Dessie special boarding school

Science department

Grade 10 biology study guide questions

Choose the best answer from the given alternatives

1. The blood pressure in the glomerulus is higher b/c the
   A. Entry and exit vessels of the glomerulus have equal diameter
   B. Entry vessels of the glomerulus has smaller diameter than the exit vessel
   C. Exit vessel of the glomerulus has smaller diameter than the entry vessel
   D. Bowman's capsule exerts high pressure on the glomerulus
2. Sweating cools the body by
   A. Reducing the amount of heat produced inside the body
   B. Constricting the blood capillaries beneath the skin
   C. Taking away heat of evaporation from the skin
   D. Maintaining a layer of air close to the skin
3. The main source of our body heat is
   A. Physical exercise C. hot drinking such as tea and coffee
   B. C. oxidation of food during cellular D. heat generated by the blood
4. Suppose A, B, X, Y, Z are animals with different size and their amount of heat produced by their body in cal/kg of body mass /day found to be 80, 50,30, 10, 0.8 respectively. The correct increasing order of these animals in their body size is
   A. A,B,X,Y,Z B. X,Y Z,B,A C. B,A, Z,Y,X D. B,A,X,Y,Z
5. The first part of a nephron in mammalian kidney is
   A. Loop of henle B. glomerulus C. bowman's capsule D. first convolution
6. The amount of heat (cal/kgof body weight/day) produced by a rat, rabbit, cow and elephant are found to be 7, 11, 78, and 153. Which one of the following is the correct match b/n animal and amount of heat produced?
   A. Elephant- 153 B. cow-78 C. rabbit -11 D. rat- 7 E. none of the above
7. The tendency of any living organism to maintain an appropriate internal environment is called
   A. Metabolism B. homeostasis C. respiration D. development
8. Of the following substance which is present in the glomerulus filtrate but normally completely reabsorbed as the filtrate passes along the tubule is
   A. Glucose B. protein C. sodium ion D. Ammonium ion E. urea
9. A person would excrete relatively more amount of nitrogenous waste such as urea if he/she consumes large amount of
   A. Wheat bread . C"Tef'injera with vegetable 'wet''
   B. B. barely porridge with butter D. legumes such as peas and beans
10. Which one of the following does not normally happens as the glomerulus filtrate is passing down the nephron tube?
    A. Water is reabsorbed into the circulatory system C. glucose concentration decrease
    B. Protein concentration increase D. ammonium ion conc. Increase
    E. Sodium ion conc. Increase

    Given the following animals, 1. Frog 2. Fox 3. Crocodile 4. Dog 5. Snake 6. Duck 7. Pigeon 8. cat
11. Which one of the following groups contains poikilothermic animals only?

A. 1, 2, 3 B. 6, 7,8 C. 3,7, 8 D. 1,2,6

12. Which of the following muscle of human being learn to control in childhood ?
    A. The cardiac sphincter of muscles of the stomach
    B. The upper sphincter muscle of the urethra
    C. The lower sphincter muscle of the urethra
    D. The pyloric sphincter of stomach
13. Which one of the following is the principal organ for maintaining the body's water homeostasis?
    A. Skin B. kidney C. lungs D. sweat glands
14. In humans how does liver treat excess amino acids?
    A. Converts them to animal protein C. makes them available for tissues building and repair
    B. Store them in the body D. breaks them down to simple proteins
    E. Converts them into glucose and urea
15. Which one of the following is a function of the kidney?
    A. Reabsorption of material ions, glucose, water, etc
    B. Filtration of the blood
    C. Concentrating
    D. All of the above E. only Band C
16. The highest surface area to volume ratio would be found in
    A. An adult human being B. an elephant C. a rabbit D. honey bee
17. Which excretory product is made in the liver?
    A. Minerals B. Urea C. amino acid D. glucose
18. What happens during hibernation?
    A. Metabolic processes slows down C. heart beats very slowly
    B. Body temperature drops D. organisms survive on stored body fat E. all of these
19. What are the functions of the liver?
    A. It stores carbohydrate C. it regulates the conc. Of glucose in the blood
    B. It is site of breakdown of unwanted substances D. all of the these
20. The human urinary system consists of
    A. A pair of kidneys, a pair of ureters a bladder C. kidney, a pair of urethra and a bladder
    B. A pair of kidneys, a pair of urethra and a bladder D. A kidney, urethra, a pair of bladder
21. The biological term warm blood organism is a misleading b/c
    A. Environmental temperature may sometimes higher than these organisms
    B. The organisms usually maintain their body temperature constant
    C. These animals relay on environment
    D. Fishes and reptiles are examples
22. Which one of the following animal requires more oxygen per day per gram of its body mass?
    A. Rat B. elephant C. frog D. cow E. man
23. Which one is correct
    A. In cold weather, the skin becomes pale (whitish) because the blood vessels relax to bring blood to the surface
    B. In warm weather, the skin becomes redder because the blood vessels are constricted and the bloods withdrawn from surfaces
    C. In a cold weather, the skin become pale because the blood vessels are constricted and blood is withdrawn from the surface
    D. Since the skin colour is genetically determined neither warmth nor cold can case changes on it
    E. A and B

