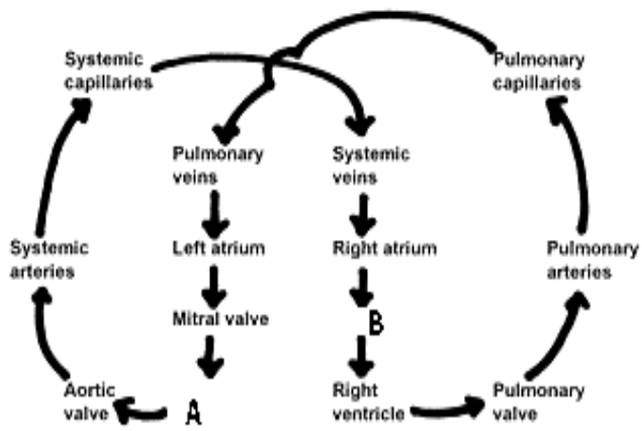
1st PERIODICAL TEST (SY 2022 - 2023)
GRADE 9 SCIENCE

Direction: Read each statement carefully. Write the letter of your answer on your paper.

1. What system is responsible for the exchange of oxygen and carbon dioxide between the air and the cells?
   a. circulatory c. excretory
   b. digestive d. respiratory
2. Which part of the respiratory system filters and warm the air upon entering it?
   a. air sac c. nasal cavity
   b. bronchi d. diaphragm
3. How does the air enter our body?
   a. nose > nasal passage > trachea > bronchi > bronchioles > alveoli
   b. nose > nasal passage > trachea > bronchioles > bronchi > alveoli
   c. nasal cavity > nose > trachea > bronchioles > bronchi > alveoli
   d. nasal cavity > alveoli > trachea > bronchioles > bronchi > nose
4. During inhalation, _____.
   a. the diaphragm moves <u>down</u> and <u>contracts</u> the chest cavity.
   b. the diaphragm moves <u>down</u> and <u>expands</u> the chest cavity.
   c. the diaphragm moves <u>up</u> and <u>contracts</u> the chest cavity.
   d. the diaphragm moves <u>up</u> and <u>expands</u> the chest cavity.
5. All of the following are associated with respiratory problems EXCEPT
   a. unbalanced diet c. pollutants
   b. enough sleep d. smoking
6. What is the role of ALVEOLI in the transport of GASES in the body?
   a. They serve as the linkage from the respiratory system and the circulatory system.
   b. They serve as the carrier of the deoxygenated blood.
   c. They serve as the carrier of the oxygenated blood.
   d. They serve as the linkage from the respiratory system and the digestive system.
7. Which of the following statements is TRUE?
   a. As the blood leaves the lungs, the blood is saturated with about 97% oxygen.
   b. As the blood leaves the heart, the blood is saturated with about 97% oxygen.
   c. As the blood enters the lungs, the blood is saturated with about 97% oxygen.
   d. As the blood enters the heart, the blood is saturated with about 97% oxygen.
8. _____.
   i. Increase your walking speed.
   ii. Maintain a healthy weight.
   iii. Stay hydrated.
   iv. Avoid smoking.

   Which of the following belongs in the blank space above?
   a. Causes of respiratory problems
   b. Ways on how to avoid respiratory problems.
   c. Kinds of common respiratory diseases.
   d. Results of bad lifestyle.
9. What is the primary organ of the circulatory system?
   a. Heart c. veins
   b. Arteries d. blood
10. A type of circulation which is described by the movement of blood through the tissues of the HEART.
    a. Pulmonary c. Systemic
    b. Coronary d. Respiratory
11. The _____ prevents the back flow of blood.
    a. atrium c. ventricle
    b. valve d. septum

For 12-13, use the image below.



12. What is letter A in the picture?
    a. Septum c. Lungs
    b. Left Ventricle d. Tricuspid Valve
13. What is letter B in the picture?
    c. Septum c. Lungs
    d. Left Ventricle d. Tricuspid Valve
14. The beating sound your heart makes comes from:
    a. Blood going in the wrong direction
    b. Valves closing
    c. The heart skipping beats
    d. Your ears playing tricks on you
15. Arrange properly the statements below on how the heart works.

    A. When the heart contracts, the right lower ventricle will pump the blood into the lungs,

where the carbon dioxide is exchanged for oxygen.

