

Kegn. Andarge W/Giorgis Memorial School

BIOLOGY EXAM EXERCISE

DIRECTIONS

The Examination contain 100 Items. There is only one correct answer for each. Choose the best answer from the suggested options and blacken the letter of your choice on the answer sheet.

**“Success is Never
ending Failure is
Never final”**

**March ,
2020**

Set
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Biology exam exercise for Grade 12 , 2012E.C

NAME _____ SECTION _____ GRADE _____

I. Choose the correct answer from the given option

- ____1. Eukaryotic unicellular organism which have a cell wall can be grouped under a kingdom of:
A. A. plantae B. animalia C. Monera D. fungi
- ____2. Which one of the following statement is true?
A. Carrier proteins only involve in facilitated diffusion
B. The carrier proteins transport Glucose in to the mitochondria
C. Mitochondria settled first than other organelles during centrifugation
D. Glucose forms more polymer than fructose
- ____3. To which classes of enzymes does the digestive enzymes that break down food substances in the alimentary canal belongs?
A. Fibrous enzymes B. Extracellular enzyme C. Intracellular enzymes D. ligases enzymes
- ____4. Glucose -6- phosphate $\longrightarrow$ fructose -6- -phosphate, the types of the enzyme that involve in this reaction will be:
A. Oxidoreductase B. Transferase C. Isomerase D. Hydrolyase
- ____5. Which of the following statement is correct?
A. All lipids are formed from fatty acid and alcohol
B. In phospholipids the fatty acids is the hydrophilic region
C. Lipids contain much oxygen than carbohydrates
D. Cholesterol increases the fluidity of the cell membrane
- ____6. Which of the following properties of starch makes it being stored in small space?
A. the insoluble nature of Amylase and Amylopectin
B. the branched nature of Amylopectin
C. the compacted nature of Amylase and Amylopectin
D. the fibrous nature of it's monomers
- ____7. Which properties of water is important for the survival of life forms on water bodies by preventing excessive evaporation
A. high surface Tension B. high latent heat of vaporization
C. high heat capacity D. Ideal viscosity
- ____8. Which of the following statement is **correct**?
A. As the cell increases its surface area to volume ratio also increase
B. The volume of the cell determines how many processes are taking place
C. The surface area of a cell determines the amount of energy released during respiration
D. Many process are carried out in a cell with a size of 0.1a.u than a cell with 0.5 a.u
- ____9. A samples of a plant are immersed for some time in a sugar solution of 20%, 10%, 5% and distilled water, then which of the following is true about the samples
A. the sample that put under 20% solution increase in mass than other samples.
B. the cell which is immersed in a distilled water decreases in mass than other samples
C. the sample that immersed in 20% solution is plasmolysed than other samples.
D. the sample which is immersed in 5% solution is haemolysed than other samples.
- ____10. Which of the following factors have contradicting effect on population size?
A. Natalty and immigration B. Natalty & Emigration
B. Mortality and Emigration D. Emigration and death
- ____11. Which of the following is an inter-specific competition?
A. Students running to biology laboratory to get front seats.

B. Vulture and hyena fighting over dead animal

C. Dogs fighting over bone

D. Haile and Kenenisa running to win a gold medal,

____12. Which of the following statements is true about the nitrogen cycle?

A. Plants fix nitrates from atmospheric nitrogen

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 nitrogen in the soil

____13. In Ethiopia, which of the following groups of vertebrates has the most diverse number of species?
A. mammals B. Amphibians C. Birds D. Reptiles

____14. If the age pyramid of a certain country is narrowing at the base, what does this tell about the trend of the population size of the country?
A. Growing Exponentially B. Increasing slowly C. Declining D. Stabilizing

____15. Which of the following is not true about the electron transport chain?
A. ATP synthases make ATP as protons move into the matrix of mitochondria
B. the electron gains some energy
C. protons are pumped into the inner membrane space of mitochondria
D. electrons lose some of their energy

____16. Which of the following statements is correct?
A. The less dense property of ice is important for the movement of small animals on the water surface

