A, CO_2 reacts with malate B, The stomata open to allow CO_2

C, **CO_2 enters to Calvin cycle** D, Oxaloacetate is formed

141, How many turns of the light independent reaction are required to form two molecule of triose phosphate?

A, 1 **B, 6** C, *2* D, 4

Grade 12 Biology

Unit 1

Microorganisms

1, Which of the following is the mode of genome replication in AIDS virus?

A, DNA → DNA B, RNA → DNA C, DNA → RNA D, **RNA → DNA → RNA**

2, Select the alternative that contains only vector borne infections

A, Malaria , Trachoma, Syphilis, Tapeworm

B**, Malaria, Leishmaaniasis, Trypanosomiasis, Typhus**

C, Diphtheria, Tuberculosis, Cholera, Meningitis

D, Leprosy, ring worm, Pneumonia, hook worm

3, Which one of the following happens during integration of viruses into host cells?

A, The viral DNA is inserted into the host DNA

B, The viral DNA inters the host cell

C, The virus attaches to the hoist cell receptor

D, The virus takes over the host cells machinery

4, which of the following disease of animal would be controlled if one is able to control tse tse fly?

A, Heart water B, Rinder pest C, **Trypanosomiasis** D, Black leg

5. which of the following diseases is caused by a DNA virus?

A. Cold sore C. Swine flu

A. AIDS D. Corona

6, Choose the one in which the disease and its categorical names are mismatched?

A, **Senile dementia – deficiency disease**

B, Pellagra – deficiency disease

C, typhus – vector borne disease

D, Parkinson's disease – degenerative diseases

7, In which Ethiopian traditional food preparation is the action microorganisms least evident?

A, Injera making B, kocho making C, **Kinche making** D, Irgo (yoghurt) making

8, Which of the following characteristics of life is not possessed by virus?

A, Mutation B, Nucleic acid C, **Respiration** D, Reproduction

9, Which of the following statement is not correct?

A**, HIV – positive people are forced by law to disclose their HIV status**

B, Employers may not dismiss an employee because of his /her HIV status

C, There is no medication that can reduce your chance of contracting HIV

D, Mothers can give their babies by means of breast feeding

10, The bird flu is currently threatening the global poultry industry. What is the causative agent of this disease?

A, Bacteria B, Fungi C, **Virus** D, Worm

11, Which of the following is the causative agent of AIDS?

A, Fungus B, Bacterium C, **Virus** D, protozoa

12, Which of the following can be one reason for the difficulty to produce a vaccine against HIV / AIDS?

A, The small size of the virus

B**, The high variability of the virus**

C, Its possession of RNA instead of DNA

D, The presence of protective envelope derived from the host cell

13, If all dogs in your community are vaccinated, which of the following diseases will be put under control in your community?

A, Meningitis B, **rabies** C, Leshmaniasis d, Syphilis

14, Which of the following is mechanism by which bacteriophages transfer genes from one bacterium to another?

A, Binary fission B, conjugation C, **Transduction** D, transformation

15, If HIV patients take a drug that inhibits the function of the viral reverse transcriptase enzyme which of the following processes would be primarily affected?

A, Entry of the virus into the patient's body B, Copying of DNA into RNA

C, Copying of RNA into DNA D, Protein synthesis

16, Anti HIV/AIDS clubs are today common in schools and colleges, what is the main contribution in the fight against the pandemic?

A, Provide medication for AIDS patients

B, Encourage the girls to have the boy friends

C, Encourage the boys to have girlfriends

D, **Raise awareness about the problem among students**

17, Some countries demand foreign travelers to produce HIV/AIDS 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

18, Which of the following statement is correct about HIV?

A, It is bacteriophage B, **It is retrovirus**

C, It is a DNA virus D, It infects pants and animals alike

19, Select the kingdom of life in which cellular organelles are without membrane around them

A, Plantae B, Protista C, **Monera** D, Fungi

20, 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 farm

D, Hand picking and physical removal of weeds and affected plants

21, Which of the following is true about meanings contained in the in the name HIV and AIDs?

A, HIV refers to symptoms that characterize the condition

B, AIDS refers to the causative agent

C, AIDS refers to the symptoms

D, HIV refers to the probable origin from the chimpanzee

22, Identify the disease that is not correctly paired with the substance whose deficiency causes the disease?

A, **Berbei – nicotinic acid** B, Scurvy – vitamin C

C, Night blindness – Vitamin A D, Rickets – vitamin D

23, Of the following, which cell type is attacked by HIV?

A, Red blood cells C, Sperm cells C, Egg cells D**, T helper cells**

24, If one regularly includes orange in his daily diet, which deficiency disease would be avoided?

A, Night blindness B, Pellagra C, Beiberi **D, scurvy**

25, Which of the following disease of livestock is associated with tsetse flies?

A, Rinderpest B, **Trypanosomiasis** C, Pneumonia D, Anthrax

26, What are the causes of infectious disease?

A, The parental genes B, **Microorganisms** C, Carcinogenic substances D, Bad life style

27, Among the following human diseases, identify the one that is transmitted through a vector?

A, Leprosy B, Chancroid C, Gonorrhea D**, Leishmaniasis**

28, A number of virus including HIV, have more than one strain. This show the viruses are;

A, Capable of living outside their host cell C, capable of reproduction

B, Capable of mutation D, Obligate parasites

29, Which is not true of prokaryotes? They

A, Are living cells B, Lack true nucleus

C, **All are parasites** D, Are either Archaebacteria or eubacteria

30, Which of the following are rod shaped bacteria?

A, Cocci B, Spirochetes C, Spirilla D, **Bacilli**

31, The cells of which group of microorganisms can be described as prokaryotic?

A, Virus B, Protozoa C, Algae D**, Bacteria**

32, What are bacteriophages?

A, Bacteria B, **Virus** C, protozoa D, fungi

33, Which of the following is the correct statement about the difference between bacterium and virus?

A, DNA is present in the former, but absent in the later

B, Protein is absent in the former, but present in the later

C, The former is cellular, but the latter is acellular

D, The former causes malaria, but the later causes cholera

34, 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

35, Why T lymphocytes more vulnerable to HIV infection? Because they posses

A, Thin cell membrane C, gp 120 on their surface

C**, HIV receptor protein** D, Large pores in their cell membrane

36, Which of the following statement is true about bacteria?

A, Bacteria found in human body are all parasitic

B, all bacteria are harmful because they spoil food

C, all bacteria cause disease to humans, plants, and animals in some ways

D, **some bacteria living in human body make vitamins needed by the body**

37, Which one of the following is mode of reproduction in bacteria?

A, Meiosis B, **Binary fission** C, gametogenesis D, Lysogenization

38, If AIDS patient given antiretroviral 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 B, Reverse transcription

C, Integration of viral DNA into host DNA **D, Assembly of viral parts into a whole virus**

39, Which of the following is true about those bacteria which dwell in hot spring?

A, they are not metabolically active

B, they use non protein enzymes

C, they get energy of activation from the spring heat

D, their enzymes do not denature at the temperature

40, Choose the disease that is caused by what is known as the droplet infection?

A, Flu B, AIDS C, Cholera D, Malaria

41, Which of the following is the best collective name for all bacteria with spherical shape?

A, **Cocci** B, Bacilli C, Spirochaetes D, Streptococci

42, In which part of the cell do gram positive and gram negative bacteria differ regarding their staining property with gram stains?

A, Cytoplasm B, Cell membrane C, **Cell wall** D, Nucleus

43, To which of the following does HIV belong?

A, Plasmid B, **Retroviruses** C, DNA virus D, Bacteriophage

44, What are the individual strands of fungal mycelium called?

A, Fungus B, Spores C, **Hyphae** D, Hydra

45, What is the mode of transmission of diseases such as cholera and typhoid fever?

A, Sexual intercourse B, Bites of animal vectors

C, Blood to blood contact D**, drinking contaminated water**

46, Viruses are better characterized as:

A, Decomposer B, Producers C, Carnivores D, **parasites**

47, Which of the following is true about the antiretroviral drugs currently used to treat AIDS patient?

A, they cure AIDS B, They stop HIV transmission

C, They serve as anti HIV vaccine D**, They slow down HIV multiplication**

48, What are the most frequent causative agents of food poisoning?

A, **Bacteria** B, Protozoa C, viruses D, Worms

49, Which of the following practice does not normally transmit HIV?

A, Sexual intercourse through anus B, Sharing injection needles

C, blood transfusion **D, shaking hands**

50, Which of the following human diseases can be prevented by taking proper diet?

A, Degenerative disease B, genetic disease C, Social disease D, **deficiency disease**

51, To which of the following groups do those bacteriophages that integrate their DNA into the chromosomes of their bacterial host belong?

A, Virulent viruses B, Lytic viruses C, **Lysogenic viruses** D, non-parasitic viruses

52, Which groups of microorganisms causes disease known as athlete's foot?

A, Bacteria B, **fungi** C, protozoa D, Viruses

53, Choose the one which is different from the others?

A, Genetically modified organisms B, Genetically engineered organisms

C**, Pathogenic organisms** D, transgenic organisms

54, What is the advantage of using HAART for treatment of HIV?

A, It gives lasting immunity to HIV B, It prevents mutation of HIV

C, It prevents re infection by HIV **D, It helps to break the life cycle of HIV**

55. In what ways does retro virus differ from other RNA viruses?

A, Their genetic material is RNA B**, They copy RNA to DNA**

C, They are parasitic D, They are smaller in size

56, 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 **B, Binding Gp 120 and CD4**

C, Integration of viral DNA in to host DNA D, Assembly of viral parts in to whole virus

57, Which of the following groups of bacteria consists of rod shaped?

A, Gram positive B, **Bacilli** C, Cocci D, Spirilla

58, Which of the following is true about protozoa?

A, they are group of bacteria B, they are one celled plants

C, they represent both plants and animals D, **They are unicellular protists**

59, Which of the following do viruses share with the cell?

A, Cell wall B, Cytoplasm C, **Nucleic acid** D, Protoplasm

60, Choose the characteristics that viruses share with living things?

A, they are made up of many specialized cells B**, They contain genetic materials**

C, they reproduce by mitosis D, They contain chlorophyll

61, Which stage in the life cycle of HIV inhibited by the anti retro viral 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 viral progeny from the cell

62, What is the difference between HIV and AIDs?

A, AIDS is the virus and HIV is the disease B, Both AIDS and HIV refers to the disease

C**, AIDS is the disease and HIV is the virus** D, Both AIDS and HIV refers to the virus

63, What does the absence of chloroplast in unicellul organisms indicate?

A, Reproduction by sexual means B, Autotrophic nutrition

C, Heterotrophic nutrition D, Complete lack of metabolic processes

64, What color do gram positive bacteria stain with gram stains?

A, Red B, pink C, **purple** D, white

65, Among the following organisms which one belongs to the prokaryotes?

A, Paramecium B, **Streptococcus** C, Spirogyra D, tapeworm

66, What is the process called when two bacteria directly contact cell to cell and exchange their genetic information?

A, Conjugation B, transformation C, Co transformation D, transduction

67, Which of the following features makes humans T- lymphocyte cells more vulnerable to HIV attack? Presence of

A, Cell membrane B, DNA on chromosomes

C**, CD4 on the membrane surface** D, DNA on the chromosome

68, In which of the following ways retro virus differ from the other RNA viruses?

A, Their genetic material is DNA B, Their genetic material is RNA

C**, They copy RNA to DNA molecule** D, They copy RNA from DNA molecule

69, Which of the following groups of microorganisms does not contain parasitic members?

A, Bacteria B, **Algae** C, Fungi D, Protozoa

70, Which one of the following is the smallest of all?

A red blood cells B, **Viruses** C, Bacteria D, Protozoa

71, Which of the following is the routine method used by clinics to test people for HIV infection?

A, Microscopic examination for the virus B, counting the number of white blood cells

C, testing for human anti HIV antibody D, measuring the amount of antibody

72, The T- lymphocyte cells of AIDS patients are destroyed by

A, Multiplication of HIV inside the cell B, Development of immune system

C, The immune system of the host organisms itself D, The CD4 receptors on the cell surface

73, Which stage of the lifecycle of HIV is disrupted if AIDS patients are with drug that has a protease inhibiting activity?

A, Entry of the virus into the host B, Conversion of viral RNA to DNA

C, Integration of viral DNA into host DNA **D, Assembly of viral parts into whole virus**

74, One of the following is true about bacteriophages that have lysogenic life cycle?

A, They are RNA viruses

B, **They integrate their nucleic acid in to that of the host**

C, They have both RNA and DNA

D, They are retro viruses

75, Which of the following type of cancer is known to mostly develop in AIDS patient?

A, Cervical cancer B, Stomach cancer C**, Kaposi"s sarcoma** D, Breast cancer

76, In which of the following living organisms do the cells lack organized nuclei?

A, Fungi B, protozoa C, **Bacteria** D, Algae

77, Which of the following is major mechanism by which AIDS is transmitted?

A, Mother to fetal transmission B, **Heterosexual intercourse**

C, sexual intercourse in marriage D, Test before blood transfusion

78, Which of the following disease is correctly matched with its causative agent?

A, Malaria- fungus B, **AIDS- virus** C, ring worm- Protozoa D, Syphilis- Worms

79, Which step in HIV life cycle is disrupted by antiretroviral drug that competitively inhibits reverse transcriptase enzyme?

A, Entry into the host cell B, assembly of viral parts into a virus

C, **Formation of DNA from RNA** D, Integration of viral DNA into host DNA

80, In what way would AIDS patient benefits from treatment with antiretroviral drugs?

A, **reduction of HIV replication** C, Provision of cure for AIDS

C, Immunizing against HIV D, killing of opportunistic infectious agent

81, Which of the following is the best collective name for all bacteria with spherical shape?

A, Spirochaetes B, Baacilli C, **Cocci** D, Streptococci

82, Which of the following disease is transmitted by mosquito?

A, Diabetes mellitus B, Kaposis cancer C, Rabies D, **Malaria**

83, Which of the following microorganisms are prokaryotic?

A, **Bacteria** B, protozoa C, yeast D, Algae

84, From which of the following diseases can one is protected by sleeping under the cover of mosquito net?

A, Sleeping sickness B, AIDS C, **Malaria** D, Athlete's foot

85, Which of the following has the highest risk of HIV transmission?

A, Hand shaking B, **Needle sharing** C, Towel sharing D, Toilet sharing

86, When reverse transcriptase is useful enzyme? When

A, Nutrients are scarce

B, There are no host cells present

C, RNA virus converts its RNA to DNA

D, Spikes are forming in the new virus

87, Which of the following human cell type is attacked by HIV?

A, Red blood cells B, plasma of blood C, T- **lymphocytes** D, platelets

88, Among the following which one best describes the cells of bacteria?

A, Eukaryotic B, **prokaryotic**

C, both eukaryotic and prokaryotic D, Neither prokaryote nor eukaryote

89, Which of the following groups of viruses copy their RNA to DNA?

A, Bacteriophages B, DNA viruses C, Herpes simplex D, **retroviruses**

90, What is the name of a major group of eukaryotic organisms that obtain their nutrition using extracellular digestion?

A, Viruses B, Bacteria C, **fungi** D, Algae

91, In what main ways do retroviruses such as HIV differ from other type of RNA viruses?

A, They require a host cell to reproduce

B, They reversely copy RNA to DNA

C, Their genes are resistance to mutation

D, They are free living viruses

92, Which of the following is taken as a signal for the final stage of HIV infection?

A**, Signs of a disease kaposi's sarcoma** B, Growth of long hair

C, Uninfected T- helper cells present D, No infection by other parasitic diseases

93, In which organ of human body are more bacteria found?

A, Lungs B, Stomach C, Small intestine D, **large intestine**

94, From which groups of microorganisms the first antibiotics produced?

A, Gram negative B, gram positive

C, **Fungal organisms** D, Viral organisms

95, The best way to control HIV/AIDS is

A, Adequate distribution of condoms B, Adequate distribution of antiviral

C, breaking the transmission pathway D, Homosexuality

96. Transfer of gene or genes through virus is called

A, transformation B, conjugation C, Genetic engineering D, **transduction**

97. What is the main method of transmission of botulism?

A, Direct contact B**, Eating contaminated food**

C, Droplet infection D, Drinking contaminated water

98, In which of the following groups of organisms are all the members of unicellular?

A, Algae B, **bacteria** C, Fungi D, Virus

99, Which clinical test is routinely performed to diagnose patient for AIDS?

A, Culturing opportunistic infectious agent

B**, Serological test for anti HIV antibody**

C, culturing the virus on a special media

D, Determining hemoglobin amount

100, Which one of the following human disease is not correctly matched with its mode of transmission?

A, Malaria – vector B, Cholera – contaminated water

C, **Sleeping sickness – physical contact** D, Influenza – droplet infection

101, In what way does an antiretroviral drug help AIDS patient? It

A, provides immunity **B, Stops the multiplication of HIV**

C, Stimulates the multiplication of T- helper cells D, Kills opportunistic infectious agent

102, What is capsid?

A, The RNA of a virus B, The DNA of a virus

C, **The protein shell of a virus** D, The genetic material of a virus

103, From which group of microorganisms was the first antibiotic produced?