24. When there is excess sweating due to hot weather or exercise
    A. The salt lost can be replaced by taking extra salt in the diet
    B. Water is the only substance lost in sweat
    C. It only upsets the water balance of the body
    D. Urea is excreted via skin
25. In the correct usage of the term excretion
    A. Bile pigments are excretory materials resulting from the breakdown of red blood cells
    B. Oxygen can be regarded as an excretory products of green plants
    C. Mineral salts are excreted by animals and not by plants
    D. A and C E. A and B
26. Body temperature , in mammals, is regulated by the :-
    A. Adipose tissue B. skin C. fat bodies D hair on the skin
27. Which one of the following solute normally does not go into the nephron at all
    A. Protein B. glucose C. urea D. sodium ion
28. Which one of the following is not important for body heat conservation?
    A. Subcutaneous fat C. feather or fur cover
    B. vasoconstriction D. large surface area to volume ration
    E. No answer is given
29. Which of the following is true about protein concentration of healthy humans?
    A. Low in blood plasma and high in glomerular filtrate
    B. Low in glomerular filtrate and high in urine
    C. High in glomerular filtrate and low in the urine
    D. Absent in glomerular filtrate and in urine
    E. Present in glomerular filtrate and absent in urine
30. The tube that brings urine from the kidney to the urinary bladder is :-
    A. Renal artery B. ureter C. urethra D. glomerulus E. distal convoluted tubule
31. Sweating keeps the body cool because :-
    A. It is a cold liquid C. its evaporation takes heat from the body
    B. It reflects heat D. it prevents body heat from coming to the surface
32. Which one of the following is neither a heat gaining nor a heat retaining mechanism?
    A. Shivering B. having a fat layer C. having thick clothes on D. sweating E. no answer is given
33. The normal blood sugar conc. In $100cm^3$ of human blood is about
    A. 100gms B. 80gms C. 200gms D. 0.8gms
34. The panting of a dog during a hot day is a mechanism of :-
    A. Eliminating excess water from the body C. breathing faster
    B. Producing more heat D. losing heat from the body
35. The amount of heat that a mammal has to produce per day per kilogram of body weight in order to maintain its body temperature is :-
    A. Inversely proportional to the size of the animal
    B. Directly proportional to the size of the mammal
    C. Not related to the of the mammal
    D. Depends on the type of food the animal eats
36. Initially the filtrate that pass from the blood into the nephron has the same concentration as blood except that it lacks
    A. Proteins B. sodium C. cells D. urea E. sugar
37. Which of the following animals would contain more urea in its urine?
    A. Animal fed fats only B. animal fed only protein C. animal fed on sugar D. animal fed on starch