B. Triglycerides are the major components of cell membranes

C. Proteins are involved in nucleic acid formation

D. None

____17. The first reaction in the Krebs cycle is the binding of:

A. CO₂ to a four-carbon molecule

B. CO₂ to a five-carbon molecule

C. Acetyl CoA to a three-carbon molecule

D. Acetyl CoA to a four-carbon molecule

____18. Which of the following is incorrect about the lock and key model of enzymes?

A. The shape of the enzyme is complementary to that of the active site

B. the substrate fits the active site of the enzyme molecule

C. The substrate molecule produces a conformational change of shape in the active site

D. An enzyme lowers the activation energy by providing an alternative pathway for the reaction

____19. Which of the following is incorrect about eukaryotic cells?

A. they have a distinct nucleus

B. they have a continuous loop of DNA

C. they have 80S ribosomes

D. they have DNA in the form of chromosomes

____20. Which of the following is the function of the smooth endoplasmic reticulum?

A. Packaging and transporting material

B. Protein synthesis

C. Digesting foreign substances

D. Lipid synthesis

____21. Decarboxylation of pyruvate results:

A. Phosphoenolpyruvate

B. glyceraldehyde-3-phosphate C. lactic acid D. Acetyl

- ____22. Which statement about genetic code is not **correct**?
- A. the code is degenerative and universal
 - B. the Genetic code is a triplet
 - C. the Genetic code is an overlapping
 - D. none
- ____23. In this first mammalian cloning who was the genetic Mother of Dolly?
- A. Surrigate mother ewe
 - B. Scottish black face
 - C. finnin Doreset
 - D. A and C
- ____24. Which of the following is the main objective photorespiration?
- A. to reduce transpiration
 - B. to increase the concentration of CO₂
 - C. to increase the efficiency of photolysis
 - D. to increase the production of oxygen
- ____25. Which of the following is not true about T-helper cells?
- A. they possess CD₄ on the their surface
 - B. they have GP- 120 on their surface
 - C. they are easily attacked by6 HIV
 - D. they are part of the immune system
- ____26. Which of the following aquatic biome is the most diverse and productive than other?
- A. Estuarine
 - B. coralreef
 - C. wetlands
 - D. pelagic zone
- ____27. The bond which Exists between the complementary nitrogenous bases
- A. Ionic bond
 - B. peptide bond
 - C. coordinate bond
 - D. Hydrogen bond
- ____28. Which of the following not correct about a solution?
- A. If the water potential is more negative the solution is hypertonic
 - B. The water potential of pure water is always zero
 - C. In hypotonic solution water molecule moves in to a cell
 - D. In hypotonic solution the cell will be plasma to reduce transpiration
- ____29. Suppose an Experiment is conducted by a student through crossing of two round shaped (Rr) pea seeds.
Which of the following will be the possible outcome?
- A. Tow off springs will have genotypically wrinkles shape
 - B. Four off springs will have genotypically wrinkle shape
 - C. Four off springs will have phenotypically round shape
 - D. Three off springs will have phenotypically round shape
- ____30. Which of the following is performed in selective breeding? Organ isms with
- A. Strong characteristics from different breed are allowed to mate to produce the desired freature.
 - B. Strong and weak characteristics from the same breed are allowed to mate to get the desired feature.
 - C. Strong and weak characteristics from the different breeds are allowed to mate to get the desired trait
 - D. Strong characteristics from the same breed are allowed to mate to get the desired trait
- ____31. Which of the following statement is correct about simple, double and complex sugars?

- A. Complex sugars are non-sweet and don not dissolve in water while simple and double sugars are sweet and dissolve in water
- B. Sucrose is simple sugar, fructose is double sugar, and starch is complete sugar
- C. Simple and double sugars are used as strong molecules while complex sugars are structural molecules
- D. Simple sugars are sweet and dissolve in water while double and complex sugars are non-sweet and do not dissolve in water

