned differently by different individuals
48. If one moves his living place to a noisy street , he gradually gets used to the street noise. What type of learning is this behavior
- A. Operant conditioning B. Habituation C. Imprinting D. Sensitization
49. Which type of animal behavior happens without learning?
- A. Innate B. Latent C. Insight D. Conditioned
50. A reflex action that involves internal organs such as the heart is referred to as_____?
- A. Somatic reflex B. external reflex C. spinal reflex D. autonomic reflex
51. Which of the following activities of an organism do we call a behavior?
- A. Reception of external stimulus C. reception of internal stimulus
- B. Responding to stimulus D. lack of receptors to receive stimulus
52. Which of the following organs serves as a coordinating system in a reflex action?
- A. Spinal cord B. sense organs C. nerve cells D. muscle
53. To which category of behavior does the human behavior that involves the strengthening of existing responses or the formation of new responses to existing stimuli that occur because of practice or repetition belong?
- A. Learned B. instinctive C. innate D. inborn
54. Which of the following is not grouped under genetically pre –programmed patterns of behavior.
- A. reflex action in human C. conditional behavior
- B. orientational behavior D. instinctive behavior
55. Which of the following statements can be considered as better definition of the biological concept of behaviour?
- A. The reaction of a person or an animal in response to an external or internal stimulus.
- B. The response or reaction or movements that a living plant makes in any situation.

- C. A system of coordinated response by an organism to an external or internal stimulus
 D. A receptor of some kinds of stimulus that an organism has which produces a response
56. If any actively growing potted seedling is kept horizontally, which of the following would eventually happen to the seedling?
 A. The shoot would bend upward C. the seedling would stop growing
 B. The root would bend upward D. the seedling would grow horizontally
57. Which of the following is not a learned behavior?
 A. Imprinting B. habituation C. conditioning D. trial & error
58. Which of the following social insects use the waggle-dance to communicate the distance and direction of food source to other member of their colony?
 A. Termites B. Red ants C. Black herbs D. Bees
59. Which of the following is NOT a features of eusociality?
 A. Co-operative caring for the offspring B. Several generations live in a colony
 B. Well defined division of labour D. Co-operative foraging behaviour
60. In the process of plant response to stimuli known as phototropism, which component corresponds to auxin production by the plant exposed to unidirectional light source?
 A. The receptor cell B. The stimulus C. The coordinating system D. The effectors cells
61. In which caste of the honey bee is there more number of individuals in a given bee colony?
 A. Queen B. Juvenile male C. Adult male D. Worker
62. In which of the following is there a **MISMATCH** between the type of innate behaviour and the resulting action/response?
 A. Instinctive behavior – imprinting in birds
 B. Reflex action – blinking of the eyes in humans
 C. Orientational movement – weaving of web in spiders
 D. Instinctive behavior – nest building in birds
63. A boy who had seen a snake crossing his way earlier, jumped up violently when a grass touched his legs, which behavior is it?
 A. Habituation B. Conditioning C. Sensitization D. Imprinting
64. Which of the following statements about instinctive actions is NOT true?
 A. Are innate B. are adaptive C. have fixed pattern D. require learning
65. A small girl who had observed her mother making a telephone call, one day made a call on her own. Which learning behavior does this exemplify?
 A. Insight learning B. trial and error C. sensitization D. latent learning
66. In which of the following ways does learned behavior differ from innate behavior?
 A. Learned behavior is modified by new experience
 B. Learned behavior is adaptive in nature
 C. Learned behavior is genetically determined
 D. Learned behavior is functional to the first attempt
67. Habituation and imprinting illustrate that behaviors are made up of:
 A. Reversible stimulus-response learning C. simple response to complex stimuli
 B. Unchanging response to complex stimulus D. both innate and learned component
68. Which hormone promotes human sleep fullness in darkness and controls the sleep -wake cycle?
 A. Insulin B. Adrenaline C. Melatonin D. Thyroxine
69. The daily cycle of activity that occurs over a 24-hour period of time is called a:

- A. Stimulus-response B. kinesis behavior C. Circadian rhythm D. Taxis behavior
70. What is the behavior that an animal learns to ignore a trivial stimulus that is repeated many times?
A. Sensitization B. insight learning C. Habituation D. latent learning
71. One of the following is true about behavior that has a fixed action pattern?
A. Learned behavior C. it is always done in the same way
B. It can be perfected through experience D. it does not need stimulus to trigger it
72. If a chimpanzee piles up boxes and climb on it to reach a bunch of banana hanging from a ceiling, which behavior is manifested?
A. Operant conditioning B. trial and error learning C. insight leaning D. latent learning
73. Which animal behavior pattern is best illustrated by the famous Pavlov's dog?
A. Associative learning B. Latent learning C. Instinctive behavior D. Habituation
74. "Skinner box" is used for experiments in:
A. Operant conditioning B. Classical conditioning C. Migration D. Taxis
75. One of the following behavioral patterns of human babies is more or less similar to the imprinting of newly hatched goose?
A. Fixed action pattern B. Attachment formation C. Habituation D. Breast sucking
76. What is the survival value of a social behavior in which some birds move in large groups?
A. Protection of a territory C. Technique for trapping prey
B. Protection from predators D. displaying courtship activities
77. One of the following is NOT true about operant conditioning?
A. It is based on innate behaviors C. It is concerned with learnt behavior
B. It is based on reward and punishment D. It is based on consequences of action