38. The process by which the liver removes the nitrogen containing part of amino acids is called
    A. Deamination B. nitrification C. denitrification D. urination
39. Which of the following process takes place in the liver?
    A. Deamination of amino acids C. conversion of glucose to glycogen
    B. Detoxification of poison D. release of haemoglobin from dead red blood cells
40. Which one of the following statement?
    A. Mammals of cold region have large surface to volume ratio
    B. Mammals of cold region are generally smaller than mammals of hot regions
    C. Protruding structures (such as ears, nails) of mammals of hot region are larger than cold regions
    D. Body size and temperature of mammals have no relations
    E. Only A and B are true
41. Which of the following mechanism facilitate loss of excess heat from the body of warm – blooded animal
    A. Thick deposit of subcutaneous fat C. thick cover of fur or feather
    B. Vasoconstrictions D. vasodilation E. all except C
42. Which of the following is means of reducing heat loss from the body?
    A. Panting like a dog B. vasoconstriction C. possession of large ears like elephants D. no answer
43. As the size of an animal increase
    A. The surface area to volume ratio increase C. the rate of heat loss from the body increase
    B. The amount of its food intake per day decrease D. A and C
44. Suppose a sample of fluid from the middle region of a nephron is analysed for its content, normally protein are not present. This is because:-
    A. Proteins are reabsorbed at the base the bowman's capsule
    B. Proteins are converted to urea as soon as they enter the nephron
    C. The blood in the renal arteries does not contain protein
    D. Because of their large size proteins are held back in the glomerular capillaries
    E. None of these
45. Which one of the statement is true abut hibernation?
    A. Only poikilotherms process it
    B. Both poikilotherms and homoiotherms process it
    C. Animals in hibernation stop breathing completely
    D. Animals wake from hibernation immediately when a favourable conditions are restored
46. Shivering is a response made by the body to cold. Its purpose is:-
    A. To increase the rate of respiration so as to release heat energy for the body
    B. To decrease the rate of respiration so as to conserve heat energy
    C. To alert or warn the person so as to put on more clothes to conserve heat
    D. To warm the body that a very cold temperature is coming up
47. Behavioural methods of temperature regulation of homoiotherms include
    A. Clothing B. taking high calorie food C. vasoconstriction D. hibernation E. all except C
48. The thermoregulatory center of human is situated in
    A. Hypothalamus B. thalamus C. skin D. pons
49. When the thermoregulatory center detects changes in temperature our first response include
    A. Hibernation B. clothing C. changing positions or places D. taking bath E. all except A
50. During cold or rainy conditions fury animals erect their hair using their erectile muscles. This help them to:-
    A. Increase the volume of insulating air close to the skin
    B. Increase the size of the animal