- ____32. Suppose a woman heterozygous for color blindness marries a normal vision man what proportion of Their children will be colorblind?
- A. All the daughters
 - B. All the sons
 - C. half of the daughters
 - D. Half of the sons
- ____33. During protein synthesis which of the following molecules transports amino acids to their correct positions in the growing chain of polypeptide.
- A. DNA
 - B. tRNA
 - C. rRNA
 - D. mRNA
- ____34. A chimpanzee concentrates to reach at bunch of banana hanging above its head, what kind of behavior is this?
- A. Insight learning
 - B. Latent learning
 - C. Associative learning
 - D. sensitization
- ____35. This question is based on the following information
- A. Identifying the Information
 - B. Formulating hypothesis
 - C. observation
 - D. performing an experiment
- Which alternative shows the correct sequence of the scientific methods?
- A. A, B, C, D
 - B. C, D, B, A
 - C. A, D, B, C,
 - D. B, A, C, D
- ____36. Suppose alleles “A” and “a” are occurring with frequencies of 0.6 and 0.4 respectively, what are the frequencies of the genotypes if population is at hardy- Weinberg genetic equilibrium
- A. 0.5AA, 0.5aa
 - B. 0.25AA, 0.5Aa ,0.25aa
 - C. 0.75AA, 0.25aa
 - D. 0.36AA, 0.48Aa, 0.16aa
- ____37. If after dividing plants in total groups an experimenter has applied a fertilizer to group “A” plants and not to group “B” plants what are group “B” plants called
- A. Control group
 - B. Test group
 - C. experimental group
 - D. variable group
- ____38. According to Charles Darwin theory of evolution which one of the following is the most important driving force of evolution?
- A. Natural selection
 - B. over-reproduction
 - C. Genetic recombination
 - D. Mutation
- ____39. In a monohybrid cross 80 F₂ plants were produced what is the number of plants that are Expected to have the dominant and the recessive phenotype?
- A. 70 dominant + 10 recessive
 - B. 50 dominant + 30 recessive
 - C. 60 dominant + 20recessive
 - D. 40 dominant + 40 recessive
- ____40. Which one of the following factors is more important to keep the horse and the donkey as separate species?
- A. their hybrid insatiable
 - B. they cannot from hybrid zygotes
 - C. their hybrid is sterile
 - D. they are ecologically Isolated
- ____41. It an enzyme is provided with its normal substrate plus another molecule having the same shape and size as the substrate, which one of the following would happen?
- A. Allosteric inhibition
 - B. competitive inhibition
 - C. Irreversible inhibition
 - D. End product inhibition
- ____42. Suppose a women has given birth to four boys in arrow (continuously), what is the chance of that her next child will be a girl
- A. 75%
 - B. 100%
 - C. 50%
 - D. 25%

- ____43. What makes phospholipids molecules arrange themselves in to a bilayer in a water medium?

- A. The double bond of the fatty acids
 - B. The length of the fatty acids
 - C. Their in solubility nature
 - D. The presence of hydrophilic and hydrophobic groups
- ___ 44. Due to in complete dominance, the F_1 plants from a cross of red flowered X white flowered parents are pink which of the following ratios are expected in the F_2 generation?
- A. 1red 2pink 1white
 - B. 1red 1pink: 1white
 - C. 2red: 1pink: 1white
 - D. 3red: 1pink: 1white
- ___ 45. Woodlice increase their movement in different directions in response to increased light Intensity. This is an Example of which of the following.
- A. Kinesis
 - B. positive taxis
 - C. Negative taxis
 - D. phototropism
- ___ 46. How it is possible for different species to coexist in an Ecosystem?
- A. each species occupies a different nich with in an ecosystem
 - B. each species has a specific biome of its own
 - C. there is no competition for resources among species in an Ecosystem
 - D. All resource3s are equally shared among species in an Ecosystem
- ___ 47. Which of the following is true about both DNA and RNA?
- A. both are single stranded
 - B. both have a five carbon sugar
 - C. both can make their own copy
 - D. both contain the same four nitrogenous bases
- ___ 48. Which of the following Mechanisms can separate two genes located on the chromosome?
- A. Back crossing
 - B. crossing over
 - C. segregation
 - D. Independent assortment
- ___ 49. According to lamarck's theory of Evolution, what is the origin of new structures that are necessary for evolution?
- A. Mutation
 - B. Gene recombination
 - C. Natural selection
 - D. use and disuse of body parts
- ___ 50. Where in the Mitochondria does the krebs cycle take place?
- A. On the cristae
 - B. between the outer and inner membrane
 - C. In the Matrix
 - D. on the Inner surface of the outer membrane
- ___ 51. What is the name of the chemical process in which pommers are converted to monomers in the cells?
- A. Anabolism
 - B. Hydrolysis
 - C. condensation
 - D. Hydrolysis
- ___ 52. Which of the following is not true about the light phase of photosynthesis?
- A. electrons flow from photosystem II to I
 - B. ADP is converted to ATP
 - C. electrons last from photosystems are replaced by electrons from wate
 - D. the reactive molecule of photsystem I is P 680
- ___ 53. Which of the following is a multi- factorial disease?
- A. Malaria
 - B. Alcoholism
 - C. Hypertension
 - D. Tuberculosis
- ___ 54. To which of the following groups do those bacteriophage that integrate their DNA in to the chromosome (DNA) of their bacterial host belong?
- A. Virulent viruses
 - B. lytic viruses
 - C. lysogenic viruses
 - D. non- parasitic viruses
- ___ 55. If a new anti-HIV drug is to be developed to prevent the virus from entering the host cell, which one of the following process should the drug target?
- A. Reverse Tr an scription
 - B. Integration of viral DNA in to host DNA
 - C. Binding of GP- 120 and CD_4 cells
 - D. Assembly of viral parts in to a whole virus
- ___ 56. Which of the following structures are found in all bacteria?