A**, Members of the fungi** B, Members of the virus

C, Gram negative bacteria D, Gram positive bacteria

104, As compared to infectious diseases, functional diseases:

A. are caused by pathogenic micro-organisms

B. can result from malfunction of organs

C. can spread through the bites of insects

D. are passed from person to person through reservoirs

105. Which one of the following products does NOT need the role of bacteria?

A. Insulin C. Vaccine

B. Enzymes D**. Ethanol**

106. Bacteria are used in the production of vinegar to

A. produce alcohol in beer B. dilute ethanoic acid into vinegar

C**. oxidise alcohol to ethanoic acid** D. supply oxygen for the fermenter

107. Which of the following diseases have water as their reservoir?

A. Pneumonia and tuberculosis B. Trachoma and diphtheria

C. Amoeba and cholera D. Salmonella and malaria

108. What is the economic impact of AIDS?

A. Increase the resources for public expenditure

B. Enhance the life expectancy and GDP

C. Encourage savings for medical treatment

D. Seriously affects the taxable population

109. Which one of the following viruses is an RNA virus?

A. Bacteriophage C. Herpes simplex

B. HIV **D. H1N1**

110. What is the theory that states disease is caused by microorganisms

A. Spontaneous generation B. Biogenesis theory

C. Endosymbiosis theory **D. Germ theory**

111. Which one of the following steps of HIV life cycle comes first?

A. The viral DNA is transcribed into RNA and produces viral Protein including reverse transcriptase.

B. The RNA, proteins and reverse transcriptase molecules assemble and bud out of the host cell to infect a new cell.

C**. The HIV viron attached to the plasma membrane of the T-helper**

D. The reverse transcriptase converts RNA into DNA and incorporates into the DNA of the host cell cells.

112. Which one of the following anti-retroviral drugs prevents the assembly of new virus particles?

A. Protease inhibitors

B. Entry inhibitors

C. Non-nucleotide reverse transcriptase inhibitors

D. Nucleotide reverse transcriptase inhibitors

113, Which one of the following statements is correct about the reproductive cycles of lytic and lysogenic viruses?

A**. The DNA of lysogenic viruses duplicates as the host cell divides**.

B. Only lytic viruses require the host DNA for their replication.

C. Lytic viruses are released by exocytosis.

D. Lysogenic viruses do not form a protein coat.

114. Which one of the following features is unique to bacteria?

A. Presence of permeable membrane

B. Being unicellular

C. Absence of nuclear membrane

D. Having flagella for locomotion

115. It is possible to produce human insulin in a bacterial strain. The insulin gene should be inserted in a plasmid and the recombinant DNA plasmid should be inserted into a bacterium. What is the role of the bacterium in this process?

A. The source of insulin and modification

B. The source of plasmid and insulin production

C. Multiplying the recombinant DNA molecule

D. Joining the gene of insulin with the gene of plasmid

116. The social impact of AlDS can be mainly revealed by

A. fear of stigmatization C. reduced labor force

B. loss of appetite D. loss of body weight

117. Which one of the following is a DNA virus?

A. Herpes simplex C. Hepatitis C

B. HIV D. H1N1

118. Which one of the following is a correct comparison of lytic and lysogenic cycles of virus multiplication?

A. Lysogenic cycle releases new viruses using only chronic cycle.

B. Lytic cycle involves incorporation of viral DNA into the host DNA.

C. Lytic cycle releases new viruses only by splitting the host cell.

D. Both cycles damage the host cell DNA following infection.

119. In an HIV/AIDS community screening, students were asked to take part in voluntary testing. The following discussion presents the views of four grade 12 students named A, B, C and D towards HIV testing.

Student A: I should not take the testing; it is simply boring.

Student B: We should take the testing, since we are educated; we should be exemplary.

Student C: If we get tested and got positive, what should we do? So, let us not get tested. Student D: You know, this HIVIAIDS testing is simply a business. We should not be cheated.

Which student do you think is correct?

A. Student B C. Student D

B. Student A D. Student C

120. Bacterial cell wall is unique due to its

A. chemical composition B. freely permeability

C. selectively permeable D. mechanical support

121. Which one of the following disease is caused by food poisoning bacteria?

A. *Candidiasis* C. Tuberculosis

B. *Salmonellosis* D. Pneumonia

122. Which one of the following is correct concerning the reproductive cycles of viruses?

A, Both lytic and lysogenic life cycle of viruses release new viruses without the genetic alteration of the host cell.

B. In the lysogenic life cycle the viruses DNA integrate with host cell's DNA

C. Both lytic and lysogenic life cycle undergo the same life cycle but ending with different results

D. In lytic life cycle, viruses are released without killing the host cell

123. Unlike free living cells, viruses are completely

A. pathogenic to a living cell B. mutual to a living cell

C. parasitic to a living cell D. Harmful to a living cell

124. Why are vaccines important? Because they:

A, trigger the immune system B. Kill pathogens

C. Prevent functional diseases D. heal wounds

125. Which one of the following diseases increases the likelihood of contracting HIV?

A. Typhus C. Tuberculosis

B. Chancroid D. Malaria

Unit 2

Ecology

1, which aspects of biodiversity are best covered in a study that assesses the abundance of species in a given area?

A**, Species diversity** B, genetic diversity C, Ecosystem diversity D, cultural diversity

2, Which global problem of environment results from materials added to it by human action?

A, Hunting in protected area **B, Pesticide accumulation**

C, Deforestation in a natural forest D, habitat loss

3, Choose the appropriate terminology for an ecological association between two species of organisms living together where one is benefited and the other remain an affected

A, Parasitism **B, commensalism** C, Mutualism D, neutralism

4, If you were to travel from the Arctic to the equator, what sequence of biomes would you most likely pass through?

A, Tundra, taiga, temperate forest, tropical rain forest

B, Taiga, tundra, temperate forest, tropical rain forest

C, Tropical rain forest, temperate forest, taiga, tundra

D, Tundra, temperate forest, taiga, tropical rain forest

5, which of the benefits of biological diversity comes under benefits of ecosystem service?

A, Recreational value B, Aesthetic value C, Cultural value D, **Nutrient storage and cycling**

6, Choose the biome that contains the greatest diversity of life?

A, Desert **B, Tropical rainforest** C, Temperate forest D, Temperate grass land

7, Of the following biomes of the world, which one has the highest primary productivity?

A**, Tropical rain forest** B, temperate grass land C, temperate forest D, Savannah

8, Which of the following is biological method of pest control?

A, cleaning the breeding ground of the pest

B, spraying insecticide

C, Fumigating stored grains

D, introducing natural enemies of the pest

9, Which of the following terms best includes all the rest?

A, Herbivores B, Carnivores C, Omnivores D, **Heterotrophs**

10, Which ecological interactions between two species result in negative effect on both organisms?

A, Mutualism B, **Competition** C, Predation D, Neutralism

11, Choose the animal group that is represented in Ethiopia by a higher proportion of endemic species in relation to the total number of species of that animal group found in the country?

A, Birds B, reptiles C, **Amphibians** D, Fishes

12, Based on our mode of nutrition, to which of the following groups do we humans belong?

A, **Omnivores** B, Carnivores C, Herbivores D, Autotrophs

13, What is the best term used to refer to the association of different species of organisms interacting with their abiotic environment and living together?

A, **Ecosystem** B, Community C, Pyramid D, Niche

14, To which trophic level do plants belong?

A, zero B, **first** C, second D, third

15, As an ecological succession passes from lower to higher seral stage, which of the following will not happen?

A**, Soil nutrient is depleted** B, Ecological niches increase

C, Species get more diverse D, The community gets more complex

16, what is the method of conservation in which animals are kept in captivity and plants are grown in botanical garden?

A, In situ conservation B, Zoo conservation

C, Ex situ conservation D, Complementary in situ and Ex situ conservation

17, What is the population growth phase of the current world population?

A, Static phase B, Lag phase C, Decline phase D, **Exponential phase**

18, Which of the following illustrates loss of biodiversity?

A, The death of an individual insect that belongs to a successful species

B, **A complex forest ecosystem is converted to a field of modern high yielding crop variety**

C, A new plant species is introduced from a neighboring country and becomes part of the flora

D, A species develops a number of distinct varieties

19, To which category of biodiversity would taxonomic diversity be grouped at best?

A, Genetic diversity B, **Species diversity** C, Ecosystem diversity D, Cultural diversity

20, Which of the following depicts a more complete concept of biodiversity?

A, All natural resources of the globe

B, Everything of the biosphere

C, The variety of life, genes and their habitats

D, All domestic plants and animals taken together

21, In primary succession which of the following plant types are the pioneer colonizer?

A, Herbs B, Shrubs C, **Lichens** D, Mosses

22, In Ethiopia which of the following animal group has the highest percentage of endemic species?

A, Reptiles B, Amphibians C, Fresh water fish D, **Birds**

23, If destroyed which of the following result in the biggest loss of the world biodiversity?

A, Temperate evergreen forest B, Savannah woodlands

C, Temperate deciduous forest D**, Tropical rain forest**

24, In food chain consisting of Grass →Rodents → Snakes → Birds, Which groups contains the least amount of food energy?

A, Grass B< Rodents C, Snakes D, **Birds**

25, Which of the following contains members of single species?

A, Ecosystem B, Biosphere C, **Population** D, community

26, Which of the following groups of microorganisms convert nitrogen compounds in the soil to atmospheric nitrogen?

A, Nitrogen fixing bacteria B, Nitrifying bacteria

C, **Denitrifying bacteria** D, Cyanobacteria

27, Which of the following ecological pyramid presents the weight of living materials available at different trophic level?

A, Pyramid of number B, **Pyramid of biomass**

C, Pyramid of energy D, Inverted pyramid of number

28, Suppose in a population of 1000 individuals 100 new individuals were born and 50 died, what is the percentage growth of the population?

A, 2.5% **B, 5%** C, 15% D,50%

29, What is the term for species that is found in one particular country only?

A**, Endemic species** B, Geographic species C, Exotic species D, Indigenous specious

30, Which of the following forms the base of an ecological pyramid?

A, Herbivores B, Decomposers C, Omnivores D**, Producers**

31, Which of the following could be better example of mutualism?

A, Flies on dog B, A lion preying on buffalo

C, A beetle living on elephant dung D**, A butterfly feeding on the nectar of the flower**

32, To which of the following kingdom would you classify lichen?

A, Plantae B, Protista C, Monera D, **Fungi**

33, One of the following measures will be effective to reduce human population growth rate in Ethiopia?

A, open more school B, Operant conditioning

C, Provide better health care D, **Expand family planning programme**

34, Which stage in the life cycle of lepidopteron insect pests cause more damage to crop plants?

A, Pupa B, Adult C, egg D, **Larvae**

35, From which flower structure fruit normally derived?

A, Anthers B, Petals C, **Pistil** D, Receptacle

36, Which measure would you not recommend as a means to protect Ethiopian ecosystem and their biodiversity?

A, In situ conservation

B, Gazettement of the protected rehabilitation

C, Ecosystem restoration and rehabilitation

D**, Human encroachment into the natural ecosystem**

37, Which one of the following shows the main advantage of ploughing leguminous crops such as beans in the soil?

A, Controlling soil erosion B, Conserving moisture in the soil

C, **improving the level of nitrates in the soil** D, Controlling weeds growing in the farmland

38, Which of the following is the primary source of energy for all the others?

A, Herbivores B**, producers** C, Omnivores D, Decomposers

39, The adult frog in the pond feeds on insects. What type of consumer is the frog?

A, Carnivore B, Herbivore C, parasite D, saprophyte

40, Which of the following trophic levels contains the least amount of total energy in an ecosystem?

A, First trophic level B, Second trophic level

C, Third trophic level **D, Fourth trophic level**

41, In ecosystem, between which of the following pairs is interspecific competition expected to be strongest

A, Producers versus herbivores B, herbivores versus carnivores

C, Producers versus decomposers D, **Carnivores versus carnivores**

42, Which of the following groups of animals has external fertilization?

A, Marsupials B, birds C, Reptiles D, **frogs**

43, 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**

44, Which one of the following term 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

45, Which biome of the world is characterized by less than 250mm of annual rain fall and plants called ephemerals?

A**, Desert** B, Deciduous forests C, Coniferous forests D, tropical rain forest

46, Which of the following is the starting point of primary succession?

A, Abandoned farm land B, Forest destroyed by fire

C, Forest cleared by humans D**, Land never been colonized before by life**

47, Which group of two words means the same in meaning?

A**, Autotrophs and producers** B, Autotroph and consumer

C, Autotroph and carnivore D, Heterotrophs and producers

48, In which biome of the world are epiphytes commonly found?

A, Savanna B, Desert C, Tundra D, **Tropical rain forest**

49, The name given to the pioneer plants that begin primary succession on very dry substratum like bare rock, sand dune, or cooled volcanic lava is

A, Hydrophytes B, Mesophytes C, Halophytes D, **xerophytes**

50, In which biome of the world are ephemerals and succulents more common?

A, Savanna B, **Desert** C, Deciduous forest D, Temperate forest

51, In order for population to grow at its biotic potential, which one of the following should be available?

A, Strong environmental resistance B, Maximum density dependent effect

C, Maximum density independent effect D, **Unlimited supply of resource**

52, One of the following is true about mutualistic interaction between two species

A, **Both species benefits**

B, Both species are harmed

C, One species benefits and the second harmed

D, One species benefits and the second remain unaffected

53, In which aspect of biodiversity are such measures like richness, abundance and taxonomic diversity in population commonly applied?

A, Ecosystem diversity B, cultural diversity Genetic diversity D, **Species diversity**

54, Which of the following terms is synonymous with producers?

A, Omnivore B, Herbivore C, carnivore D, **Autotroph**

55, Which aspect of life is grouped into autotrophic in some organisms and heterotrophic in others?

A, The transport system B, **The aspect of nutrition**

C, Anaerobic respiration D, the coordination system

56, Which of the following processes release oxygen to the atmosphere?

A, Respiration B, **Photosynthesis** C, Transpiration D, Burning of fossil fuels

57, 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

58, With which type of agricultural crops is nitrogen fixing bacteria more associated?

A, Legumes B, Cereals C, Vegetables D, Fruits

59, In an ecosystem, the presence of which of the following groups is essential in order for the other to be present?

A, Autotrophs B, herbivores C, Decomposers D, omnivores

60, What is biome?

A, A group of interacting individuals of the same spices

B, The total life zones of the earth's surface

C, A group of population that interacts with the physical environments

D, A region of the earth characterized by distinctive life forms

61, Which one of the following belongs to the category of heterotrophic organisms?

A, Algae **B, fungi** C, Higher plants d, Mosses

62, In an ecosystem that consists of grass, birds, grasshopper, and frog, which of the following food chain is possible?

A, grass → frog → grasshopper→ r birds

B**, Grass→ grasshopper → frog → birds**

C, Grass→ birds→ grasshopper→ frog

D, birds→ frog→ grasshopper → grass

63, If a forest is protected in order to conserve wild coffee in the forest, what sort of conservation we call this?

A**, In situ conservation** B, Ex situ conservation

C, On farm conservation D, Cryopreservation

64, Which of the following makes food webs of an ecosystem different from food chain?

A, the presence of some trophic levels

B, clear sign of cycling of materials

C, **Presence of many interconnected food chains**

D, the presence of some organisms through which energy passes

65, How do plants contribute to the carbon cycle?

A, When they respire, they release CO2 in to the atmosphere

B, When they photosynthesize, they consume CO2 from the atmosphere

C, they do not contribute to carbon cycles

D, only A and B are answer

66, The CO2 produced during the respiratory cycle and other processes is largely absorbed by which of the following?

A, The ozone layer B, Animals C, **Plant**s D, The sky

67, Which one of the following has unidirectional flow in an ecosystem?

A, Nitrogen B, Carbon dioxide C, Phosphorus **D, energy**

68, Which term better capture the concept of variety of organisms present in a whole continent as well as all the genus found in them?

A, Niche B, **Biodiversity** C, Ecosystem D, Biome

69, All other factors remaining the same, which of the following decreases the size of 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

70, In a given ecosystem, members of which one of the following feeding groups release nutrients that are locked up in organic molecule?

A, Herbivores B, Producers C, carnivores D, **decomposers**

71, Which of following term is most appropriate to collectively refer to all the plants, animals and microorganisms found in munesa forest in Ethiopia?

A, Ecology B, Species C, Population D, **community**

72, Which of the following is expected to have positive effect on the biodiversity of Ethiopia?

A, Diverse ecology B, extensive deforestation

C, overgrazing by livestock D, Logging, and fuel wood removal

73, How do animals obtain nitrogen?

A, By absorbing nitrates and ammonia from the soil

B, **from the proteins in the organism they consume**

C, By absorbing nitrogen gas from the atmosphere

D, through mutualistic relationship with nitrogen fixing bacteria

74, What is the collective name for plants that are well adapted to live in very dry environment?

A, Epiphytes B, **Xerophytes** C, Mesophytes D, Hydrophytes

75, Which of the following is more likely to ensure the conservation of all the rest?

A, Soil conservation B, Wild life conservation

C, Plant conservation D, Watershed conservation

76, In which of the following biomes are epiphytes typically present as characteristic element?

A, Tundra B, Boreal forest C, Cold desert D, **Tropical rain forest**

77, 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?

A, Density B, climax community C, **Carrying capacity** D, Limiting factors

78, In Ethiopia, which of the following groups of vertebrates is the most diverse in terms of species number?

A, Mammals B, **Birds** C, reptiles D, Amphibians

79, Which of the following is a threat to the survival of small population?

A**, Habitat destruction** B, Breeding in captivity

C, Disease resistance D, Absence of competition

80, In what ways are mode of nutrition of animals and saprophytes similar?