B. The heart receives oxygen-deficient blood from the body into the right upper atrium.
C. Oxygen-rich blood flows from the left upper atrium into the left lower ventricle.
D. After the exchange, the blood containing fresh oxygen flows into the left upper atrium.
E. When the heart contracts, the left lower ventricle will force the blood out to the body through a network of arteries.

a. A, B, C, D, E
b. A, E, B, C, D
c. B, E, A, C, D
d. B, A, D, C, E

16. You can keep your heart strong by:
    a. Eating heart-shaped candy
    b. Doing activities, like playing outside, riding your bike, and swimming
    c. Smoking
    d. Sleeping 18 hours a day
17. Inflammation of larynx is termed
    a. laryngitis
    b. phlebitis
    c. arthritis
    d. bronchitis
18. Which two respiratory system problems are treated with medicine that dilates the airways?
    a. Sinusitis and bronchitis
    b. Emphysema and tuberculosis
    c. Asthma and bronchitis
    d. Emphysema and pneumonia

19. *Atherosclerosis is a disease in which plaque builds up inside your arteries. Plaque is made up of fat, cholesterol, calcium, and other substances found in the blood. Over time, plaque hardens and narrows your arteries. This limits the flow of oxygen-rich blood to your organs and other parts of your body.*

    Why is atherosclerosis especially serious when it develops in the coronary arteries?
    a. It can then go on to affect the aorta.
    b. It can make red blood cells die.
    c. It can lead to a heart attack.
    d. It can limit the functioning of white blood cells.
20. What is the basic unit of heredity?
    a. Gene
    b. DNA
    c. autosome
    d. chromosome

For 21-22, A plant with red flowers is crossed with a white-flowered plant of the same species. All the seeds, when grown, produce plants with red flowers. (Assume that the flower color is controlled by a single pair of alleles)

21. Which allele is dominant
    a. Red color
    b. White color
    c. Pink color
    d. Red & Pink Stripe
22. Which is recessive?
    a. Red color
    b. White color
    c. Pink color
    d. Red & Pink Stripe
23. In cats, the allele (S) for short fur is dominant to the allele (s) for long fur. What is the phenotype of a cat with a genotype **Ss**?
    a. Short fur
    b. Long fur
    c. medium fur
    d. no fur
24. In rabbits, assume that the dominant allele (B) produces black fur. The allele (b) for white fur is recessive to B.

	Rabbit 1	Rabbit 2	Rabbit 3	Rabbit 4
Genotype	BB	Bb	bB	bb

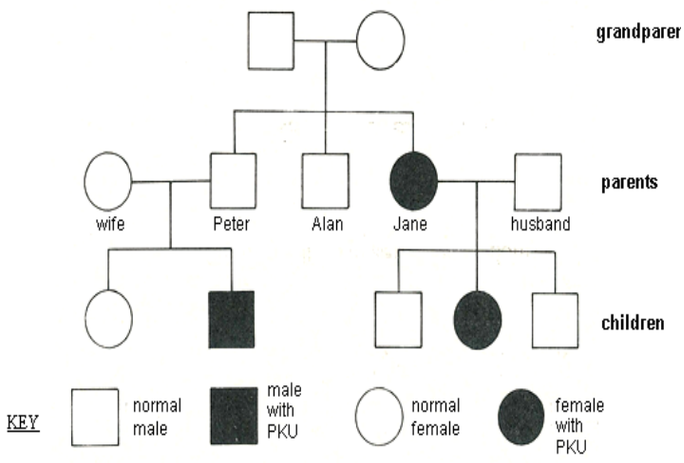
Which rabbits will have gray coat color?
    a. 1, 2 and 3
    b. 1 and 4
    c. 2 and 3
    d. 1, 2, 3 and 4
25. If rabbits 1 and 4 were mated together and had 12 babies, how many of these would you expect to be gray?
    a. 0
    b. 4
    c. 8
    d. 12
26. What is a type of inheritance where both alleles are expressed equally in the phenotype of the heterozygote?
    a. Complete dominance
    b. Incomplete dominance
    c. Codominance
    d. Multiple allele
27. A red cow is crossed with a white cow and produced an offspring that is a roan cow. What is a roan cow?
    a. A purebred red cow.
    b. A purebred white cow.
    c. A pink cow.
    d. A cow with red hair and white blotches.

For 28-29, use the table below.

Phenotype	Genotype
O	ii
A	I^AI^A or I^Ai
B	I^BI^B or I^Bi
AB	I^AI^B

28. The alleles controlling the ABO blood groups are given the letters I^A (group A), I^B (group B) and i (group O). This type of inheritance is called _____.
    a. Complete dominance
    b. Incomplete dominance
    c. Codominance
    d. Multiple allele
29. What is/are the possible blood type/s of an offspring if both parents are type O?
    a. A and B
    b. A and AB
    c. A, B and AB
    d. O only
30. In humans, maleness or femaleness is determined by a pair of sex chromosomes called X and Y. What is the genotype for males?
    a. XX
    b. XY
    c. XXY
    d. XO
31. Which of the following traits is not controlled by multiple genes?
    a. color blindness
    b. eye color
    c. freckles
    d. hair texture

For 32-33, the genetic disorder phenylketonuria (PKU) is caused by a recessive allele (n). The family tree below shows the incidence of the disease over three generations.