- A. Plasmid and pilli
- B. Nucleus and cell wall
- C. cell wall and genetic material
- D. nucleus and cell membrane

___57. Which of the following disease correctly matched with their types?

- A. Degenerative disease → sickle cell anaemia
- B. Difficiency disease → Diabetes
- C. Functional diseases → chronic fatigue syndrome
- D. Human Induced disease → Hemophilia

___58. In which process in ATP generated during short distance high speed running?

- A. Aerobic respiration
- B. Mitochondria energy Transformation
- C. Anaerobic respiration
- D. The kreb's cycle

___59. Which one of the following is incorrect pairing concerning protein structure and its Examples?

- A. Primary structure → Insulin
- B. Secondary structure → collagen
- C. Tertiary structure → Myoglobin
- D. Quaternary structure → Hemoglobin

___60. Which of the following statement is true?

- A. A protein made up of amino acids that held together by ester bond
- B. A polysaccharide is complex lipid need for storage and structure
- C. The primary protein structure is based on the order of aminoacids
- D. Steroids are complex proteins needed to control the body chemistry.

___61. The optimum Temperature of an enzyme is the temperature at which:

- A. There is denaturation
- B. The maximum number of substrate – enzyme – complexis formed
- C. There is maximum number of collusion between enzyme and substrate
- D. The particles have the most energy

___62. When a potato cylinder added in solution containing hydrogen peroxide the reaction will produce water and oxygen which one is the substrate?

- A. Potato cylinder
- B. hydrogen peroxide
- C. water and oxygen
- D. water only

___63. Which of the following modes of material transport a cross a cell membrane is not governed by the concentration gradient of the transported material

- A. Facilitated diffusion
- B. Endocytosis
- C. osmosis
- D. simple diffusion

___64. If a suspension of Mixture of cellular organelles is spun in a centrifuge, which alternative shows the correct order of sedimentation from first to last?

- A. Ribosome → Golgibody → Mitochondria → chloroplast → nucleus
- B. Nucleus → Ribosome → Mitochondria → golgibody → chloroplast
- C. Nucleus → chloroplast → Mitochondria → golgibody → ribosome
- D. Chloroplast → Mitochondria → nucleus → Ribosome → golgibody

___65. The rate of movement of particles through channel protein and carrier protein is unaffected by:

- A. Increase in Temperature
- B. Increase In concentration gradient
- C. Increase in surface area of the membrane
- D. Number of channel and carrier protein

___66. Which cell contain two complet sets of chromosome?

- A. Germ cell
- B. somatic cell
- C. egg cell
- D. sperm cell

___67. The conservation of one the following necessarily results in the conservation of all the other?

A. Ecosystem conservation B. wild life conservation C. soil conservation D. water conservation

___68. What is the correct equation for cellular respiration

- A. $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{energy} \longrightarrow 6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6$
- B. $6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 \longrightarrow 6\text{H}_2\text{O} + 6\text{CO}_2 + \text{energy}$
- C. $6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 + \text{energy} \longrightarrow 6\text{CO}_2 + 6\text{H}_2\text{O}$
- D. $6\text{CO}_2 + 6\text{H}_2\text{O} \longrightarrow 6\text{O}_2 + \text{C}_6\text{H}_{12}\text{O}_6 + \text{Energy}$

___69. Which of the following the product of both aerobic and anaerobic respiration?

- A. $\text{C}_2\text{H}_5\text{OH}$
- B. oxygen
- C. CO_2
- D. water

___70. Which one of the following statement is **true**?

- A. Only ATP is produced in cyclic photo phosphorylation
- B. Oxygen and NADPA is produced in cyclic phosphrylation
- C. Photo system I (P700) is the source of elect6ron in non-cyclic photo phasphorylation
- D. NADP is the last electron acceptor of cyclicphoto phosphorylation

___71. Suppose in DNA strand of 1000 bases, 30% of the bases molecules are known to be adenine. How many cytosine base molecules are present in the same DNA strand?