A, No enzymes are produced B, **Digestions external to their cells**

C, they build up protein from light D, They autotrophic organisms

81, Which one is a biotic factor that can influence the plant?

A, The PH of soil B**, A pollinating animal**

C, CO2 concentration D, The amount of radiant energy

82, Which of the following is not recycled between organism, and their environment in an ecosystem?

A, **Energy** B, Carbon C, Nitrogen D, Phosphorus

83, What is the term that refers to all parts of earth where living things are found?

A, Population B, Ecosystem C, **Biosphere** D, Environment

84, In which kingdom of life are the unicellular eukaryote grouped?

A, Monera B, **Protista** C, Plantae D, Animalia

85, Select the function that living things are not capable of performing?

A, Maintain their internal body environment

B, Pass genetic information to their offspring

C, Responds to other organisms found in their surrounding

D, Determine the amount of radiation reaching the environment

86, Which one of the following is the main source of the greenhouse gas that are concentrating in the atmosphere of the earth?

A, **Burning of fossil fuels** B, Plants growing in greenhouses

C, Photosynthesis by aquatic plants D, Respiration by animals and plants

87, Which one of the following is not one of the roles that microorganisms play in an ecosystem?

A, Nutrient recycling B, carbon fixation C, Nitrogen fixation D, **energy recycling**

88, Which one of the following demographic factors affects the number of human population globally?

A**, Natality** B, Migration C, emigration D, immigration

89, When do populations of living organisms show exponential growth?

A**, when the resource is plentiful**

B, whenever they enter the new environment

C, when they face strong competitions

D, when the carrying capacity of the environment is reached

90, Which of the following statement is true about nitrogen cycle?

A, Plants converts nitrates into nitrogen gas

B, The nitrogen used by animals largely comes from plants

C, Nitrogen is consumed by bacteria and removed from the soil

D, Nitrogen fixing bacteria reduce the total amount of available nitrogen

91, What would be the main reason behind the currently observed slow or stable rate of population growth in the industrial countries?

A, **Good l family planning** B, Increasing death rate

C, poor health condition D, high rate of child death

92, What is the average projected rate of loss of biodiversity every 50 years?

A, 5% B**, 10%** C, 20% D, 50%

93, What is the biome of the world where succulent plants are commonly found?

A, Deciduous forest B, Thorn forest C, **Hot desert** D, temperate grass land

94, The following statements are correct regarding ecological succession except

A, Species diversity increase as succession proceeds

B, The food chain relationship becomes more complex

C, **Ecological succession is random process**

D, The role of decomposers become more and more important

95, Which stage in primary ecological succession contains more biodiversity?

A, The third serial stage B, The second serial stage

C, The climax community D, The pioneer community

96, Which of the following terms mean stage in an ecological succession?

A, Pioneer B, climaxes C, **Seres** D, Niches

97, Which component of the soil fertility is improved when farmers grow legumes in crop rotation?

A, Nitrogen B, sulfur C, Carbon D, Magnesium

98, One of the following biomes of Africa is supporting large wild mammals such as elephants, giraffe and lion?

A, The Congo rain forest B, The rain forest of western Ethiopia

C**, The savanna grassland** D, The Sahara desert

99, What is the important role played by microorganisms such as bacteria and fungi in an ecosystem?

A, Antibiotic production **B, Recycling of nutrients**

C, forming organic substance D, Supplying energy to the ecosystem

100, Which of the following is not usually true as an ecological succession progresses advanced seral stages?

A, more ecological niches are formed B, Species become more diverse

C, the depth of the soil increase D, **less population are supported**

101, In which of the four phase of population growth is the number of the population the highest?

A, Lag phase B, log phase C, **Constant phase** D, Decline phase

102, What is the type of community called when it has reached the final and most complex stages of a succession?

A, Pioneer community B, Seral community

C, **Climax community** D, Secondary community

103, Which of the following is an ecosystem?

A**, Tropical rain forest** B, the African continent

C, All the organisms in the given area D, the non-living component of the environment

104, What is the main reason for high species richness of plants and animals observed in Ethiopia?

A, Lack of predators

B, Lack of disturbance

C**, Presence of several biome within the country**

D, Efficient management of ecological resource

105, Under which of the following groups can fungi be more conveniently placed?

A, Autotrophs B**, Heterotrophs** C, Prokaryotes D, Plants

106, 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**

107, Which one of the following concept contains all the others?

A, Species B, Genus C, population D, **Community**

108, Which of the following statement is true about matter and energy in the ecosystem?

A, both matter and energy are recycled

B, Matter is not recycled, energy is recycled

C**, Matter is recycled, energy is not recycled**

D, Energy is recycled more than matter does

109, Which of the following parts of plant root is harboring nitrogen fixing bacteria?

A**, Root nodule** B, root hair C, Root tip D, root cap

110, Which forms of nitrogen is readily utilized by green plants?

A, Atmospheric nitrogen B, Nitrite C, Ammonium ion D, **Nitrate**

111, Which one of the following ways the tundra biomes differ from desert biome?

A, It is a tree less biome B, It has little biodiversity

C, It receives little precipitation D, **It has permanently frozen sub soil**

112, In Ethiopia, which one of the following vertebrate groups has the largest member of genera?

A, Mammals B**, Birds** C, reptiles D, Amphibians

113, Which of the following resource is used by an ecosystem from outside in order to sustain itself?

A, Producers B, macronutrients C, Micronutrients D, **sunlight**

114, Which of the following applies to the tropical rain forest?

A, Low rain fall and high temperature B, low rain fall and low temperature

C, **high rain fall and high temperature** D, High rain fall and low temperature

115, Which term describes the process by which water is lost by evaporation through the stomata of the leaves?

A, Transport B**, transpiration** C, Anchorage D, Adhesion

116, In which kingdom of life is it most likely to find many examples of organisms that can undergo metamorphosis?

A, Monera B, fungi C, Plantae D, **Animalia**

117, Suppose sites A, B, C, and D have simpson's index of diversity (d) value of 20, 8, 16 and 3 respectively, which site is dominated by one or just a few species?

A, site A B, Site B C, site C D, **site D**

118, Which of the following can create strong interspecific competition if shared by two or more species?

A, habitat B, ecosystem C**, Niche** D, Predators

119, Which of the following is the largest ecological unit?

A, A Community **B, A biome** C, A population D, An ecosystem

120, What is the ecological successions in which plant communities establish after an area has been completely demolished by fire?

A, Tree succession B, **Secondary succession**

C, Primary succession D, Bare rock succession

121, 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

122, Which of the following organisms in the ecosystems release nutrients locked up in dead bodies of organisms?

A, Parasites B**, decomposers** C. Autotrophs D, Carnivores

123, Which one of the following crops has its center of origin and diversity in Ethiopia has become a leading international commodity of commerce?

A, Teff B, Enset C, **Coffee** D, Anchote

124, Which groups of animals the highest numbers of total and endemic species in Ethiopia?

A, Amphibians B, **Birds** C, Mammals D, Reptiles

125, Which of the following is not the correct characteristic of tropical rain forest?

A, **low biodiversity** B, High temperature C, Heavy precipitation D, Trees of different height

126, What are the long term primary effects of the current tree planting activities that Ethiopia is undertaking?

A, It will protect from harm full solar rays B, It will increase the global temperature

C**, It will reduce the atmospheric CO2** D, It will mend the holes in the ozone layer

127, What do you call group of genetically identical plants produced by vegetative reproduction?

A, Family B**, Clone** C, Hybrid D, genus

128, From where do plants get most of their nutrients?

A, Chlorophyll **B, Soil** C, Light D, Atmosphere

129, Which one of the following shows the feeding methods of the decomposer?

A, **Saprobiotic nutrition** B, Autotrophic nutrition

C, Parasitic nutrition D, intracellular digestion

130, Which of the following factor is biotic factor operating within an ecosystem?

A, The amount of oxygen gas in the air

B, The rate of flow of water in the river

C, The carnivores that consumes other animals

D, The type of climate in the given region

131, Which of the following is a not true characteristic of the population of most of the developing countries of the world?

A, High fertility rate

B, Increase population size

C, More number of old people than young people

D, Birth rate greater than mortality rate

132, The following are simpsoms index of species diversity calculated for four areas containing the same type of species. Which index value is from the area dominated relatively by a fewer number of species?

A, 8.0 B, 6.0 C, 3.5 **D, 2.5**

133, What is the reason that plants do not use nitrogen directly from the atmosphere?

A, nitrogen concentration is low in the atmosphere

B, The molecular size of the nitrogen is too large to pass through the stomata

C, Nitrogen can enter plants through the root hairs

D**, Plants lack the necessary process to use elementary nitrogen**

134, Which of the following biome of the earth has the greatest biodiversity of species?

A, Deciduous forest B, **Tropical rain forest** C, desert D, tundra

135, Of the following, which one is the main source from which plants get the nutrients necessary for their growth and development?

A, Light B, Chlorophyll C, Atmosphere **D, Soil**

136, If two species are known to belong to the same order, they must also belong to which taxonomic category?

A, Class B, family C, Species D, genus

137, Which of the following organisms usually forms the pioneer community in a primary biological succession?

A, Annual herbs B, **Lichens** C, Trees D, Ferns

138, In the carbon cycle, which of the following processes removes CO2 from the atmosphere?

A, respiration B, decomposition C, **Photosynthesis** D, combustion

139, Which of the following is not universal property of all living things?

A, Heritable characters B, reproduction C, **Photosynthesis** D, Growth and development

140, What are the possible consequences of deforestation of the tropical rain forest?

A, An increase in existing ecological niches

B, **Reduction in species diversity of an area**

C, Increased removal of CO2 from the atmosphere

D, An increase in the amount of nitrogen in the soil

141, Which of the following release CO2 into the atmosphere?

A, **respiration** B, Assimilation C, Feeding D, photosynthesis

142, If an area is just dominated by one species having very many individuals, what would be its index of diversity?

A, Fluctuating B, High C, **Low** D, unpredictable

143, Among the vertebrates found in Ethiopia, which class has the highest percentage of endemic species?

A, Amphibians B, Reptiles C, **Birds** D, Mammals

144, Which of the following terms refers to movement of individuals out of population?

A, Mortality B, Immigration C, **Emigration** D, Natality

145, In Ethiopia animal diversity, which group is represented by the highest number of orders, families, genera and species?

A**, Birds** B, Amphibians C, Fish Mammals

146, Witch of the following process involved in water cycle is carried out by green plants?

A, Evaporation B, Precipitation C, condensation D, **Transpiration**

147, To which biomes are epiphytes typically present as a characteristics element?

A, **Tropical Montana forest** B, Cold desert wood land

C, The tundra environment D, Boreal deciduous forest

148, If a country have large number of young people relative to the number of old people, to which categories of countries does it belong?

A, Industrial B, Hunter gatherer C, postindustrial D**, Developing**

149, Which of the following is an important way by which green plants mitigate the greenhouse effect?

A, Use of fire wood to replace coal

B**, Removing CO2 from the atmosphere**

C, Releasing water to the atmosphere

D, Releasing oxygen to the atmosphere

150, What do we call place where e organisms live in their ecosystem?

A, Abiotic B, Biotic C, **Habitat** D, Niche

151, Which of the following is not recycled in an ecosystem?

A, Sulfur B, **Energy** C, carbon D, Phosphorus

152, Which of the following type of ecological succession that starts from a cleaned forest area?

A, Hydrosere B, Primary C, **Secondary** D, Pioneer

153, Which of the major role played by bacteria and fungi in the ecosystem?

A, Causing disease B, **recycling nutrients**

C, Fixing carbon dioxide D, Producing antibodies

154, 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**

155, Which of the following demographic factors can increase the size of the world population?

A, **Natality** B, Migration C, emigration D, Immigration

156, 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

157, Which of the following biomes support highest diversity of plants and animals life?

A, **Tropical rain forest** B, Deciduous forest C, Grass land D, African savannah

158, Biome where trees predominant are called?

A, Polar biomes B, desert biomes C, **Forest biomes** D, grass land biomes

159, The goal of biodiversity conservation include all of the following except

A, Protecting individual species

B**, introducing exotic species into new environment**

C, Preserving habitat and ecosystem

D, making sure local people benefit from conservation efforts

160, The maximum population growth rate characteristics of the species is called

A, Limiting factor B, **Biotic potential**

C, Carrying capacity D, Exponential growth rate pattern

161, The total amount of living tissue within a given trophic level is called?

A, Organic mass B, Energy mass C, Trophic mass D**, Biomass**

162, What mode of feeding does soil organisms that release nutrients from dead organic matter into the soil have?

A, Photoautotrophic B, **Saprophytic** C, Chemoautotrophic D, Parasitic

163, Which group of bacteria reduces nitrates to nitrogen gas in the nitrogen cycle?

A, Nitrogen fixing bacteria B, Ammonium ion forming bacteria

C**, denitrifying bacteria** D, photosynthetic bacteria

164, The main factors that determines the type of terrestrial biomes in certain geographical area are:

A, Soil and vegetation formation B, Soil and biological diversity

C, Complexity in ecological succession D**, Precipitation and temperature**

165, Why do microorganisms decompose dead organic matter?

A, To release mineral nutrients for plants

B, To clear up the ecosystem

C, **To drive energy for their own use**

D, To keep the balance of atmospheric gases

166, What kind of nutrition do most of the decomposers have in general?

A, Autotrophic nutrition B, endosymbiont nutrition

C, Saprobiotic nutrition D, Chemosynthetic nutrition

167, What is the nutritional mode of those bacteria which decompose dead organic matter and thus recycle nutrients?

A, Autotrophic B, Parasitic C, **saprobiotic** Symbiotic

168, Which of the following is not true about flow of energy in the ecosystem?

A**, It is recycled by decomposers**

B, It passes from one trophic level to the next

C, It enters the ecosystem in the form of light

D, it leaves the ecosystem in the form of heat

169, Through which of the following do all living organisms contribute to carbon cycle?

A, Photosynthesis B, **cellular respiration** C, Decomposition D, combustion

170, In ecological context, which of the following is population?

A, All living organisms in a habitat

B, All the producers in a habitat

C, All the consumers in a habitat

D, **All individuals of same species in a habitat**

171, What is the other name for the primary consumers of the ecosystem?

A, **Herbivores** B, Carnivores C, Green plants D, Predators

172, Of the following activities, which one is considered to have an indirect negative effect on biodiversity?

A, Burning plants for charcoal

B, Charcoal making and illegal logging

C, Deforestation for cultivation and urbanization

D**, Monoculture farming with improved crop varieties**

173, Recycling of nutrients through ecosystem:

A, Food processing B, Genetic engineering

C, Recycling of mineral through ecosystem D, Waste water treatment

174, Carbon cycle is important in nature because:

A, The amount of energy before and after reaction must be the same

B, It continuously reuse and recycles carbon in the ecosystem

C, it consumes oxygen and nitrogen in the atmosphere

D, it is used in the energy capture and recapture

175, Which of the following is not in situ conservation of biodiversity?

A, **Botanical garden** B, Sanctuary C, Biosphere reserves D, National parks

176, What major consequences does primary ecological succession involve normally?

A**, Complexity of food web increase**

B, Number of species present decrease

C, Abiotic factors become less favorable

D, Habitats become harsher and deteriorate

177, What does a low values for simpson's index of diversity normally indicate to researchers?

A, An area with high number of endemic species

B, An area dominated by one or just a few species

C, A biodiversity hotspot with abundant species

D, An area with plants but no species of animals

178, A country with high youth population but low old age population and low infant population shows?

A**, A population pyramid with bulge in the middle**

B, A population with wide base and narrow apex

C, An inverted pyramid

D, A pyramid assuming a rectangular shape

179, Which of the following terms specifically refers to an ecological succession that starts in aquatic environment?

A, Xerosere B, **Hydrosere** C, Primary succession D, Secondary succession

180, What is another name for secondary consumer?

A, Producers B, **Carnivore** C, herbivore D, Decomposer

181, Which of the following best describes the role of bacteria in nitrogen cycle? Bacteria turns

A, Oxygen into nitrogen for plant to use

B, Nitrogen into usable form in the process called transpiration

C**, Nitrogen into usable form for the plant use called nitrate**

D, CO2 in o oxygen during the process of photosynthesis

182, Both photosynthesis and respiration are involved in

A, **Carbon cycle** B, nitrogen cycle

B, Water cycle D, Phosphorus cycle

183, Which one of the following terms best describes the number of different spices in the biosphere or in the particular area?

A, **Biodiversity** B, Species diversity C, Ecosystem diversity D, genetic diversity

184, Which bacterial genus fixes nitrogen in the nodules of leguminous plant?

A, Agrobacterium B, **Rhizobium** C, Escherichia D, Azotobacter

185, Which of the following pairs of process add CO2 to the atmosphere?

A,. Photosynthesis and combustion B, Respiration and photosynthesis

C, Photosynthesis and fossilization D**, Combustion and respiration**

186, Which of the following agricultural practices does not have a negative effect on biodiversity?

A, Use of pesticide B, Use of insecticide

C**, growing landraces** D, Growing improved varieties

187, 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, **Legumes** B, Nodules C, Cereals D, Herbs

188, The most abundant inorganic molecule in the atmosphere that traps heat is

A, H_2S B, O_2 **C, CO_2** D, H_2O

189, Ethiopia is a regional center of biological diversity. Which of the following diversity is expressed?