C. Conserve more heat b/n skin and environment D. None of these

Unit 4

Food making in plants

51. Flowering plants are structured into four organs, which one of the following is not an organ of flowering plants
    A. Flower B. leaves C. stem D. root E. shoot
52. A mould is called a saprophyte b/c it
    A. Cannot carryout photosynthesis
    B. Drive of its food from the dead body or the non-living products of another plant or animal
    C. Their stomach produces strong HCl that hydrolyse cellulose
    D. No answer is given
53. Organisms that obtain their energy source from other organisms are
    A. Autotrophs Heterotrophs C. self-feeders D. chemosynthetic organisms
54. The chemical formula for glucose which is a product of photosynthesis is
    A. $C_6H_{12}O_6$ B. $C_6H_6O_{12}$ C. $C_{12}H_6O_6$ D. $C_6H_6O_6$
55. The oxygen released by green plants during photosynthesis comes from the
    A. CO_2 molecule B. atmospheric O_2 C. chlorophyll D. water
56. In leaves in general, chloroplasts are more concentrated in
    A. Spongy cells B. epidermal cells C. palisade cells D. guard cells
57. All photosynthetic plants possess
    A. Leaf B. chlorophyll C. Root D. all of these
58. In the photosynthetic equation $CO_2+H_2O\rightarrow 9(CH_2O)+O_2$, the compound CH_2O represents
    A. The chlorophyll molecule facilitating the reaction
    B. The general formula of the enzyme that catalyses the reaction
    C. The raw material for the reaction
    D. The carbohydrate produced
59. During demonstration of the need of a plant for light, the process known as destarchig is carried out. The purpose of this process is
    A. Eliminating starch B. depriving plant from light C. concentrate CO_2 C. activate the reagent
60. To test a leaf for the presence of starch, all the following must be done except
    A. Boiling the leaf in water C. decolourizing the leaf
    B. soaking the leaf in warm alcohol D. heating the leaf in benedict's solution
61. Which of the following is a function of both the upper and the lower epidermis of the leaves of plants?
    A. Protection of the inner leaf cells C. increase water loss from the plant body
    B. Manufacturing growth hormones D. water conduction E. A and B
62. Which of the following completely lists the materials that a plant must have in order to carry out photosynthesis?
    A. CO_2, H_2O, light, chlorophyll C. H_2O, CO_2, O_2, sugar
    B. H_2O, O_2, CO_2, chlorophyll D. O_2, starch, chlorophyll, light
63. The end products given by the process of photosynthesis are
    A. CO_2, H_2O and energy B. sugar and oxygen C. sugar and CO_2 D. sugar and energy
64. The main photosynthetic layer of a typical leaf is :
    A. Cuticle B. stomata C. spongy mesophyll D. palisade mesophyll
65. How does the sugar manufactured in the leaf pass to other parts of the plant?
    A. Through the stomata C. through the phloem tissue of the veins
    B. Through the xylem tissue of the veins D. through the cuticle of the leaf
66. The structure that joins the lamina of the leaf to the stem or branch is named the:

A. Petiole B. pedicel C. node D. inter node

67. Which of the following conversion process does NOT occur in the cells of green plants?
    A. Sugar → carbon dioxide +water C. carbondi oxide + water → sugar
    B. Amino acid +amino acid → protein D. glycogen → glucose + starch
68. Which part of the leaf lacks chloroplast?
    A. Palisade mesophyll B. spongy mesophyll C. guard cell D. epidermal cell with no guard cell
69. On a warm bright day in a wet environment, the factor that most often limits the rate of photosynthesis is
    A. Insufficient CO_2 B. insufficient H_2O C. insufficient O_2 D. improper wave lengths of light
70. In photosynthesis one of the following reaction takes place
    A. $CO_2 + H_2O$ light $C_6H_{12}O_6$ +energy C. $6CO_2 + 6H_2O$ light $C_6H_{12}O_6$ + Energy
    B. $6CO_2 + 6H_2O +$ light $C_6H_{12}O_6 + 12O_2$+ Energy D. $6CO_2 + 6H_2O$ light $C_6H_{12}O_6$ $6O_2$ Energy
71. Leaves are usually thin, flatten and have large surface area. This is a good chance for
    A. Light to pass through easily C. easier diffusion of gases
    B. Easier gas exchange D. All
72. With respect to function, mesophyll cells and guard cells are similar in that they both
    A. Accumulate starch during the light period
    B. Hydrolyse the starch into sugar during the light period
    C. Convert inorganic substance into organic substance
    D. Have to increase their osmotic pressure during the day
73. If a photosynthesizing plant is supplied with carbondi oxide containing the heavy isotope of oxygen ($C^{18}O_2$) and ordinary water
    A. The oxygen released would be $^{18}O_2$ C. the sugar would contain the heavy isotope of oxygen
    B. The oxygen released would be the ordinary isotope D. A and B E. B and C
74. In the experiments dealing with photosynthesis, the liquid that is used to absorb oxygen is
    A. Lime water B. caustic soda solution C. alkaline pyrogallol solution D. cobalt chloride
    E. Bicarbonate indicator
75. In order to show that oxygen is given off during photosynthesis, a green water plant is
    A. Placed in water saturated with carbondi oxide and sunlight is provided
    B. Placed in water saturated with carbondi oxide and the apparatus is covered with black cloth
    C. placed in pure water covered with a film of oil
    D. placed under a jar containing potassium hydro oxide
76. Plants that survive without water are known as
    A. Resurrection plants B. epiphytes C. hydrophills D. xerophiles
77. The uptake of mineral ions from the soil into the plant is by
    A. Active transport B. Osmosis C. Diffusion D. translocation
78. The process by which water is lost to the air by plants is referred to as
    A. Translocation B. transpiration C. hydration D. dehydration
79. The inner most part of a root is occupied by
    A. Cambial cells B. phloem cells C. pith cells D. xylem cells
80. When one is removing the bark of a tree, he/she is destroying the
    A. Xylem and phloem tissue C. cortical and phloem tissue
    B. Xylem and cambial tissue D. epidermal and xylem tissue
81. Which of the following contributes the most in lifting up water to tree
    A. Leaf fall B. root pressure C. gravitational pull D. transpirational pull
82. Inverse relation exists b/n the rate of transpiration and