- A. 300
- B. 400
- C. 200
- D. 600

___72. The DNA code for GCTAAC would be transmitted from nucleus in to the ribosome as the mRNA code word as:

- A. CGAUUG
- B. GCATTG
- C. GCTAAC
- D. CGUTT G

___73. Which of the following is a correct match b/n the phase in Meiosis and the event happening

- A. Prophase I – synapsis completed and crossing- over occurs
- B. Anaphase I _ siter achromatiades separated
- C. Anaphase II – homolgaus chromosomes move to opposite poles
- D. After telophase II – two haploid cells are formed

___74. Which of the following option contain the correct features of Genetic code?

- A. A Triplet code, degenerate and universal
- B. A double cod, degenerate and universal
- C. A double cod, degenerate and non-overlapping
- D. A double cod, degenerate and non-overlapping

___75. Up on crossing two green poded peaplants, Mendel obtained 428green (G) and 152 yellow (g) poded plants what are the most likely genotypes of the two green poded plants?

- A. Gg xgg
- B. Gg xGg
- C. gg x GG
- D. GG x Gg

___76. Which of the following statement concerning multiple allele Inheritance is not true?

- A. A gene has more than two alleles
- B. An individual will have more than two alleles of the gene
- C. there are more than two alleles in the population
- D. the alleles may be dominate, recessive or co-dominant

___77. In cellular respiration which of the following molecules enters the krebs cycle?

- A. Glucose
- B. Acetyl COA
- C. pyruvate
- D. lactic acid

___78. Which organelle of the cell has a function of modifying proteins for secretion?

- A. Golgi body
- B. ribosome
- C. lysosome
- D. food vacuole

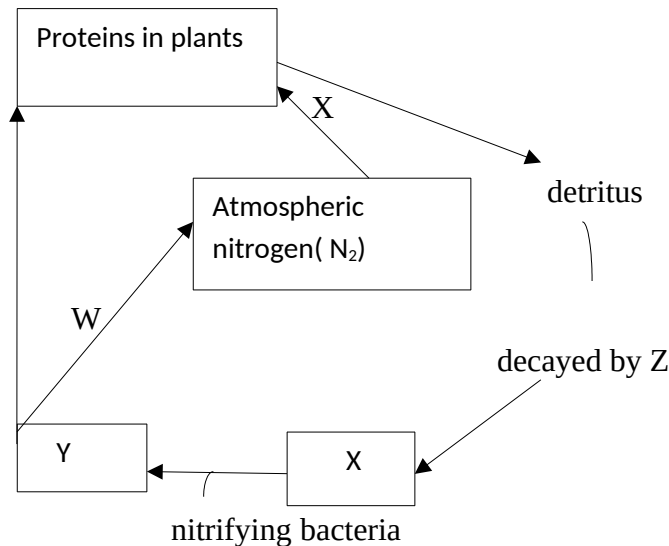
___79. Which of the following cell structure is correctly method with it's function?

- A. Rough ER $\longrightarrow$ detoxification
- B. Grana $\longrightarrow$ site of light independent reaction
- C. Stroma $\longrightarrow$ site of light dependant reaction
- D. Golgibody $\longrightarrow$ sysnthesis of lysosomes

___80. Which of the following is **incorrect** about glycolysis?

- A. It produces 4 net ATP molecule
- B. It always takes place only within the cytoplasm
- C. It is a Glucose splitting process
- D. It is anaerobic type of respiration

___81. The question is based on the following Diagram?



the types of organism represented by z and w respectively are?