A, The many mountain, valley, river, and scenic beauty

B, Wide range of altitude and climate

C**, High number of endemic wild and domestic plant species**

D, The number of different biomes in the country

190, What makes Ethiopia rich in biodiversity which deserves a global attention^

A. Variation in topography and vegetation

B. Narrow range in altitude and climate

C. Uniformity of high lands and low lands

D. Similar terrestrial and aquatic biomes

191, Why maintaining habitats is the key and fundamental aspect to conserve biodiversity? Because

A. disturbance of habitats makes the population well adapted.

B. destruction of habitats is the leading cause of extinction.

C. preserving habitats leads to decreased species richness and abundance

D. replacing natural habitats by artificial ones increases food security.

192, A geographical area with specific climate, soil type, plants, and animals with similar adaptations is

A. ecosystem **C. biome**

B. habitat D. niche

193, Which one of the following statements is true regarding the need for recycling nutrients through an ecosystem?

A. It is energy consuming process hence nutrients are constantly created and destroyed.

B**. It is the key to saving the earth hence nutrients become available**.

C. it depletes the resources hence infinite resources become limited by the process.

D. It pollutes the environment hence waste products are accumulated during the process.

194, What is the impact of humans on the sulphur cycle? Production of

A. hydrogen sulphide through oxidation of sulphur

B. suphur through decomposition of dead matter

C. sulphur dioxide through combustion of fossil fuels

D. sulphate through weathering and oxidation of rocks

195, . The table below compares two types of competition

No.	**Intra- Specific competition**	**Inter-specific competition**
1	Competition between different species	Competition between members of the same species
2	Occurs between individuals with different adaptation	Occurs between individuals with similar adaptation
3	Occurs for all types of requirements	Occurs for specific requirement
4	Directly affects the population size	Either both or one species can be suppressed

In the above table, which rows contain WRONGLY stated statements with respect to the types of competition?

A. Row 1 and 2 C. Row 2 and 4

B. Row 2 and 3 D. Row I and 3

196, As succession progresses, the bare land turns out to be productive due to the fact that the

A. species diversity and richness falls.

B. amount and depth of the soil increases

C. environment becomes less stable.

E. abiotic conditions remain unchanged.

197, What will happen to the population size if the rate of natality is less than the rate of mortality?

A. Unchanged x C. Fluctuate

B. Increase D**. Decrease**

198, Which one of the following statements is correct about the stages of population growth rate curve?

A. Natality exceeds mortality in stationary phase.

B. Nutrients exhausted in decline phase.

C. Toxic excretory products accumulate in log phase

D. Organisms adapted to the environment in lag phase.

199, The terrestrial biome characterized by cold temperature, dry precipitation, frozen soil and inhabited by migrating birds is

A. boreal forests C. tropical montane forests

B. deserts D. **tundra**.

200, This item is based on the table below.

Biome	Soil	Animal
Desert(hot)	L	M
Tropical montene forest	N	O

Select the correct representatives for L, M, N and 0, respectively

A. Fertile, many animals, poor, few animals

B**. Poor, sparse, fertile, many animals**

C. Fertile, migratory animals, poor, drought and fire adapting animals
D. Medium, ants and spiders, poor, polar bears
201. Which one of the following explains biodiversity?
A**. The variability among living organisms, within species, and of ecosystem**
B. The large number of human races in the world
C. The similarity and difference of organisms which live in different ecosystems
D. Large number of organisms in the same ecosystem

202, This item is based on the table below which shows an 'invented' ecosystems.

	Number of organisms of each species		
	Area 1	Area 2	Area 3
A	86	16	23
B	5	17	25
C	2	16	27
D	3	17	5
E	1	17	12
F	3	17	8

203, In which area of the above table does all of the species are more or less equally successful?

A. Area 2 C. Area 1 and 3

B. Area 1 D. Area 1 and 2

204, A major factor in controlling the population size that helps to minimize predators and recover prey's number is

A. disease causing organisms' C. inter-specific competition

B. predation D**. intra-specific competition**

205, Why is nutrient recycling important in an environment? Because

A. the amount of nutrients in the environment is limited.

B. it adds new types of molecules into the environment.

C. nutrients in an environment will be depleted if recycled.

D. nutrients should be exchanged between the earth and other planets

206, Which one of the following orders of life processes correctly illustrates occurrence of the nutrient cycle?

A. feeding→ death and decomposition→ excretion→ respiration and breathing

B. **feeding→ excretion→ respiration and breathing→ death and decomposition**

C. death and decomposition→ feeding→ excretion→ respiration and breathing

D. respiration and breathing → feeding → excretion → death and decomposition

207, Which of the following processes in the phosphate cycle DOES NOT return phosphate ions to the soil?

A. Weathering of rocks

B. Use of fertilizers

C. Decomposition of dead animals

D. Cellular respiration

208, A previously bare land was gradually occupied by lichen and mosses, annual herbs, perennial herbs, shrubs and finally by forests. Which one of the following best describes the process indicated above?

A. Afforestation C. Climax community

B. Succession D. Natural Selection

209, This item is based on the table below.

Condition	Population size
Natality exceeds mortality	X
Mortality exceeds natality	Y
Mortality and natality are equal	Z

210, The population number of X, Y, and Z, respectively will

A. decrease, increase, remain the same

B. increase, decrease, remain the same

C. decrease remains the same, increase

D. remains the same, increase, decrease

211, This item is based on the table below which shows population growth trend.

Time period	Numbers in population	
	X	Y
0	5	40
1	10	80
2	15	160
3	20	320
4	25	640
5	30	1280
6	35	2560

7	40	5120

Which one of the following is correct about X and Y?

A. X is exponential growth because the numbers increase by the same fixed amount in each time period and Y is arithmetic growth because the population doubles in each time period.

B. X and Y cannot be compared because each of them grows differently with incomparable proportion.

C. X is arithmetic growth because the numbers increase by the same fixed amount in each time period and Y is exponential growth because the population doubles in each time period.

D. Both X and Y are exponential growth since each of them increase regularly without interruption.

212, currently, natural resources are being depleted at increasing rate and waste materials are accumulated and discharged freely into water bodies. What is the best strategy to overcome these problems?

A. Decomposition C. Fossilization

B. Succession D**. Recycling**

213, which stage of the nitrogen cycle needs the role of Rhizobium?

A. Decomposition C. **Nitrogen fixation**

B. Denitrification D. Nitrification

214, A key aspect in the process of recovery of an ecosystem *through* succession is that

A. pioneer species always make the environment better.

B. higher organisms colonize the environment first.

C. a climax community of lichens and mosses is established at the end.

D. pioneer species always tend to be lower animals.

215, What are the common plants of the boreal forest?

A. Deciduous trees C. Mosses

B. Conifers D. Epiphytes

216, Actions such as protection of individual species, reduction of pollution, and reduction of deforestation can collectively be taken as method of

A. agricultural expansion C. fighting global warming

B**. biodiversity conservation** D. Fighting soil erosion

217, A more comprehensive definition of biodiversity can be given as the

A. richness, ecological and genetic variability of species

B number of individuals of a species in a given area

C diversity of plants and animals in a given area

D number **of** individuals of a given animal species

218, At which stage of the population growth curve is the rule of natality and the rate of mortality are expected to be equal

A. l.ag phase C. log phase

B. Decline phase D**. Stationery phase**

219, Identify the correct statement about inltra-specific competition? It is competition

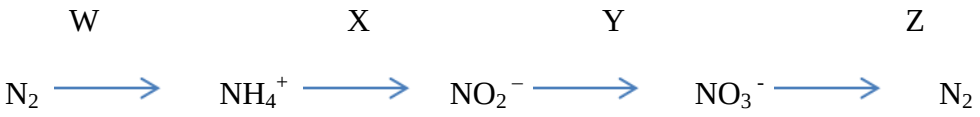
A. for all type of requirement

B. between individuals with different adaptation

C. that leads to local extinction of species

D. of two species inhabiting the same ecological area

220, Answer this question based on the following steps of the nitrogen cycle.



221, The bacteria that are represented by the letters W, X, Y and Z are.respectively:

A. Klebsiella, Nitrobacter, Pseudomonas and Rhizobium

B. Rhizobium. Pseudomonas, Nitrobacter and Xitrosomnnas

C. Azotobacter, Nitrosomonas, Nitrobacter and Pseudomonas

D. Thiobaciiius, Nitrosomonas, Nitrobacter and Pseudomonas.

222, By which levels of precipitation, temperature, and type of plants is the Taiga biome characterized, respectively?

A. Almost none, cold and succulents

B. Adequate, cool year round and conifers

C. Humid, always warm and ferns

D. Dry. Cold and lichens

223, In which biome are epiphytes common?

A. Tundra forest C. Temperate forest

B. Tropical rainforest D. Thorn forest

224, What makes Ethiopia rich in biodiversity which deserves a global attention?

A. Uniformity of high lands and low lands

B. Similar terrestrial and aquatic bionics

C. Variation in topography and vegetation

D. Narrow range in altitude and climate

225, In the bare bottom of a newly formed pond a biologist observed emergence of new algae the form of succession he observed can be best described as:

A. secondary succession C. early succession

B. primary succession D. late succession

226, Which one of the following is the significance of biodiversity?

A. Reducing the level of material wealth

B. **Increasing security of food supply**

C. Worsening of social relationships

D. Increasing vulnerability to environmental stress

227, The carrying capacity of a population can be defined as the

A. maximum population growth rate in a habitat

B. average population size supported by its habitat

C. minimum population size supported by its habitat

D. **maximum population size supported by its habitat**

228, The extent to which variability exists among living organisms, within species and even between ecosystems is known as

A. biosphere B. bioaccumulation

C. biomass D**. Biodiversity**

229, Which genus of bacteria oxidizes hydrogen sulphide to sulphate and makes sulphate ions available to be taken by plant roots from the soil?

A. Klebsiella C. Azotobacter

B. Desulphovibrio D**. thiobacillus**

Unit 3

Genetics

1, Which of the following has active role in the process of translation during protein synthesis?

A, **mRNA** B, tRNA C, rRNA D, Ribosomal protein

2, What is the type of mutation that arises from a change in the nucleotide sequence of DNA molecule at particular locus of the chromosome?

A, **Gene mutation** B, Numerical mutation C, Structural mutation D, Chromosomal mutation

3, What is the best term used to refer to all the gene present in a population?

A, Biochemistry B, **Gene pool** C, Genome D, DNA

4, Assume that E (gene for brown Eye) is dominant over e (gene for blue eye) and that the father and the mother have both genes in their sex cells, what would be the proportion of homozygous children for eye color?

A, 100% homozygous B, 90% homozygous C, 75% homozygous D, **50% homozygous**

5, If the sequence of base on a DNA strand is AAGGTT, which is the corresponding base sequence on messenger RNA?

A, TTCCAA B**, UUCCAA** C, AACCUU D, AAGGTT

6, regarding the ABO blood group inheritance, in which of the following mating a child of the blood type O is produced?

A, AAXOO B, BBXOO C, AOXAB D, **AOXBO**

7, Which of the following chromosomes mutation involves loss of chromosome segment?

A, Aneuploidy B, Translocation C, Duplication D, **Deletion**

8, Which of the following species is used to transfer recombinant DNA to plant?

A, Ecoli B, **Agrobacterium tumerfaciens**

C, Nitrogen fixing bacteria D, Denitrifying bacteria

9, Color blindness is due to X linked recessive gene. Suppose a woman heterozygous for color blindness marries a normal visioned man what proportion of their children will be color blind?

A, All the daughters B, All the sons C, Half the daughters D, **Halanti codon corresponding**n ABO blood group system, genotype AA produces antigen A, Genotype BB produces antigen B whereas genotype AB produces both antigens. Which type of dominance is involved?

A, Complete dominance B, Partial dominance C, **Codominance** D, Over dominance

11, Which of the following type of gene mutation results in replacement of just one amino acids by another amino acid in protein?

A, Addition of base pairs B, Deletion of base pairs

C, **Substitutions of base Pairs** D, Duplication of base pairs

12, At which stage of cell division do homologous chromosomes line up at the equatorial plane of the cell?

A, Prophase B, **Metaphase** C, Anaphase D, Telophase

13, Which of the following cells is diploid?

A, Egg B, Sperm C, Sperm and egg D, **Zygote**

14, What is plasmid?

A, Material that is found in blood B, Material found in the cell membrane

C, The same as virus D**, small circular DNA molecule found in bacteria**

15, what is the dominance in which the two alleles or traits of the genotypes (of both homozygotes) are expressed together in offspring (phenotype)?

A, Complete dominance B, Incomplete dominance

C, **Codominance** D, Intermediate dominance

16, If F1 round yellow pea of RrYy genotype is selfed, which class of pea is most frequent in the F2 generation?

A, Wrinkled green B, Round green C, Wrinkled yellow D, **Round yellow**

17, During protein synthesis which of the following molecules transports amino acids to their correct position in the growing chain of polypeptide?

A, mRNA B, DNA C, rRNA D, **tRNA**

18, If strand of DNA carrying AAT bases is copied to RNA, what would the corresponding bases be in the RNA?

A, **UUA** B, TTA C, AAT D, UUT

19, Choose the alternatives that best illustrates the recombinant DNA technique?

A, Artificial insemination of animals

B, crossing related plants to improve yield

C, Genes from one organism are introduced into the genome of an unrelated organism

D, crossing of carefully selected varieties of species

20, Suppose a couple produced legitimate child of blood type B, What are the genotype of the couple?

A, AA X BB B, AA X AB C, AA X BO D, **AO X BO**

21, Which of the following method is employed in the transfer of human insulin gene to bacteria in order to produce human insulin in the bacteria?

A, DNA finger printing B, Protoplast fusion technique

C, Cross pollination technique D, **Recombinant DNA technique**

22, Suppose a man has dominant gene on his X chromosome, which of his children would show the trait that is controlled by this gene?

A, All sons and daughters B, All sons only

C, **All daughters only** D, Half of the sons and half of the daughters

23, If plant cell having 16 chromosomes undergo meiotic cell division, How many chromosomes would the resulting daughter cells have?

A, 4 **B, 8** C, 16 D, 32

24, In protein synthesis which type of RNA is responsible for bringing the required amino acid to fit on the RNA that acts as template?

A, mRNA b, **tRNA** C, rRNA D, cRNA

25, Which sequence would be complementary to a DNA strand having the sequence ATTGGC?

A, ATTGGC B, TAGTTA C, TAAGGC D**, TAACCG**

26, Which pattern of character inheritance is demonstrated baldness in human?

A, **Sex influenced inheritance** B, Sex linked inheritance

C, Multiple inheritance D, Codominant inheritance

27, Choose the animal that is haploid?

A, Worker bee B, the queen bee C, **The drone bee** D, All the female bees

28, If in a DNA strand of 2000 basses, 30% of the base molecules are known to the thymine, how many guanine base molecules are present in the same DNA strand?

A, 200 B, 300 C, **400** D, 600

29, A man with blood group O married to a woman with blood group B had a child with blood group O. What is the genotype of the mother?

A, OO B, BB C, **BO** D, AB

30, Which term refers to the process of protein synthesis?

A, Denaturation B, Replication C, Transcription D, **Translation**

31, If a couple produce a legitimate type of blood type O which of the following are the possible genotype of the couple?

A, AO and AA B, OO and BB C, BO and BB D, **AO and BO**

32, color blindness is due to recessive gene linked on X chromosome. Which of the following is expected among the children if the mother is color blind and the father is normal visioned?

A, All children will be color blind B, **Only boys will be color blind**

C, Only girls will be color blind D, All the girls and half of the boys will be color blind

33, Which of the following mode of reproduction mixes gene from two parents?

A, Budding B, Binary fission C, **Sexual reproduction** D, Vegetative propagation

34, Which of the following explains the process by which RNA is made from DNA?

A, Translocation B, **Transcription** C, Translation D, Replication

35, In which of the following crosses would one expect more than one phenotype (assume B is dominant to b)?

A, BB X bb B, BB X Bb C, **Bb X bb** D, BB X BB

36, If the bases of anticodon are UCA, what are the bases on the corresponding codon triplet?

A, **AGU** B, UGA C, ACU D, UCA

37, Which of the following is more of a characteristic of an individual than population?

A, **Phenotype** B, sex ratio C, Death rate D, Age distribution

38, Which of the following is not necessary for nuclear division?

A, Spindle formation B, **Cytoplasmic division**

C, Chromosome replication D, Sister Chromatid separation

39, Which of the following does not happen during meiosis?

A, Recombination of gene B, chromosome replication

C, Reduction of chromosome number D, **Formation of identical daughter nuclei**

40, Which of the following depicts what is known as central dogma of genetic information flow?

A**, DNA→ RNA→ Protein** B, RNA → DNA → Protein

C, Protein → RNA → DNA D, RNA → Protein →DNA

41, In human albinism is determined by recessive autosomal gene. If two parents produced a legitimate child who is an albino the child has most likely inherited the defect from

A, Father only B, **Both parents** C, the mother only D, Either the father or the mother

42, What does GMO refers to?

A, **A transgenic organism** B, A germ causing microorganism

C, A gram negative organism D, Controlling weeds

43, How many cells are produced from single mitotic division?

A, One B, **two** C, Three D, Four

44, Suppose a couple produced one normal visioned and one color blind sons. What can be concluded about the parents?