A. Temperature B. wind velocity C. humidity D. all of the above E. Band C only

83. Which one of the following structure of plant is an important adaptation for gaseous exchange in terrestrial environments?
    A. Cuticle B. phloem C. Rhizoid D. xylem E. stomata
84. The plant body of young seedlings is mainly supported by
    A. Rings of xylem in the stem C. thick bark layer
    B. Heavy cork layer D. pressure created due to water
85. Choose the statement which is not true about guard cells
    A. They show higher sugar concentration during the night than during the day
    B. They gain more water during the day than at night
    C. They open the stomata when they are turgid
    D. Water passes into the guard cells by osmosis
    E. They contain chlorophyll
86. When a tree trunk is ringed, the function that is immediately affected most is
    A. Food transport B. water transport C. transpiration D. mineral uptake E. A and D
87. What are the environmental factors that increase the rate of transpiration
    A. High leaf temperature C. low humidity of the surrounding air
    B. High light intensity D. all of these E. only A and B
88. Which one of the following process is not influenced by the amount of water present in the plant body
    A. Wilting B. transpiration C. turgor pressure D. plasmolysis E. none of the above
89. A plant that is well adapted to grow in a very dry place is known as
    A. An epiphyte B. halophyte C. mesophyte D. xerophyte E. hydrophyte
90. Which of the following is true?
    A. An increase in humidity decrease transpiration C. an increase in humidity increase transpiration
    B. Presence of light inhibits transpiration D. transpiration is less when it is windy
    F. A decrease in humidity decrease transpiration pull
91. In a prolonged drought, plants with a tap root system have a better chance of survival than those with fibrous roots because
    A. Tape root system can absorb water from the deeper horizon of the soil
    B. Fibrous roots are more efficient in absorbing water from deeper soil
    C. Tap root system store water that the plant can use during dry seasons
    D. Tap roots are produced by drought tolerant plants only
    E. All except B
92. Which of the following statement is false about transport in the plant body?
    A. Water is transported within xylem tissue
    B. Minerals are transported within xylem tissue
    C. Food manufactured in the leaves is transported to roots through phloem tissue
    D. If the bark of a tree is removed water transport will be affected first
    E. If the bark of a tree is removed food transported will be affected first
93. The stomata opens when the guard cells
    A. Lose water becomes turgid C. becomes flaccid D. stimulated by CO_2 E. A and C
94. Usually desert plants have small leaves. This is an adaptation to
    A. increase the leaf area for photosynthesis B. increase the rate of transpiration
    c. decrease the rate of transpiration D. decrease the rate of photosynthesis
    E. All except B.
95. If a piece of the lower epidermis of a leaf is peeled and placed in a strong sugar solution
    A. The stomata open wide C. the guard cells become turgid

B. The stomata close D. water moves into the guard cells E. All happens except C

96. Where in the plant body do you find undifferentiated meristematic cell only?
    A. At the base of the stem C. at the apex of a growing tree
    B. Half way b/n the base and apex D. at the thickest part of the tree E. at any part of the tree

II. Briefly explain the following questions

97. Explain and differentiate the process of germination in dicots and monocots
98. List the plant hormones with their mechanism (plan) of action
99. Explain the effect of removing apical dominance on plant growth
100. Name the different types of tropism