- A. Ammonifying bacteria and Nitrogen fixing bacteria
- B. Ammonifying bacteria and pseudomonas
- C. Nitrosomonas and Rhizobium
- D. Decomposers and nitrifying bacteria

___82. The mineral ions which are represented by x and y are

- A. Amminoacids and Ammonium ion (NH_4)
- B. NH_4^+ ion and NO_3^{-2}
- C. Amino acids and NO_3^{-2}
- D. NO_2^- and N_3^{-2}

___83. Which of the following is true about ABO blood group in humans?

- A. Allele I^A is dominant over allele I^B
- B. The blood types are inherited through multiple alleles representing a single locus
- C. Allele I^O and allele I^B are codominant
- D. Allele I^A dominates allele I^B and I^O incompletely

___84. When the DNA replicates, the daughter DNA molecule will consist of:

- A. One old and one new chain of nucleotides
- B. Two old and two new chains (strands) of nucleotides
- C. Two old strands of DNA
- D. Two new strands of DNA

___85. What percent of the original carbon -14 amount is Expected to be present in a fissile that is 25, 920 years old? A. 12.5% B. 6.25% C. 3.125 D. 1.5626%

___86. In a certain plant population nature favours the shortest and tallest plants, while it against plants with average height, what type of selection is operating

- A. Disruptive selection B. Normalizing selection C. stabilizing D. directional selection

87. The question is based on the information given below

Species	Number of organisms	
	Area 1	Area 2
A	20	10
B	17	8
C	13	32

- ___87. According to the above information which one of the following is correct?
- Area 1 has less species diversity than Area 2
 - Area 1 is occupied by a few species
 - Area 2 has high simpson's index (d) than Area 1
 - Area 1 is occupied by different species and less hostile than Area 2
- ___88. Which of the following organism is grouped under Eukaryotes ?
- Bacteria
 - amoeba
 - Blue green algae
 - virus
- ___89. In the crosses of different species , the offspring (progeny) produce better yield than the parents. What is this phenomena known as
- Complete dominance
 - inbreeding depression
 - Heterozygosity
 - Hybrid vigour
- ___90. Which of the following is true about protozoa?
- they are group of bacteria
 - they represent both plants and Animals
 - they are one celled plants
 - they unicellular animals
- ___91. Which of the following pairs of molecules are known to have catalytic activity
- lipids and proteins
 - carbohydrates and proteins
 - proteins and RNAs
 - proteins and DNAs
- ___92. Which of the following theories explains evolutionary changes of living things in tems of changes in their allele frequencies?
- Darwin's natural selection
 - Neo-Darwinism
 - Spontaneous generation
 - Inheritance of acquired characteristics

Question 93 is based on the following information

- Receptor
 - stimulus
 - Effectors
 - coordinating system
 - Response
- ___93. Which of the following choice contain the correct order of the components of behavior?
- B, D, C, E,
 - B, A, E, D, E
 - A, B, D, E, C,
 - B, A, D, C, E
- ___94. Which of the following reinforce for a dog being trained in crime investigation?
- Doing nothing after the doges performs an action
 - Hitting the dog after every action it performs
 - Giving a piece of meat after every performance
 - Shouting at the dog every time it performs an action
- ___95. Which of the following process does not takes place during MeiosisII
- Separation of chromatides
 - Chromosomes line up side by side in metaphase
 - Crossing over
 - Production of four haploid cells
- ___96. The group of the Ethiopia wolf which does not contribute to territory marking with their urine containing pheromones is
- Adult males
 - Adult females
 - sub Adult males
 - sub Adult females

- ___97. Suppose the amino acid coding region in a mRNA is 1200A nucleotides long how long is the proteins
Interms of amino acid number/
A. 1200 Amino acids B. 600 amino acids C. 400 Amino acids D. 300 amino acid
- ___98. In some human liver cells there are 69 chromosomes per cell what is the ploidy level of such cells
A. Haploid B. Diploid C. Tetra ploid D. Hexaploid
- ___99. What do we call learned behavior if a mouse that had just escaped from the mouth of a cat jumped
violently at a slight touch by a trivial object
A. Latent learning B. conditioning C. sensitization D. imprinting
- ___100. Carbon 14 has a half life of about 5730 years suppose a fossil contain only 12.5% of the amount of C – 14.
How many years does the fossil lives?
A. 5730 years B. 11460 years C. 17190 years D. 22920 years

Best of Luck!!
Prepared by Natural science