A, The father is color blind B, The mother is color blind

C, The father is carrier D, **the mother is carrier**

45, If in a certain plant genotype RR, Rr and rr produced red, pink and white phenotypes respectively, Rr x rr cross gives

A, All red B**, ½ white; ½ pink** C, All white D, ¼ red; ½ pink;1/4 white

46, What percentage of tall plants results from a cross between hybrid tall and pure short pea plant?

A, 100% B, 75% C**, 50%** D, 25%

47, Suppose RNA is transcribed from a DNA strand that contains AACCTT bases, what are the correct bases on the RNA?

A, AACCUU B, TTGGUU C**, UUGGAA** D, UUGGTT

48, Which of the following technique is used to produce many calves from different cows with sperm collected from a selected bull?

A, Cloning technique B, **Insemination technique**

C, Genetic engineering technique D, Protoplast fusion technique

49, If a sequence of base on DNA is ATG, what will be the base on the anticodon of tRNA?

A, UAC B, TAC C, ATG D**, AUG**

50, If it is found that DNA sequence has GAT base, what are he bases of anticodon corresponding to the base of mRNA transcribed from the DNA sequence/

A, GAT B, CAU C**, GAU** D, TCG

51, Which of the following principle of genetics is illustrated by the results of crosses between tall and dwarf garden pea plant?

A, **Complete dominance** B, Incomplete dominance C, Partial dominance D, Codominance

52, Which of the following carcinogenic agents is common cause of skin cancer in humans?

A, **Ultraviolet radiation** B, RNA virus C, DNA virus D, chemical mutagen

53, Which of the following technique is more appropriate to produce genetically modified organisms?

A, Sexual hybridization B, **Genetic engineering**

C, Artificial insemination D, Vegetative propagation

54, What is the name of the process synthesizing mRNA along a DNA template?

A, Transformation B, **Transcription** C, Translation D, Translocation

55, If a cell having 2n = 40 chromosomes divides mitotically, how many chromosomes are expected in each daughter cell?

A, 10 B, 20 **C, 40** D, 80

56, 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

57, Scientist successfully transferred and inserted a bacterial gene to rice plant and produced the golden rice transgenic rice with very high content of vitamin A in grain. Which research technique did they apply in this process?

A, Normal breeding B, Grafting bacteria to rice

C, Selective breeding D, **Genetic engineering**

58, 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**

59, In humans, what are the chances that the baby at birth would be a boy or a girl?

A, 1:1 B, 1:2 C, 1:3 D, 3:1

60, The strand that is complementary to DNA sequence given as TAACCG is:

A, AUUGGC B, **ATTGGC** C, TAAGCG D, GCCAAT

61, what are GMOs?

A, Possessed food B, **Transgenic organisms**

C, Recombinant DNA D, General marine organisms

62, 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, 100 D, 1200

63, which one of the following statements best describes the mechanisms **by** which meiosis brings about variation? Variation in meiosis is because **of**

A. independent assortment and crossing over

B. frequent spontaneous mutations

C. variations in the content of the cytoplasm between the cells

D. reduction division that leads to haploid cell formation

64, Which of the following hereditary phenomena was not discovered by Mendel?

A, Linkage of genes B, Dominance of genes

C, Segregation of genes D, Independent assortment of genes

65, In which of their constituents do the nucleotide of DNA and RNA differ from each other?

A, In the purine bases B**, In the pyrimidine bases**

C, In the phosphate group D, in all of the above

66, Which biotechnological process has practical applications in the criminal investigation?

A, Bio fuel production **B, DNA finger printing**

C, Single cell protein technology D, Use of biosensors to test blood glucose level

67, Which of the following process results in zygote?

A, Meiosis B, Cleavage C**, Fertilization** D, Gastrulation

68, Choose the cell of the human body that is results of meiosis?

A, Bone cells B, Brain cells C, **Egg cells** D, Muscle cells

69, Identify the enzyme that is used to cut DNA molecules in to small pieces?

A, urease B, reverse transcriptase C, DNA polymerase D, **Restriction endonucleases**

70, Suppose Abebech 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%

71, Which of the following mechanism can separate two genes located on the chromosome?

A, Back crossing B, Crossing over C, **Segregation** D, Independent assortment

72, How do the two strand of DNA combine to form molecule?

A, A base of one strand pairs with a complementary base of the other strand

B, The phosphate of one strand combines with the phosphate of other strand

C, The sugar of one strand combines with the complementary sugars of the other strand

D, A ribose sugars combines with deoxy sugar on the same DNA strand

73, If the DNA of the following animals is hybridized to humans DNA, with which one of them would human DNA hybridize more?

A, Horse B, **Chimpanzee** C, Fish D, Mice

74, What are the three components of a DNA molecule?

A, Glucose, nitrogen and phosphorus

B, Sugar, Phosphate group, nitrogen base

C, Protein, carbohydrate and fat with base

D, Monosaccharaide, disaccharide, polysaccharide

75, Which of the following is expected to produce new combination of genes?

A, Keeping a male goat and a female sheep in the same room

B, hybridization of tall variety of teff with a short variety

C, Vegetative propagation of fruit trees

D, Asexual reproduction of unicellular animals

76, 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

B, The knowledge about dominant character

C, The formulation of punnett squares

D, **The knowledge about the structure of the DNA molecule**

77, Suppose a lost and found baby is claimed by the four families whose blood genotypes are shown below. If the baby has blood type O, which of the families is possible parent?

A, AO and BB B, AA and OO C, **AO and BO** D, AB and OO

78, Which of the following alternatives best defines gene flow?

A, **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 cytoplasm to the nucleus

D, The movement of genes from one from one chromosome to another

79, regarding seed characteristics suppose heterozygous round yellow pea plant of RrYy 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

80, How many daughter ells are produced from single mitotic division?

A, **two** B, four C, six D, eight

81, Which one of the following refers to change in gene?

A, **Mutation** Replication C, Protein synthesis D, transcription

82, Which of the following molecules require template molecules for its synthesis?

A, cellulose B, Starch C, **Protein** D, Glycogen

83, In the life cycle of sexually reproducing organisms, which of the following processes restore the chromosome number from haploid to diploid state?

A, **Fertilization** B, Meiosis C, Chromosome replication D, Mitosis

84, In plant hybridization experiment, which one of the following is the best way to prevent self-pollination?

A, **remove the stamens** B, cover flowers with bags

C, cross pollinate flowers D, make reciprocal crosses

85, Among the following choices identify the one that have identical DNA finger prints?

A, Parent and children B, Non twin sons C, Fraternal twins D, **Monozygotic twin**

86, Which of the following is the right vector to transfer alien genes to bacteria through genetic engineering?

A, **Plasmid** B, Snails C, Mosquitos D, Tse tse fly

87, Suppose by monohybrid cross 80 F2 plants was produced, what is the number of plants that are expected to have the dominant and recessive phenotype?

A, 70 dominant + 10 recessive **B, 60 dominant + 20 recessive**

C, 50 dominant + 30 recessive D, 40 dominant + 40 recessive

88, In spite of their ability to form hybrid when mated, which one of the following factors are 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 zygote D, they are ecologically isolated

89, Which of the following is true about both DNA and RNA?

A, both are single stranded **B, both have five carbon sugars**

C, both are polymers of amino acids D, Both contains the same four nitrogen bases

90, Which one is the correct direction of transfer of genetic information in most living things?

A, Protein→ DNA → mRNA B, DNA → protein → tRNA

C, Protein→ RNA→ DNA D**, DNA → RNA → protein**

91, If it is known that the total amount of DNA in 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

92, Which one of the following types of mutation is responsible for sickle cell anemia?

A, Addition of a base pair B, **Substitution of a base pair**

C, Deletion of abase pair D, A shift in reading frame of the genetic code

93, If due to incomplete dominance, the F1 plants from a cross of red flowered X white flowered parents are pink, which of the following ratios are expected in the F2 generation?

A, 1red; 2pink; 1white B, 2red; 1pink; 1white

C, 1red; 1pink; 1white D, 3red; 1pink; 1white

94, Why is that the typical diploid chromosome number of many organisms including human being is an even number?

A, It is only a coincidence

B, Chromosomes duplicate before cell division

C, Both parents contributes equal number of chromosomes

D, Meiosis reduces chromosome number

95, If it is known that the total number of the purine bases account for 50% of DNA molecule and if each of the remaining bases are known to have the same proportion, what proportion is accounted for by thymine alone in the same molecule?

A, 25% B, 50% C, 75% D, 100%

96, As it was shown by Gregor mendel in garden pea, what percentages of the F2 generation of a monohybrid cross has the recessive phenotype?

A, 75% B, 50% C**, 25%** D, 12.5%

97, Which one of the following is not mutation?

A, DNA replication to form two daughter DNAs B, Gain of extra chromosomes by a cell

C, Deletion of a base pair from DNA D, Loss of a chromosome by a cell

98, What do geneticists call the genotype in which the two alleles of a pair are identical?

A, Dominant B, Recessive C, **Homologous** D, Heterozygous

99, 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** B, In multicellular animals only

C, Only in prokaryotic organisms D, In both prokaryotic and eukaryotic organisms

100, Which one of the following is referred as first law of Mendel?

A, The occurrence of allele in pairs

B, the dominance of the allele over the others

C, The equal contribution of alleles by both parents

D, The separation of alleles during gamete formation

101, Which of the following is the best way to check whether an individual having a dominant phenotype is homozygous or heterozygous for the traits?

A, to self the individual

B, to cross it to heterozygous individual

C**, to cross it to homozygous recessive individual**

D, to cross it to homozygous dominant individuals

102, In DNA cloning technology, which of the following molecules serves as vector of gene of interest to transfer to bacteria?

A, Bacterial DNA B, **Plasmid DNA** C, Nuclear DNA D, mitochondrial DNA

103, Among the following couples whose ABO blood genotypes are shown, which one can produce children of A, B, AB, and O blood type?

A, OO and AB B, BO and AA **C, BO and AO** D, BB and AO

104, How do human beings increase biodiversity?

A, By reducing species richness B, **By increasing genetic variability**

C, By promoting habitat uniformity D, By narrowing ecological variability

105, Before making crosses which part of flower did Mendel removes to avoid self-fertilization?

A, Stigma B, Ovule C, Ovary D, **Stamen**

106, Which of the following is the correct F2 phenotype ratio of the monohybrid cross?

A, 1:2 B, 1:1 C**, 3:1** D, 2:2

107, One of the following is an important cause of genetic mutations?

A, Old age B, Soft drinks C, Lack of balanced diet D, **radiation**

108, How many chromosomes do human inherit from each of their parents?

A**, 23 chromosomes** B, 23 pairs of chromosomes

C, 46, chromosomes D, 46 pair of chromosomes

109, If mRNA brings the code "UGA' into the ribosome

A**, translation ceases and protein synthesis terminates**

B, tRNA will bring die amino acid methionine.

C, ribosome will initiate protein synthesis

D, tRNA will bring UGA anticodon.

110, The sheep dolly is an example of which biotechnological manipulation of animals by humans?

A, Transgenic animal B, genetically engineered animal

C, **Cloned animal** D, Hybrid animal

111, In a cross between heterozygous what proportion is expected to be homozygous recessive?

A, 25% B, 50% C, 75% D, 100%

112, Gene silencing is the function of one of the following molecules

A, rRNA B, mRNA C, **siRNA** D, tRNA

113, Which process is held responsible for chronic myelogenous leukemia?

A, T**ranslocation** B, translation C, transcription D, duplication

114, Two parents of genotype Aa are crossed breed. The allele show complete dominance. What proportion of offspring will phenotypically look like their parents?

A, O B, ¼ **C, ½ D, 3/4**

115, Among the following mating, the ABO blood genotype of the partners are shown, identify the mating in which all the children will have the same blood type?

A, A, AO x BO B, **AA x OO** C, AB X BO D, BB x AO

116, In some human liver cells there are 92 chromosomes per cells. What is the polyploidy level of such cells?

A, Haploid B, Diploid C, **Tetraploid** D, Hexalpoid

117, Suppose the amino acid coding region in mRNA is 1200 nucleotides long, how long is the protein in terms of amino acid number?

A, 1200 amino acids B, 600 amino acids C**, 400 amino acids** D, 300 amino acids

118, Which of the following is a recently developed active area of research in biology today?

A, Taxonomic study B, Study about the cell theory

C, ecological research **D, Stem cell research**

119, Which one of the following choices shows the end product of mitotic cell division?

A, Gametes and ordinary cells B**,** Four genetically different cells

C, Two genetically different cells D**, Two genetically identical cells**

120, What exactly happens during substitution mutation?

A, one base is replaced by different bases

B, An extra base is added during DNA replication

C, A base is missed during DNA replication

D, Changes occur in the arrangement structure of chromosome

121, Which of the following groups of animals have males with ZZ and females with ZW sex chromosome constitution?

A, Grasshopper B, **Birds** C, Mammals D, Honey bee

122, Which of the following techniques is used to separate DNA fragments according to their size on gel?

A, Southern blotting B, **Electrophoresis**

C, Radioactive labeling D, Digestion by restriction enzyme

123, 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**

124, In some crosses of maize, the progeny produces better yield than the parents. What is this phenomenon known as?

A, Dominance B, Heterozygosis C, **Hybrid vigor** D, Inbreeding depression

125, Which of the following is the mechanism by which two genes located on the same chromosomes are separated?

A, Independent assortment B, **Segregation** C, Linkage D, Crossing over

126, Which molecules carry the instruction for the protein synthesis?

A, Carbohydrates and lipids B, Amino acids C, **DNA and RNA** D, Enzymes

127, During protein synthesis, where in the cell does transcription takes place?

A, Ribosome B, **Nucleus** C, endoplasmic reticulum D, golgy apparatus

128, In protein synthesis, what is produced during transcription?

A, Protein B, **mRNA** C,DNA D, Polypeptide

129, Which of the following is not term used to describe organisms that have had foreign genes added to them?

A, genetically modified organisms B, Genetically engineered organisms

C, Transgenic organisms D**, Pathogenic organisms**

130, Which of the following pairs of individuals have identical DNA finger printing?

A, Father and son B, Mother and daughter C, Brother and sisters D, **Monozygotic twins**

131, Which of the following mating produces children all having the same ABO blood genotype?

A, AO x AB B**, BB x OO** C, AO x BO D, AA x BO

132, If DNA contains 10% thymine, what is the percentage of cytosine in the DNA?

A, 10% B, 30% C**, 40%** D, 90%

133, Which of the following are the constituent of eukaryotic chromosome?

A, DNA and RNA B, **DNA and protein** C, DNA and carbohydrates D, RNA and lipids

134, For what purpose molecular biologists use the technology known as polymerase chain reaction or PCR?

A, To insert DNA into plasmid B, To insert plasmid into bacteria

C**, To multiply copies of DNA molecules** D, To produce DNA from RNA

135, What is the base found in RNA in place of thymine of DNA?

A, Cytosine B, Guanine C, Thymine D, **Uracil**

136, What does restriction enzyme do?

A, Restricts transcription B, **Cut DNA at specific site**

C, Prevents DNA from replicating D, Hydrolyzes the DNA molecule

137, 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 gene B, **Hybrid vigor** C, Recessive genes D, Co dominant genes

138, When the F1 hybrid of mono hybrid cross is back crossed with the homozygous recessive parents, what percentage of the offspring would be homozygous recessive?

A, O% B, 25% C**, 50%** D, 75%

139, Which two nitrogenous bases belong to the purine?

A, Adenine and thymine B, **Adenine and Guanine**

C, Guanine and cytosine D, thymine and uracil

140, Which of the following is true?

A**, Recessive allele's are only expressed in the homozygous**

B, Dominant alleles are only expressed in the heterozygous

C, Recessive alleles are expressed in the heterozygous

D, Genetically modified organisms are never used to manufacture vaccines

141, Which process produces mRNA during protein synthesis?

A, Translation B, replication c, Mutation D, **transcription**

142, Which of the following is the correct constitution of sex chromosomes of normal woman?

A, XY B**, XX** C, XO D, XXY

143, In a cell division, what is the phase that comes following the metaphase called?

A, extra phase B, Prophase C, **Anaphase** D, telophase

144, What is the circumstance that causes the health condition known as sickle cell anemia?

A, DNA denaturation B, **Hemoglobin mutation**

C, RNA mutation and decay D, Phosphate mutagenesis

145, Which of the following terms refers to the failure of sister chromatids to separate from one another during anaphase?

A, **Non dis junction** B, Replication C, Deletion D, double inversion

146, Which of the following sequence represents the correct change in number of chromosomes during fertilization?

A, n + n →2n B, 2n→2n C, n → n D, 2n→n + n

147, 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

C, Females have the homozygotic WW chromosomes

D, Females have W and Z chromosomes

148, What percentage of F2 progeny of monohybrid cross is expected to have the recessive phenotype?

A, 100% B, 75% C, 50% D**, 25%**

149, Which of the following cross will produce progeny with phenotypic ratio 3:1?

A, Cross the F1 to the dominant parent B, Cross two homozygotic individuals

C, Cross the F1 to the recessive parent D, **cross two heterozygotic individuals**

150, If a codon on messenger RNA is UUU, what is the complementary anticodon on the transfer RNA?

A, UUU B, GGG C, CCC D**, AAA**

151, If a clone is produced by transferring a nucleus of animal A, an enucleated egg of animal B and the egg is often implanted in the uterus of animal C, which animal would be clone resemble most?breedAnimal C B, Animal B **C, Animal A** D, Other animals

152, If it is known that the total amount of DNA in a cell is 300 units and that adenine contributes 70 of these units, how nanny units go to the cytosine?