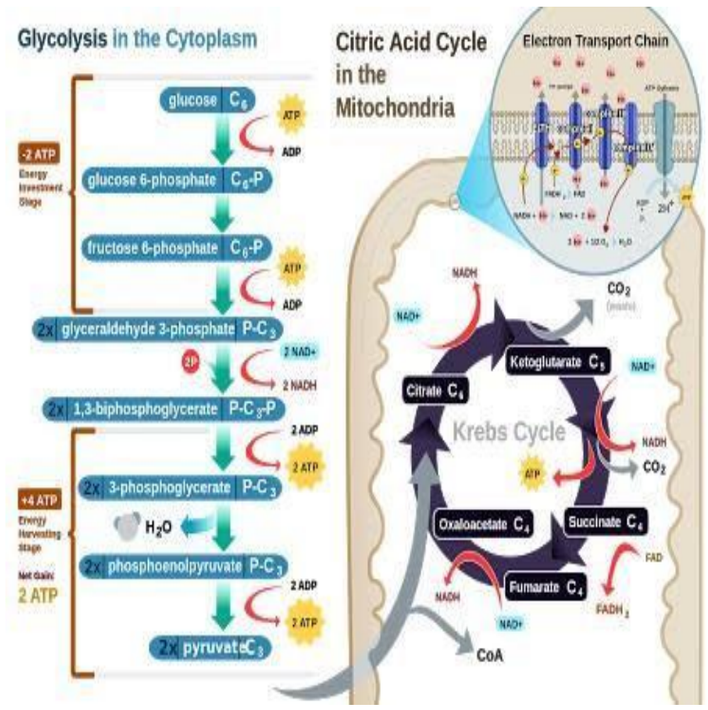
32. What is the genotype of Jane's husband?
    a. XX
    b. X^nX
    c. XY
    d. X^nY
33. Then Jane's husband is a _____.
    a. Normal male
    b. Normal, carrier male
    c. Male with PKU
    d. None of the above
34. It is a hereditary material and is also known as the blue print of life.
    a. DNA
    b. RNA
    c. mRNA
    d. tRNA
35. Which of the following statements is true?
    a. The gene is the basic unit of heredity and is found in the chromosome.
    b. The chromosome is the basic unit of heredity and is found in the gene
    c. The gene determines the sex of humans and the chromosomes carry the traits.
    d. The gene carries the traits inside the 20 pairs of chromosomes in humans.
36. A DNA strand has the following bases: A A G C C A. What are the bases on its complementary strand?
    a. A A G C C A
    b. A C C G A A
    c. T T C G G T
    d. C C A T T C
37. Extinction means
    a. population of a species begins declining rapidly
    b. population has become so low
    c. occurs when the last member of that species dies
    d. when the population is stable.
38. A major benefit to come from the release of wolves into the Yellowstone National Park is
    a. increased numbers of elk
    b. control of coyotes that kill cattle
    c. control of the explosive population growth of domestic cats that menace campgrounds
    d. control of the grizzly bears
39. It happens when there is removing or clearing of forest to include cutting of all trees, mostly for agricultural or urban use.
    a. Eutrophication
    b. Acid rain precipitation
    c. Water pollution
    d. deforestation
40. A conservation biologist would _____.
    a. work with government officials to establish a plan for the protection of endangered species
    b. analyze organism characteristics that help them survive in particular locations
    c. investigate the impact of industrial pollutants on an ecosystem

d. all of the above

41. Acid deposition _____.
    a. is only a problem where sulfur dioxide and nitrogen oxide are emitted
    b. occurs when sulfur dioxide and nitrogen oxide combine with water to produce acids
    c. stimulates the growth of plants that prefer acid soil
    d. all of the above
42. Which is associated with air pollution?
    a. global warming
    b. destruction of the ozone shield
    c. acid deposition
    d. all of the above
43. What is the formula for photosynthesis?
    a. $6CO_2 + 6H_2O$ + light energy → $C_6H_{12}O_6 + 6O_2$
    b. $6CO_2 + 6O_2$ + light energy ----> $C_6H_{12}O_6 + 6H_2O$
    c. $6CO_2 + 6H_2O$ ----> $C_6H_{12}O_6 + 6O_2$ + light energy
    d. $6CO_2 + 6H_2O$ ----> $C_6H_{12}O6 + 6O_2$
44. Which of the following molecules is a waste product of photosynthesis?
    a. Oxygen c. Water
    b. Carbon dioxide d. Sugar
45. Chlorophyll is mostly located above the leaf of the plant to _____.
    a. collect carbon dioxide.
    b. collect light energy.
    c. release oxygen.
    d. release glucose.
46. Iodine is used to detect the presence of starch produced in photosynthesis. This works when _____.
    a. its brown color has not changed.
    b. its brown color turned into dark blue.
    c. its brown color become colorless.
    d. its brown color become yellow.

For 47-48, use the diagram on the topmost right.

47. This process begins with the production of Acetyl-CoA:
    a. Chemiosmosis
    b. Electron Transport Chain
    c. Glycolysis
    d. Krebs cycle or Citric Acid Cycle
48. Which of the following is the products of the Krebs cycle?
    a. ATP c. FADH
    b. NADH d. all of these



49. Cramps during exercise are caused by:
    a. alcohol fermentation
    b. glycolysis inhibition
    c. lactic acid fermentation
    d. chemiosmosis
50. Which of the following processes produces the most ATP?
    a. glycolysis
    b. oxidative phosphorylation
    c. fermentation
    d. Krebs' cycle