A, 40 units B, 70 units C, **80 units** 35 units

153, Which characteristics of RNA make 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**

154, Which of the following is the sex chromosome constitution of human males?

A, XX B**, XY** C, ZZ D, ZW

155, Which of the following part of flower Mendel remove from young flower to prevent self-pollination?

A, **Stamens** B, Sepals C, Petals B, ovaries

156, Which of the following base is not found in RNA?

A, Adenine B, Guanine C, Cytosine D, **thymine**

157, What kind of cross is performed to determine whether the parent was homozygous or heterozygous?

A, Monohybrid cross B, Hybrid cross C, **Test cross** D, Double cross

158, Among the following ABO blood group genotypes, which one produces two type of antigens?

A, I^AI^O B, I^BI^O C**,** $\mathbf{I^AI^B}$ D, I^BI^B

159, Which of the following methods do animal breeders use to produce domestic animals with hybrid vigor?

A, Feeding with nutritive feed B, Giving proper veterinary care

C, Mating together related animals D**, Cross breeding their animals**

160, Why drosophila melanogaster considered as ideal for genetic experiments? Because they

A. Breed and keep in large number easily

B. Complete their life cycle within one month

C. Have the highest number of chromosomes

D. Contains chromosomes with severe genes

161, If a heterozygous tall pea plant (Tt) is crossed with short pea pea plant (tt), what percentage of the progeny is expected to be short?

A, 100% B, 75% C**, 50%** D, 25%

162, Which of the nitrogenous base of a nucleic acid is a purine base?

A**, Adenine** B, Cytosine C, Thymine D, Uracil

163, Which of the plant with the following genotype is heterozygous?

A, BBYY B, **BbYy** C, bbyy D, YYBB

164, At which of the following generation 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

165, If in a DNA molecule consisting of 1000 base pairs, there are 300 adenine bases, how much guanine bases will be present?

A, 200 B, 400 C, 600 D**,** 700

166, Which form of mutation is responsible for disease known as leukemia?

A, Duplication B, Insertion C, **Inversion** D, Deletion

167, Mutation may be described as

A, Phenotypic change **B, Change in gene structure**

C, Continuous variation D, Change due to hybridization

168, During meiosis, which process makes the four chromatids of homologous pair of chromosomes genetically different from one another?

A, Pairing B, Crossing over C, Dominance D, Linkage

169, One of the following is not true about protein synthesis in eukaryotes/

A, Translation takes place in the cytoplasm

B, Transcription takes place in the nucleus

C, **Both transcription and translation takes place in the cytoplasm**

D, mRNA is modified after transcription

170, If two heterozygous pea plants are crossed, how many of the offspring would be phenotypically tall plant?

A, 05 B, 25% C, 50% D**, 75%**

171, The type of enzymes used in the recombinant DNA technology to split specific sugar phosphate bond in each strand of DNA double helix is called?

A, Esterase **B, restriction** C, Lipase D, Ligase

172, One goat is heterozygous, long hair (Rr), and its mate carries homozygous short hair (rr), what is the probability of the offspring's having short hair?

A, 25% B, 100% **C, 50%** D, 75%

173, Which of the following nucleotide sequence contains four pyrimidine base?

A, GATCAATGC B, UAGCGGUAA C, GCUAGACAA D, Both B and C

174, Which one of the following is commonly called the code of life?

A, DNA B, organelle C, Fatty acid D, Cell

175, What is the function of DNA polymerase?

A, It hydrolyzes the DNA molecule B, it converts the DNA molecule to RNA

C**, It forms DNA by joining nucleotides** D, It joins two RNA molecules to form DNA

176, Which type of human chromosome mutation causes the human genetic defect known as trisomy 16?

A, Deletion B, translocation C, **Duplication** D, chromosome inversion

177, If two parents with genotype Aa are cross breed and that there is no coself-fertilization nheritance pattern, what proportion of the offspring would have genotypes exactly like that of their parent?

A, 100% B, 75% **C, 50%** D, 25%

178, Which of the following is an example of cell formed by reduction division?

A, Nerve cells B, **Sperm cells** C, Bone cells D, Kidney cells

179, When organisms containing a gene which does not belong to it and is derived from somewhere else, the organism is said to be

A, **Transgenic** B, Hybrid C, Mutant D, Clonal

180, Which of the following statement about transgenic organisms is correct?

A, Any organism which the foreign gene is added to its genome

B, A plant that has been cross pollinated with another plant

C, An animal that has been reared in isolation in the laboratory

D, A bacterium that is produced by binary fission

181, How many nucleotides are needed to form codons for protein that is 100 amino acids long?

A, 100 nucleotides B, **300 nucleotides** C, 200 nucleotides D, 640 nucleotides

182, If allowed to self-pollinate, which of the following pea plant genotype would produce progeny with 9:3:3:1 phenotypic ratio?

A, RRYy B, RrYY C**, RrYy** D, RRYY

183, Suppose a self-fertilization of organism has AaBb genotype, how many different type of gametes would it produce if there is no linkage?

A, 16 B, 8 C, 12 **D, 4**

184, Red green color blindness is due to X linked gene and determined by the recessive alleles. Which one of the following is true about this condition?

A, Expressed in both sexes equally if the parents are carriers

B, **Female inherit one allele from each parent and become affected**

C, It affects males due to alleles inherited from the father

D, It is much more common in females

185, which one of the following statement is true about a chromosome? It is:

A, made of DNA which is tightly coiled many times around histone

B, Clearly visible in the nucleus when the cell is not dividing

C, Divide into two equal sections by the centromere

D, loosely organized throughout the nucleus when the cell is dividing

186, What is the complementary strand for a DNA strand having the following sequence of basses?

5'-AGGTTACTGAGCT-3

A, 3'-UCCAAUGACUCGA-5' B, 5'-UCCAAUGACUCGA-3'

C**, 3'-TCCAATGACTCGA-5'** D, 5'-TCCAATGACTCGA-3'

187, Consider the following disordered events of transcription.

I, RNA polymerase cross a stop sequence in the gene

II, RNA polymerase reads the antisense DNA strand and builds mRNA

III, RNA molecules detaches from DNA and the DNA rejoins

IV, RNA binds to the promoter which signals the DNA to unwind

Which one is the correct sequence of events during transcription?

A, I IV II III B, IV I II III **C, IV II I III** D, I IV III II

188, Which of the following bases are the triplets of code in the mRNA that cease translation and the ribosome folds the polypeptide into its final structure?

A, UAA, UAG and UGA B, TAA, TAG and TGA

C, ATT, ATC and ACT D, CCC, UUA and GUU

189, If particular triplet of bases in the sense strand of DNA is AGT, then the corresponding codon for the transcribed mRNA will be

A**, UCA** B, AGU C, ACU D, UGA

190, The chromosomal mutation that results Down's syndrome is

A, **Chromosome non disjunction** B, Chromosome translocation

C, Inversion D, Duplication

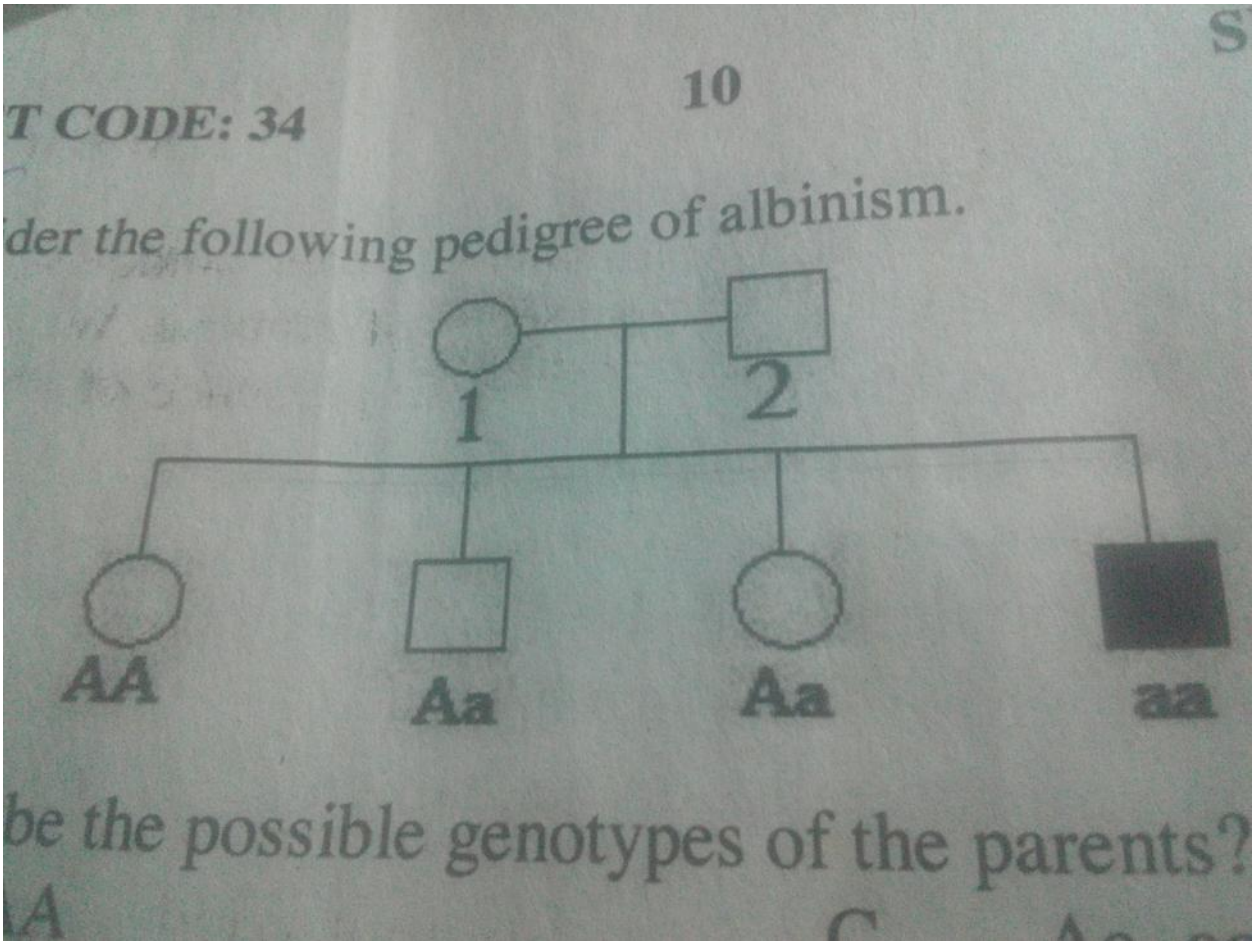
191, When a piece of one chromosome is transferred to another non homologous chromosome, such kind of mutation is called

A, Duplication B, Insertion C**, Translocation** D, Inversion

192, The nucleotide that build up the DNA molecule contain the following bases except?

A, Cytosine B, **Uracil** C, Guanine D, Adenine

193, Consider the following pedigree of albinism.



What will be the possible genotype of the parent?

A, aa, AA **B, Aa, Aa** C, Aa, aa D, AA, Aa

194, In which phase of meiosis does pairing of chromosome and exchange of segments take place?

A, Anaphase II B, Anaphase I C, Prophase II **D, Prophase I**

195, During meiosis crossing over is important to increase variation of gametes with regard to alleles that are

A, recessive and homozygote B, linked and not assorted independently

C, Dominant and heterozygote D**, Independently segregated**

196, If one base in the six triplet of the gene coding for one of the four polypeptide in the hemoglobin molecule alters the triplet from GAG to GTG, which one of the following biological terms best describes the above phenomena?

A, Mutation B, cloning C, Translation D, transcription

197, Which one of the following is the basic characteristics of mutation?

A, Spontaneous b, Planned C, Regular D, Expected

198, Drosophila melanogaster are convenient experimental animal in genetics. Because they

A, have 23 pairs of chromosomes per cell

B, are small animal with a long and complicated life cycle

C, are too cheap to breed in large numbers

D, have chromosomes that can't be easily detected

199, Suppose a heterozygous brown eye father is married with a blue eye mother. What would be the proportion of homozygous children for eye color? (Hint Brown is dominant over blue)

A, 50% B, 100% C, 75% D, 25%

200, This item is based on the following list of events during cloning of an insulin gene into plasmid.

I, Obtaining insulin producing cells and plasmid from organisms

II, Cutting the insulin gene and plasmid

III, X

IV, inserting the recombinant plasmid into bacteria

V, Production of insulin by bacteria

Which one of the following best represents the step listed as X?

A, inserting the insulin gene into a bacterium

B, Inserting the open plasmid into a bacterium

C, Fusing the insulin and plasmid genes to the cell wall of bacteria

D**, Combining the insulin gene into the opened plasmid**

201, Consider the DNA molecule containing:

Strand 1: TACGTA

Strand 2: ATGCAT

What will be the sequence of the new DNA if the DNA replicates semi conservatively?

A, ATGCAT B, TACGTA

UACGUA ATGCAU

C, ATGCAT **D, TACGTA**

ATGCAT **ATGCAT**

202, During translation the

A, tRNA serves as a template of the DNA molecule

B, ribosomes moves forward over two codons at a time

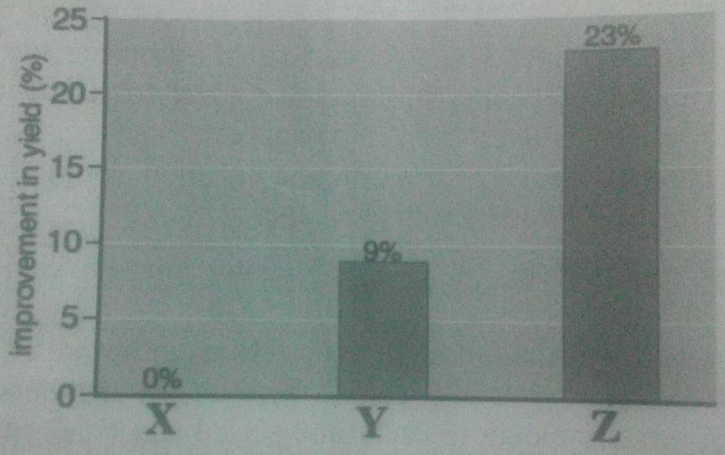
C, mRNA brings amino acids into the ribosome

D, **tRNA with complementary anticodon binds on the codon of mRNA**

203

A. 50%
B. 100%
C. 75%
D. 25%

45. The following question is based on the figure that shows the gains in productivity from hybrid vigour.



In the above diagram, what best describes the breeding condition represented by letter X, and Z, respectively?

A. X involves cross breeding and Z involves inbreeding.
B. X involves inbreeding and Z involves cross breeding.
C. X represents natural selection and Z represents artificial selection.
D. Both X and Z represent inbreeding.

6 If organisms share very similar molecules such as DNA, then they

Answer: B

204, Which type of chromosome mutation causes leukemia?

A, Duplication **B, Inversion** C, Insertion D, Deletion

205, A color blind daughter can be born when the

A, mother is color blind and the lather is normal

B, father is color blind and the mother is normal.

C, mother is carrier and the father is color blind

D, father is normal and the mother is carrier

106, Suppose two heterozygous round yellow (RrYy x RrYy) pea plants were crossed and 128 seeds were produced, how many of the seeds are expected to be heterozygous round yellow?

A, 64 seeds **B, 32 seeds** C, 96 seeds 128 seeds

207, A farmer cut off several regions of a stem near to the buds of a plant. He removed some of the leaves and dipped the cuts end in some hormones rooting powder and planted the cuttings in compost. He kept the cuttings well watered and within few weeks they developed their own root system and became new independent plants. which one of the following is correct about the experiment?

A, phenotypically and genotypically different from the parent plant and from each other

B, genetically and phenotypically identical to the parent plant and to each other

C, genotypically identical but phenotypically different from the parent

D, phenotypically identical but geneucally different from each other

208, During DMA replication:

A, DN A helicase transports nucleotides that are used to build the new DNA

B, the base sequence in the new DNA will be slightly changed from the parent DNA

C, DNA polymerase assembles new nucleotides into a new strand

D, the parent DN \ will become different from the daughter DNA.

209, With four different bases to work with, there are 64 possible triplet codes, but only 20 amino acids are used to make all the different proteins. *This is* because the DNA code is

A, degenerate code C, semi conservative code

B, non-overlapping code D, universal code

Unit 4

Evolution

1, From among the following alternatives select and indicate your own species

A, Homo habilis B, Australopithecus afarensis C, **Homo sapiens** D, Homo erectus

2, Which one of the following process of evolution best explains the phenomenon known as industrial mechanism?

A, **Directional selection** B, Disruptive selection

C, Adaptive selection D, Stabilizing selection

3, If organisms share very similar molecules such as DNA, then they must be closely related evolutionary. Which evidence of evolution supports the above information?

A, comparative embryology B, Comparative anatomy

C, Comparative physiology D**, Comparative biochemistry**

4, Which one of the following cannot be used as an evidence of evolution through paleontology?

A, Stomach B, Teeth C, Hair D, Bones

5, The process in which individuals with a particular heritable trait survive better than the other is

A, Adaptation B, Evolution C, Selective breeding D**, Natural selection**

6, Who develops the theory of evolution by means of natural selection independent of Charles Darwin?

A, Erasmus Darwin B, **Alfred Wallace** C, Charles Lyell D, George cuvier

7, Human babies with birth weight far above and below the average weight have less chance of survival than babies with birth weight around the average. What sort of natural selection is operating?

A, Disruptive selection B, **Stabilizing selection**

C, Directional selection D, Diversifying selection

8, Which of the following is not necessary for evolution to take place?

A, **Stable environment** B, Sexual reproduction

C, Heritable variation D, Isolation between population

9, If a large body of water is divided into a number of isolated lakes, which mode of speciation would this favor?

A, Phyletic B, Sympatric C, **Allopatric** D, Parapatric

10, Which of the following is an example of continuous variation in humans?

A, Blood group B, color of the eye C, **Height** D, ear lobe structure

11, One of the following happened during the industrial revolution and increased the number of black moths and decreased the number of pale forms sharply. Which one is it?

A, The soot darkened the pale moth

B, Black moths become distasteful to predators

C, The pale moth migrated out of industrial area

D, **The gene for the dark color increased due to natural selection**

12, Which region of Ethiopia is now considered a hot spot as far as fossil evidence for human evolution is considered?

A, **Afar** B, Amhara C, Gambella Harari

13, Which theory of evolution contains the idea that new characters can be acquired by use and dis use of part of the body?

A, Neo Darwin theory of evolution B, Darwin theory of evolution

C, Lamarck theory of evolution D, Natural selection of evolution

14, Which one of the following statements describe the evolutionary theory of Lamarck?

A, Acquired characteristics cannot be inherited

B, Structures commonly used become more developed

C, Origin of species happens only through natural selection

D, Species started complex and gradually become simple

15, 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 bacteria B, Morphology of bacteria

C, Sexual reproduction of bacteria **D, Evolutionary change in bacteria**

16, When a bell shaped curve result from the analysis of certain variable in a population, what type of natural selection is probably taking place in the population with regard to that variable?

A, Disruptive selection B, Directional selection

C, Divergent selection D, **Stabilizing selection**

17, Compared to the others, which one of the following plants is found in higher level evolutionary advancement?

A, Liverworts B, Moss C, Fern D, **Grass**

18, Which groups of hominids is called the handy humans?

A, Homo sapiens B, Homo erectus C, **Homo habilis** D, Australopithecus

19, Which of the following physiological a property of life is primarily concerned with the perpetuation of species?

A, Response to the stimuli B, Respiration C, **Reproduction** D, Excretion

20, On which of the following ideas do Lamarck and Darwin fully agree?

A, Life is a result of natural selection B, Acquired characteristics are inherited

C, Natural selection leads to evolution D, Evolution occurs by use and dis use body parts

21, According to Lamarck's theory of evolution, what is the origin of new structure that are necessary for evolution?

A, Mutation B, Gene recombination C, Natural selection D, **Use and dis use of body parts**

22, Among the following fossil forms of the human evolutionary ancestor which one was the first to develop the ability to walking up right?

A, **Homo erectus** B, Homo habilis

C, Aradipththecus ramidus D, Australopithecus afarensis

23, Which evolutionary evidence was very unlikely to have been useful by Darwin in the formation of theory of evolution?

A, Comparative anatomy B, **comparative biochemistry**

C, Fossils D, geographical distributions

24, Which one of the following is true about Neo Darwinian theory?

A, There is a natural variation in features and variations which are heritable

B, All species tend to produce more offspring than can possibly survive

C**, It takes into account genetics and animal behavior to understand evolution**

D, Development of new feature is important for survival

25, Suppose in a certain population natural selection removes individuals with average height, leaving tall and short individuals behind, which of the following mode of selection is in operation?

A, Stabilizing selection B, Normalizing selection C, Directional selection D, **Disruptive selection**

26, According to theory of evolution as proposed by Charles Darwin, which one of the following is the most important driving force of evolution?

A, Mutation B, Over reproduction C, Genetic recombination D**, Natural selection**

27, The present amount of C14 originally present in fossil would be left after its second half life?

A, 755 B, 50% C**, 25%** 12.5%

28, Which of the following mode of natural selection was responsible for fast increase in the number of the back form of moths in Europe during industrial revolution?

A, Stabilizing selection B, disruptive selection

C, Normalizing selection **D, directional selection**

29, Which group of organisms is found in lower level of evolution according to the modern principle of biology?

A, Protist B, **fungi** C, Animals D, Plants

30, The theory that suggests life can evolve autonomously from non-living object is known as

A, Cosmozoan theory B**, Spontaneous generation theory**

C, Biochemical theory D, Eternity theory

31, From which of the following sources did Charles Darwin get the idea that selection can change living organisms? From

A, The work of animal and plant breeders B**, His observation of the Galapagos birds**

C, The evolution theory of Lamarck D, The book by Mathias

32, Which one of the following is most important for speciation to occur?

A, Hybridization among population B**, Isolation of the gene pool**

C, Migration between population D, Free flow of genes between population

33, Which one of the following is true about the importance of Lucy in resolving debates about human evolution

A, Big brain came before bipedalism

B, Lucy had a brain size of 1.8% of her body mass

C, Bipedalism came before big brain

D, Lucy was partially an arboreal primate

34, Which one of the following phenomena supports Darwin’s concept of natural selection in organic evolution?

A, Development of transgenic animals

B, Prevalence of pesticide resistance insects

C, Production of Dolly, the sheep by cloning

D, Development of organs from stem cells for organ transplantation

35, Animals without close evolutionary relations are sometimes seen to have similar structures adapted for the same functions. Which evolutionary principle is illustrated by this observation?

A, **Convergent evolution** B, Divergent evolution C, Sympatric evolution D, Allopatric evolution

36, To which genus of human like organisms does Lucy belong?

A, the genus homo B, The genus ardipithecus

C, The genus sahelanthtropus D, **The genus Australopithecus**

37, What is the significance of *Australopithecus afaremis* in the study of human evolution? To confirm:

A**, evolution of bipedalism before large brains**

B, divergent evolution of *Homo credits* from *habits*

C, true common ancestor of chimpanzees and humans

D, convergent evolution of *Homo neanderthulensis* and *Homo erectus*

38, Which of the following idea is not part of Darwins' theory of evolution?

A, over reproduction B**, use and dis use body parts**

C, Existence of heritable variation D, competition for scares resource

39, If a radioactive substance that weight 5600 grams and has half-life of 100 years is left with 700 grams for how long had the decaying activity been undergoing?

A, 100 years **B, 300 years** C, 200 years D, 500 years

40, Why are fossils of soft bodies organisms relatively are not in the environment?

A, They are generally small in size

B, Their bodies decompose readily

C, they all lived in the environment where sedimentation did not occur

D, They were never common in the environment in which they lived

41, Which of the following is true about evolutionary origin of groups of organisms?

A, The dinosaurs appear before the origin of land plants

B, The earliest homo sapiens appear before the flowering plants

C, The first photosynthetic organisms appeared before the oldest eukaryotes

D, The first animal appeared before the formation of free O2 in the atmosphere

42, Carbon 14 has a half lie 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 yards B, 11460 years C**, 17190 years** D, 22920 years

43, What is the reason that Louis Pasteur used a swann necked flask instead of straight necked one in his experiment designed to disprove the theory of spontaneous generation?

A, To allow free passage of air into the broth inside the flask

B, To prevent the escape of any microorganisms from the flask

C, To keep the broth in the flask hot to kill microorganisms

D, To trap particles from the air that might enter the flask before reaching the broth

44, Which of the following pairs of molecules can give information about how much two species are evolutionary related to one another?

A, DNA and protein B, Starch and cellulose C, Lipid and cellulose D, Lipid and carbohydrates

45, What does structural similarity between the flippers of whales and arms of human shown?

A, Whales evolved from human species

B, Whales are older than the human species

C, The human species begun life in the ocean

D, Whales and humans had common ancestry

46, In which species did scientist find the smallest brain size (cranial capacity)?

A, Homo sapiens B, **Homo habilis** C, Homo erectus D, Homo neanderthalensis

47, What are the most likely cause of variation within species?

A, Mitosis and asexual reproduction B, over population and over production

C, vegetative propagation and cloning **D, Mutation and sexual reproduction**

48, When two species are compared, which of the following sources of evidence is the least informative about the degree of relationships between the species?

A, Nucleotide sequence of the DNAs B, the amino acid sequence of proteins

C, **The glucose sequence of polysaccharides** D, DNA- DNA hybridization

49, Which of the following theories explains evolutionary changes of living things in terms of changes in their alleles' frequency?

A**,** Darwin's natural selection B, Spontaneous generation

C, Inheritance of acquired characters D**, Neo Darwinism**

50, 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 B, **Behavioral isolation** C, Temporal isolation D, Isolation by distance

51, Among the following, which one is the best criterion to show that two populations belong to the same species?

A, morphological similarity B, Physiological similarity

C, breeding the same geographical area D**, production of fertile offspring**

52, In the process of evolution of life on the earth, which of the following four processes evolved last?

A, Photosynthesis B**, Aerobic respiration** C, Chemosynthesis D, Photoautotrophs

53, Which of the following characteristics can show the evolutionary relationship among organisms?

A, Structure having similar function B, Structure having the same size

C**, Structures having common origin** D, Structures having different origin

54, What kind of natural selection is at work in a situation where individuals at both extremes ends of the range get better survival advantage than those around the middle?

A, Stabilizing selection B, directional selection

C, **disruptive selection** D, Selection that removes the extremes

55, During the course of evolution, which of the following events came before all the others?

A, Origin of Dinosaur and other reptiles

B, Availability of free oxygen in the atmosphere

C, Origin of the oldest eukaryotic organisms

D, Origin of the first multicellular animals and plants

56, If the 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?

A, 50 B, 30 C, 25 D**, 12.5**

57, Which of the following can be taken as case for evidence for evolution from the field of plant and animal breeding?

A, Artificial breeding always create new species

B, Artificial breeding only produces new organisms with higher yield

C, Artificial breeding shows that natural selection can produce variation

D, artificial breeding can produce new variation in organisms

58, According to Lamarck's theory of evolution, what is the mechanism by which evolving organisms acquire new structure?

A, Mutation B, Hereditary variation

C, **Use and dis use parts of the body** D, Recombination of ancestral genes

59, Which of the following is prevented from taking place if population is separated by geographic barrier?

A, Mutation B, evolution C, **Gene flow** D, Natural selection

60, 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?

A, 75 B, 50 C, 25 **D, 12**

61, Among the following fossil hominid species, which one is the oldest of all?

A, Homo erectus B, **Ardipithecus ramidus**

C, Australopithecus afarensis D, Australopithecus africanus

62, Which of the following pairs are analogous structures?

A**, Wing of bird and wing of butterfly** B, Front leg of horse and human arms

C, Wing of birds and wing of a bat D, Front leg of a frog and wing of a bat

63, Which of the following conclusion can be drawn from the structural similarities observed between the flippers of whales and arms of humans?

A, The human species began life in the ocean

B**, The human species and whales share common ancestry**

C, Whales are older than the human species

D, Whale have evolved from the early humans that went back to the ocean

64, Which of the following did the early heterotrophs do that probably assisted the original 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

65, Why that mutation is considered as one of the raw materials of evolution?

A, It contributes to new variations in organisms

B, they are usually related to the environment in which they appear

C, they are mostly beneficial to the organisms in which they appear

D, they usually become the cause for species extinction

66, Which of the following is consistent with the understanding of human evolution?

A, Bipedalism was never important in human evolution

B, large brain size had no contribution to the evolution of the human species

C, Human ancestry had no relation whatever with that of the chimpanzee

D, **Fossil of Lucy and Ardi provided evidence for human origin**

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 **B, Geographic isolation**

C, Free migration between population D, absences of natural selection

68, From evolutionary point of view, which of the following animals is expected to have hemoglobin protein that is least similar to that of human?

A, Dog B, Macaque C, Chicken D, **Frog**

69, Which of the following expression is more related to the phrase survival of the fittest?

A**, Natural selection** B, Mendelian inheritance

C, Gene mutation D, inheritance of acquired characters

70, If a substance that weighs 2000 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

71, Which of the following is not true about the nature of the first form of organisms on the earth? They were

A, Prokaryotic b, **Aerobic** C, Unicellular D, Anaerobic

72, Suppose a fossil initially contains 100,000 atoms of a certain radioactive element whose half-life is 10, 000 years, after how many years would the number of the atoms be 12500?

A, ten thousand years B, twenty thousand years

C, **thirty thousand years** D, Forty thousand years

73, Which of the following came first in the course of organic evolution?

A, **Photosynthetic organisms** B, free oxygen in the atmosphere

C, land plants D, Multicellular organisms

74, Which of the following changes that happen during human evolution had the most contributing to the evolutionary success of Homo sapiens?

A, Proportionately big brain size to the body mass

B, Big body parts and big over all body mass

C, long legs, arms, and more up right body posture

D, Fast running ability and over all Physical strength

75, Why are mutation important in evolution?

A, They are usually related to the environment

B, they contribute to new variations in organisms

C, They are always beneficial to the organisms

D, they become causes for the species migration

76, Which of the following pairs are analogous structures?

A, The human arm and front leg of mule

B, The front leg of frog and a wing of a bat

C, The wing of a bird and the wing of a butterfly

D, The wing of a bat and the wing of a bird

77, Choose the one that had the least contribution to human evolution?

A, Development of bipedalism B, **Adaptation of flight**

C, attaining opposable D, Increasing brain size

78, How many years passed since Darwin's book on the theory of evolution was published?

A, Abbot 50 years B, **About 160 years** C, About 120n years D, About 100 years

79, 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

B, Natural resources are of limited supply

C, Living things can be improved through selection

D, Individual compete for resources

80, What does an evolutionary selective pressure did if it favors around the mean?

A**, It stabilizes** B, It terminates C, It converges D, It disrupts

81, In his theory of evolution, the cause of which of the following concepts was missing in Darwin's explanation?

A, Over reproduction B, Struggle for survival

C**, Hereditary variation** D, survival of the fittest

82, Which of the following do biologists consider ancestral to the higher organisms of today?

A, Plantae B, Animalia C, **Protista** D, Fungi

83, Which of the following are believed to be the first photosynthetic organisms to evolve on earth?

A, Green algae B. Green plants C, **Blue green algae** D, Lichens

84, Which of the following factors brings about changes both during evolution and breeding of plants and animals?

A, Limited resource B, Production of excess progeny

C, **Selection** D, competition

85, Which of the following was the most possible mode of evolution by which the many species of Darwin's finches evolved on the Galapagos Islands?

A, Phyletic evolution B, **Divergent evolution**

C, Convergent evolution D, Sympatric evolution

86, What is the functional similarity of bird's wings and insect's wings referred to as?

A, **Convergent evolution** B, directional selection

C, stabilizing selection D, divergent evolution

87, For which of the following can divergent evolution be taken as alternative name?

A, Allopatric B**, Adaptive radiation** C, Sympatric speciation D, Disruptive selection

88, 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 feather and hollow bones D, **Development of opposite thumb to grasp**

89, Which of the following species isolating process could lead to the evolution of new species by the mechanism known as sympatric evolution?

A, A river that changed its course for many years

B, A new mountain range that was created many years ago

C, Populations of species having different breeding seasons

D, A land mass that separated two water bodies for many years

90, To which genus of primates are the Neanderthal humans classified?

A, The genus Ardipithecus B, the genus Australopithecus

C, **The genus Homo** D, The genus Zinjanthropus

91, The ultimate source of genetic variation is

A, **mutation** B, migration B, genetic drift D, selection

92, Which of the following combination is known as neo Darwinism?

A, Natural selection and acquired inheritance

B, Acquired inheritance and Mendelian law of inheritance

C, Natural selection and Lamarck's law of inheritance

D, **Natural selection and Mendelian law of inheritance**

93, In the process of allopatric speciation which of the following is the mechanism that prevents population from exchanging genes?

A, Polyploidy B, **Geographic barrier** C, Seasonal isolation D, Temporal isolation

94, Which of the following features do analogous structures mostly share?

A, Phylogenetic similarities C, Ancestral similarity

B, Developmental similarity D**, functional similarity**

95, Lamarck's theory of evolution is known as

A, Natural selection B, Survival of the fittest

C, Mutation D**, Inheritance of acquired characters**

96, The evolution of species which is based upon the sum total adaptation changes could be present by

A, Natural selection B, **Speciation** C, Human conservation D, isolation

97, Which of the following is responsible for rapid evolution in RNA virus?

A, High stability of its RNA

B, High mutation rate of its RNA

C, reverse transcription of its RNA

D, Accurate replication of its RNA

98, Among the theories about the origin of life, which one better agrees with the concept of change in organisms and their genetic composition over generation being caused by meiosis, hybridization, natural selection or mutation?

A, Cosmozoan theory B, **biochemical origin theory**

C, Special creationism theory D, Spontaneous generation

99, Which of the following is most accepted about the origin of life on earth?

A, Theory of spontaneous evolution

B, **theory of chemical evolution**

C, The cosmic theory

D, Theory of special creation

100, What is the possible cause or isolating mechanism for the formation of allopatric speciation?

A, Seasonal isolation B, Temporal isolation

C, Behavioral isolation D, **Geographical isolation**

101, Which one of the following is the primary contribution of Darwin to biological theory?

A, An **important mechanism of biological evolution is natural selection**

B, new alleles arise through mutation

C, evolution is a change in gene frequencies over time

D, genes are the units of inheritance

102, What is the reason that Stanley Miller exclude free oxygen from the mixture of the gases that he used for his simulation experiment?

A, Early organic molecules did not contain oxygen

B, Oxygen cannot react with the best of the gases

C, Primitive atmosphere was reducing

D, The primitive atmosphere was oxidizing

103, Which of the following organic molecules is least informative about the evolutionary relationship between species?

A**, Carbohydrates** B, protein C, DNA D, RNA

104, In which of the following ways does mutation contribute most to evolution?

A, It preserve adaptive genes B**, it creates new alleles**

C, It forms new gene pool D, It helps gene to recombine

105, In which period is evolution of humans most probably believed to have happened?

A, Tertiary period B, Jurassic period C, Cretaceous period D, **Quaternary period**

106, within few weeks after heavy rains, ponds become teamed with tadpole. What is the source of the tadpole?

A, the rain water B, the mud on the floor

C, The decaying vegetation **D, The egg laid by the frog**

107, On which of the following points do Lamarck's and Darwin theories of evolution agree?

A, evolution occurs by natural selection B, **Evolution produces new species**

C, All living things tend to over reproduce D, New structures arise by use and dis use

108, Which of the following concept is attributed to Charles Darwin?

A**, In the struggle for existence, the fittest would survive**

B, Every cell must come from preexisting cells

C, Use and dis use organs is of great importance in evolution

D, The gametes will carry only one of a pair of contrasting

109, Which of the following is common idea held by the creationist?

A, Life is eternal

B, All life was created in six days

C**, Life was created by supernatural being**

D, Life came to earth from elsewhere in the universe

110, Among the following, which one had cranial capacity of about the same size as that of Homo sapiens?

A, **The Neanderthal man** B, Homo habilis C, Lucy D, Homo erectus

111, What do you call the structures that have the same evolutionary origin but now are different in structure or have different functions?

A, Endemic B, Analogous C, **homologous** D, Indigenous

112, A finch with an average length beak was not able to obtain insects out of the cracks in the bark of trees as well as one with a longer beak. It was also not able to crush seeds as well as one with a shorter beak. Over time, those with the longer beaks and those with the shorter beaks increased in numbers, while those with average length beaks decreased in number. Which type of selection has been operated in this scenario?

A, **Disruptive** B, Behavioral C, Directional D, Stabilizing

113, Which theory of the origin of life states that life has no beginning or ending?

A, Cosmozoan theory B, **Eternity theory** C, Special creationism D, Biochemical theory

114, Despite large number of organisms that lived during past geologic times there are only few fossils remained known to science. What is the most probable reason for this?

A, Fossilized materials are decomposed by some organisms

B, fossilized organisms are eaten up by some present day organisms

C, Fossils usually form on outer surface of soil and get fragmented

D, **The bodies of dead organisms decompose rapidly without chance of being fossilized**

115, Which one of the following is paleontological evidence of evolution?

A, The presence of homologous structures in living organisms

B, Traces of organisms from the remote past

C, Similarities in the DNA base sequences of different organisms

D, Similarities in the development of embryos in different organism

116, Which one of the following is the neo-Darwinian idea of evolution

Evolutionary changes occur due to:

A. inheritance of acquired characteristics

B. natural selection through genetics and behavior

C. use and disuse of anatomical structures

D. competitions between living organisms

Unit 5

Behavior

1, Which type of learning behavior is promoted by the achievement of correct answer to item in this examination?

A, conditioning B, **insight learning** C, Perception D, try and error learning

2, Select type of behavior which is innate

A, **Reflex action** B, Habituation C, conditioning D, Sensitization

3, To which of the of the following properties of life does the term irritability refer

A, Excretion B, **response to stimulus** Homeostasis D, Metabolism

4, Chimpanzee concentrates to reach at a bunch of grapes hanging above its head. What kind of behavior is this?

A, **Insight learning** B, Latent learning C, Associative learning D, Sensitization learning

5, Bugs that normally lives in moist place under stones or logs become very active when exposed to very dry condition. For which of the following can this be example?

A, Taxis B, Imprinting C, **Kinesis** D, Habituation

6, Which of the following is not learned behavior?

A, **Instinctive** B, Sensitization C, Conditioned D, habituation

7, What do we call the behavior of an animal learns not to respond to stimulus that is repeated a number of times without any effect?

A, **Habituation** B, Operant conditioning C, Sensitization D, Association learning

8. To which of the following class of stimuli do pheromones belong?

A, Auditory B, **Smell** C, Visual D, touch

9, Which of the following type of animal behavior does not require prior experience?

A, **Imprinting** B, Habituation C, Operant conditioning D, Sensitization

10, Which animal behavior is best illustrated by the famous Pavlov's dog?

A, Habituation B, Latent learning C, **Associative learning** D, Instinctive behavior

11, Which one of the following types of learned behaviors requires a critical period in the animal's life?

A, **Imprinting** B, Habituation C, Insight leaning D, Operant conditioning

12, 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

13, 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

14, 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 B, imprinted behavior C, Ha**bituation** D, Operant conditioning

15, Male moths recognize females of their species by sensing chemical signals called pheromones. This is an example of

A, **Behavioral isolation** B, Gamete isolation C, Habitat isolation D, Mechanical isolation

16, 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 the 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 organisms gene

D, Seen when an organism is made to associate an accident with a positively reinforcing reward

17, In Pavlov's classical conditioning experiments with dogs which one of the following is conditioned stimulus?

A, The sight of food B, The smell of food

C, **The sound of the bell** D, The salvation of the dog

D, An animal ignore stimulus because it is familiar with it

18, Which one of the following statements is an example of latent learning?

A, The random movement of woodlice in response to changes in light intensity and humidity

B, **Knowledge of a mouse about the immediate environment of its burrow may help it escape from predator**

C, Foraging bees returning from successful trip dance on the honey comb to recruit others to harvest a new.

D, Female baboon turns its buttock toward the dominant male to signify redness to mate

19, 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**

20, Which one of the following is studied in discipline of ethology?

A, Heredity B, Physiology C, Reproduction D, **Behavior**

21, Which one of the following is true about innate behavior?

A, It is non-adaptive behavior B, It is learned behavior

C, **In members of species it has similarity** D, It is environmentally determined

22, What is the plant growth substance which causes stem to bend toward the light?

A, Starch B, Photosynthesis C, **Auxin** D, Chlorophyll

23, The unicellular organism, euglena, swims using a flagellum towards area of increased light intensity. What is this kind of responses to stimulus called?

A, Negative kinesis B, Positive kinesis C, Negative photo taxis D, **Positive photo taxis**

24, Skinner box is used for experiment in:

A, Classical conditioning B, Taxis C, Migration D, **Operant conditioning**

25, Among the following which one is learned behavior?

A, Reflex action B, **Habituation** C, Imprinting D, Innate behavior

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

A, The sound of the bell before presenting the food

B, The smell of the food from far away

C, The salvation of the dog at the sight of the food

D, Salvation of the dog at the sound of the bell

27, It is said that a goat mother accepts and nurses as her own kids any young that she smells at certain critical period and rejects all others. This an example of

A, habituation B, **imprinting** C, Insight learning D, Sensitization

28, Which animal behavior is best illustrated by the famous Pavlov’s dog?

A, Habituation B, Latent learning C, **Associative learning** D, Instinctive behavior

29, Wood lice increase their movement in different direction in response to light intensity. This is an example of which of the following?

A, Positive taxis B, Negative taxis C, **Kinesis.** D , Phototropism

30. The Ethiopian wolf (*Canis simensis*) lives and hunt in packs. During patrolling their habitat, both male and female wolves of the group maintain their area with urine containing pheromone. This pattern of behavior best exemplifies

A. courtship behavior **B. territorial behavior** C. operant behavior D. learned behavior

31, During season of reproduction, the males of some species of birds produce colorful feathers to attract females. What does ethnologist call this method of communication in animals?

A**, Visual** B, Chemical C, Auditory D, Touch

32, What is the role of the queen honey bee?

A, Forage for nectar, water and pollen B, clean out dirty honey comb

C**, Laying egg** D, build the honey comb

33, which of the following types of movements in response to a stimulus has no specific direction?

A, Taxis B, **Kinesis** C, Gravitropism D, Phototopism

34, In 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 smell of the food**

C, The salvation at the sound of the bell D, The salvation at the smell of the food

35. Which one of the following behaviors is a courtship behavior?

A. Touch C. Ritual fighting B. Scent marking D. Defending a den

36, Which 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

37, Which of the following is not classified as learned behavior?

A, Insight B, **innate** C, Latent D, Conditioned

38, What do we call learned behavior if the mouse that had just escaped from the mouth of the cat jumped violently at a slight touch by trivial objects?

A, Latent learning B, **Sensitization** C, conditioning D, imprinting

39, Choose the one that is not requirement for all living things?

A**, Ability to think** B, Organization of parts

C, Response to the stimuli D, Maintenance of internal constancy

40. Which one of the following examples of behavior describes when an animal stops responding to stimulus or cue after a period of repeated exposure?

A. Imprinting **B. Habituation** C. Reflex D. Conditioning

41, Which of the following is the correct route that connects a stimulus and response?

A, Receptor →coordinator → effector B, coordinator → receptor → effector

C, Receptor → effector →coordinator D, effector →Receptor →coordinator

42, To what kind of animal behavior can the spinning of a web by a spider be classified?

A, Learned behavior B, Experiential C, **Instinctive behavior** D, Accidental behavior

43, Behavior that is repeated on daily basis is s referred to as

A, Lunar B, **Circadian** C, Circannual D, Seasonal

44, An experimental animal stopped responding to 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

45. The behavior which trainers look, if modified, could lead to the desired behavior and reward, such a behavior is

A. innate C. reflex B. instinct D. **operant**

46, Which of the following behavioral biologists is known for his study about imprinting behavior in animals?

A, W. Kohler B, B. f. skinner C, Ivan Pavlov D**, Konrad lorenz**

47, Baby ostriches tend to follow the first moving objects that they see as they hatch out of the eggs. What kind of animal behavior does this demonstrate?

A, positive taxis B, **innate behavio**r C, Positive kinesis D, Learned behavior

48, Which of the following is not true about instinctive behavior?

A**, It can be developed further through learning**

B, it is triggered by a key stimulus

C, It has a fixed action pattern

D, It is adaptive for the species

49, Suppose when you first enter the room you notice an unpleasant smell which you eventually forget about its presence what is this behavior called?

A, Latent learning B, Insight learning C**, habituation** D, Operant conditioning

50, Which of the following is an example of an orientational innate behavior?

A**, Kinesis in woodlice** B, blinking of the eyes

C, sudden withdrawal of limbs from hot objects D, nest building by birds

51, Pavlov's experiment on the classical conditioning of dogs. What does the reaction of the dogs to the sound of the bell represent?

A, The conditional stimuli **B, the conditional response**

C, the unconditional stimulus D, the unconditional response

52. Which one of the following processes describes a biological clock?

A. Removal of one's thumb from hot objects quickly

B. The growing of plants towards light

C. **Circannual migration of birds from temperate to tropical areas**

D. Kinesis and taxes of woodlice and other simple animals

53. Identify learned behavior from the following.

A. Dog trained to hunt B. New born baby sucking milk from breast

C. Child withdraws hand from hot things D. Birds making nest

54, Skinner box is used for experiment in

A, Classical conditioning B, Taxis C, Migration D, **Operant conditioning**

55, Which of the following is not true about innate behavior?

A, Can be improved by trial and error B, Common to all members of the species

C, Present at birth or hatching D, Do not have to be learned

56, Woodlice are observed avoiding light and heat by quickly moving to moist and darker area. Which behavior of this animal helps them to detect differences in light intensity and move to the darker and moist part of the habitat?

A, Instinctive learning B, **Negative photo taxis**

C, Positive photo taxis D, Insight learning

57, If somebody removes his/her hands from hot object, which of the following type of behavior is manifested?

A, **Reflex action** B, Imprinting C, Learned behavior D, Sensitization

58, Which of the following involve trial and error learning?

A, **Operant learning** B, habituation C, Sensitization D, Innate behavior

59, One of the following is not true about operant conditioning?

A, It is concerned with learned behavior

B, It is based on reward and punishment

C, It is based on innate behavior

D, It is based on consequences of action

60, Which of the following is learned behavior?

A, Sucking of the new bon at mother's breast

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

61, Which type of animal behavior happen without learning?

A, **Innate** B, Latent C, Insight D, conditioned

62, A reflex action that involves internal organs such as heart is referred to as:

A, Somatic reflex B, external reflex C, Spinal cord reflex D, **Automatic reflex**

63, Which of the following activities of an organism do we call a behavior?

A, Reception of external stimulus B, reception of internal stimulus

C**, responding to stimulus** D, Lack of receptors to receive stimulus

64, Which of the following organs serve as coordinating system in reflex action?

A, **Spinal cord** B, sense organ C, Nerve cells D, muscles

65, To which category of behavior does the human behavior that involves the strengthened of the existing responses or formation of new responses to existing stimuli that occur because of the practice or repetition belong?

A, **Learned behavior** B, instinctive behavior C, Innate behavior D, Inborn behavior

66, Which of the following is not grouped under genetically preprogrammed pattern of behavior?

A, Reflex action in humans B, Orientation behavior

C, **Conditioned behavior** D, Instinctive behavior

67, which of the following statement can be considered as better definition of biological concept of behavior?

A, The reaction of person or animal on response to an external or internal stimulus

B, The response or reaction or movement that a living plant makes in any situation

C, **The system of coordinated response by an organism to an external or internal stimulus**

D, Receptor of some kind of stimulus that an organism has which produces a response

68, An actively growing potted seedling is kept horizontal, which of the following would eventually happen to the seedling?

A**, The shoot would bend up ward**

C, The root would bend up ward

C, The seedling would stop growing

D, The seedling would grow horizontally

69, Which of the following is not learned behavior?

A, **Imprinting** B, Habituation C, Conditioning D, Trial and error

70, What is the survival value of a social behavior in which some birds move in large group?

A, Protection of territory B, Displaying court ship activities

C, Technique for trapping prey **D, Protection from predators**

71, In which of the following is there a mismatch between the type of innate behavior and the resulting action /response?

A, Instinctive behavior – imprinting in birds

B, Reflex action – blinking of eyes in human

C, Instinctive behavior – nest building in birds

D, orientation movement – weaving a wave in spider

72, A boy who had seen a snake crossing his way earlier, jumped up violently when grass touched his legs, which behavior is it?

A, Habituation B**, Sensitization** C, Instinctive D, Imprinting

73, In which of the following ways does learned behavior differ from innate behavior?

A, Learned behavior is adaptive in nature

B, Learned behavior is genetically determined

C, Learned behavior is modified by new experience

D, Learned behavior is functional at first attempt

74, What is the behavior that an animal learns to ignore trial stimulus that is repeated many times?

A, Sensitization B, Latent learning C, Insight learning D, **Habituation**

75, Which of the following statement about instinctive action is not true?

A, They are innate B, they are adaptive C, **The require learning** D, they have fixed pattern

76, 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, **Latent learning** D, Sensitization

77, Of the following pattern of innate behavior in animals, which one is considered the simplest?

A, **Reflex action** B, Instinctive behavior C, Taxis movement D, Kinesis movement

78, The daily cycle of activity that occurs over 24 hour period of time is called a

A, **Circadian rhythm** B, Kinesis behavior C, Stimulus response D, Taxis behavior

79, If a chimpanzee piles up boxes and climbs on it to reach a bunch of banana hanging from a ceiling, which behavior is manifested?

A, Operant conditioning B, try and error learning C, Latent learning D, **insight learning**

80, One of the following is true about a behavior that has a fixed action pattern?

A, It is always done in the same way

B, It is learned behavior

C, **consist of a series of actions triggered by a key stimulus**.

D, It does not need a stimulus to trigger it

81. Which one of the following can best explain behavior? It is

A. the co-ordinated response of an organism to an internal or external stimuli.

B. the tendency for parts of plants to grow towards light

C. the actions or reactions of a person or animal in response to external or internal stimuli

D. a cell or group of cells that receives and processes stimuli

82. The quick withdrawal of your hand from a hot plate is an example of

A. fixed action pattern C. biological clock

B. innate behavior D. key stimulus

83. A police man trained a dog on how to find explosive materials through sniffing, on another instant the same police man observed a week old puppy following him on the roadside. Which one of the following is correct about the behaviors of the animals in the observation?

A. The first case is genetically encoded and the second is adaptive.

B. Both of the cases indicate natural behavior of the animals.

C. Both of the cases indicate learned behavior of the animals.

D. The first cases develop through trial and the second genetically coded.

84, What is the survival value of a social behavior in which some birds move in large group?

A, Protection of territory B, Displaying court ship activities

C, Technique for trapping prey **D, Protection from predators**

85, One of the following is not true about operant conditioning?

A, It is concerned with learned behavior

B, It is based on reward and punishment

C, It is based on innate behavior

D, It is based on consequences of action

86, Consider the following statements

I, genetically determined and common to all members of species

II, behavior may be modified by new experiences

III, Behavior is fully functional at the first attempt

IV, generally there is no modification of the behavior

Which numbers describe innate and learned behaviors?

A. Innate: III, IV and Learned: I B. Innate: I, II and learned: III. IV

C. Innate: II, III, IV and Learned: I D**. Innate: I. III, IV and Learned: II**

87, Which one of the following is an example of social behavior?

A. Exaggeration of size by fluffing up of feathers

B. Singing of frogs on spring nights

C. Marking a territory with urine

D. Caring for offspring that are not one's own

88, Instinctive behavior:

A, is common to all members of a species

B, vanes from individual to individual

C, may be modified by new experiences

D, develops through trial and error

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