

Review Questions for June Exam

Term 1

Topic 1 – Cells and Genetics

1. A cell with 20 chromosomes undergoes mitosis. How many daughter cells are created? ____ Each daughter cell has ____ chromosomes.

2. What are the functions of cell division?

3. What is genetic diversity?

4. GMO's are a result of:

A) Mixing of the races

C) Altering the genetic make-up

B) Organ transplants

D) Organisms becoming extinct

5. Why do cells divide?

1. _____

2. _____

6. Give 3 differences between the processes of Mitosis and Meiosis.

a. _____

b. _____

c. _____

7. Identify the processes as Meiosis or Mitosis

a) Produces identical cells _____

b) Used for sexual reproduction _____

c) Has 2 cell divisions _____

d) Contains 46 chromosomes (human cell) _____

e) Produces gametes _____

- f) Produces 4 daughter cells _____
- g) Contains half the genetic material of parent cell _____
- h) Used for growth and repair of cells and tissues _____

Topic 2- Puberty, cycles and Artificial Reproduction

1. Define Puberty
2. Give some male and some female changes which occur during puberty.
3. Answer the questions below about the menstrual cycle.
 - a- What is the corpus luteum's function?
 - b- What is the follicle's function?
 - c- What is estrogen's function?
 - d- What is FSH's function?
 - e- What is LH's function?
 - f- What is progesterone's function?
 - g- Why does ovulation occur?
 - h- What causes progesterone to be secreted?
 - i- What causes the follicle to grow?
 - j- What causes FSH to be secreted?
 - k- What causes the endometrium to develop?
 - l- Which gland secretes FSH and LH?
 - m- Why does the corpus luteum form?
 - n- Why does the corpus luteum deteriorate?
 - o- Why does a female get her period?

4. Fill in the table giving a brief explanation of each and when each would be used.

Hormone therapy	Artificial insemination	In-vitro fertilization	Microinjection

Topic 3- Nutrition, Digestion and Pure Substances

1. What is the function of the digestive system?

2. Fill in the table

Nutrients	Functions	Broken down to	Examples of food
Carbohydrates			
Fats			
Protein			
Vitamins, minerals, Fiber and water		X	

3. Convert the following foods to kJ, what is the function of that food?

- Chocolate chip cookies:
- 22 g of carbohydrates
 - 3 g of protein
 - 9 g of fat

4. Fill in the table of pure substances.

	Atom	Element	Molecule	Compound
Examples				

5. Define a gland and enzyme.

6. Define a mechanical breakdown and give 2 examples.

7. Define a chemical breakdown and give 2 examples.

8. Define peristalsis.

9. Define absorption

10. Fill in the table

Passage- Way of digestion						
Mechanic- al bd. occurring						

11. Fill in the chart about chemical breakdowns.

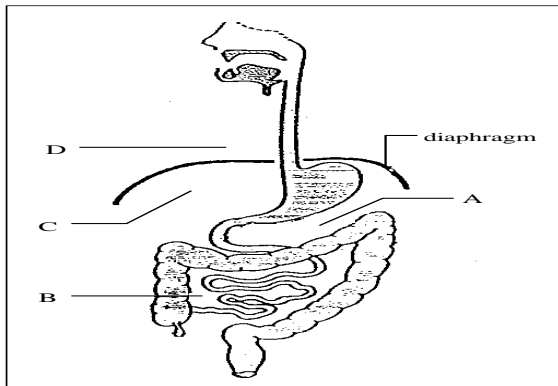
Nutrient	Location of 1 st breakdown	Gland	Enzyme	Becomes	Location of 2 nd bd.	Gland	Enzyme
Carbo's							
Protein							
Fat							

12. What are the 2 organs that play a role in digestion but that food never enters?
Where do their enzymes go when they are secreted?

13. Where does the absorption of simple nutrients occur? Why does it occur there?

14. Where does the absorption of water, vitamins and minerals occur?

15. Label all the parts not just the letters.



16. Joanne is fifteen and recently broke a bone in her leg. Which nutrient is thus very important for her at this stage in her life?

- A) Carbohydrate
- B) Protein
- C) Lipid
- D) Water

17. The chart below matches the nutrients that the body requires, with the functions they perform and the foods in which they could be found.

Essential Nutrients	Functions	Food Source
Carbohydrates	Provide energy	1
Lipids	2	Oil and butter
Proteins	Build or repair body tissue	3
Water, mineral salts, vitamins...	4	Fruits and vegetables

Which of the following series correctly completes the chart?

- A) 1- Meat and alternates, 2- Provide energy, 3- Milk products, 4- Regulates metabolism
- B) 1- Breads and sweets, 2- Regulates metabolism, 3- Breads and sweets, 4- Regulates metabolism
- C) 1- Milk products, 2- Provide energy, 3- Meat and alternates, 4- Regulates metabolism
- D) 1- Breads and sweets, 2- Provide energy, 3- Meat and alternates, 4- Regulates metabolism

18. You are at a grocery store looking for something which will give you a quick energy fix. You read the labels of three different foods, you are able to analyze them because you have your calculator with you at all times. The table below gives you the information on the labels.

Label information

	Carbohydrates (g)	Protein (g)	Fat (g)
Food 1	24	2.5	0.5
Food 2	0	19	6
Food 3	0	0	14

- a- Find the kJ content of each food, include the total kJ
- b- Give the function of each food /6

19. Fill in the table

	Protein	Carbohydrates	Fats
Function			
Examples of it			
Number of grams needed per day			
What you multiply to get from grams (g) into kJ			
The amount of kJ needed per day			

20. 2. What 4 nutrients are responsible for regulating metabolism?

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21. 3. Calculate the kJ intake of the chips:

20 g of carbohydrates

12 g of fat

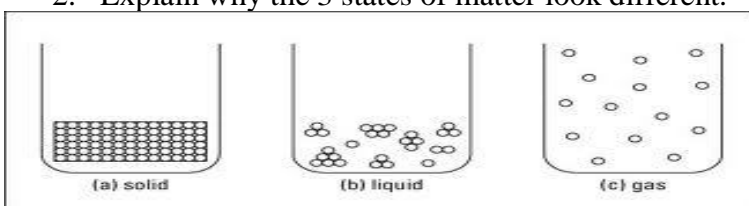
2 g of protein

Topic 4- Particle model, properties and chemical reactions

1. Fill in the table below about phase changes.

	Solid to liquid	Liquid to solid	Gas to liquid	Liquid to gas
Phase change				
Temp. ↑ or ↓				
Energy ↑ or ↓				
↑ or ↓ attraction				

2. Explain why the 3 states of matter look different.



3. What is the difference between a characteristic vs a non characteristic property?
Give an example of each.

4. Fill in the table below on how to find the density of different substances.

	Regular solid	Irregular solid	Liquid	Unit
Mass				
Volume				
Density				

5. An eraser had a mass of 6g and a volume of 4cm³. What is the density of the eraser?

6. A paper's length is 3cm, its width is 3.5cm and its height is 2.3cm. Its mass is 4.5g. What is its density?

7. Explain if a rectangular and a cubed piece of iron will have the same density.

8. Fill in the table of liquids.

	Blue litmus	Red litmus	Cobalt chloride	Conductivity
Distilled water				
Salt water				
Alcohol				
Acid				
Base				

9. What is Cobalt chloride paper used for

10. What is the density of water?

11. Fill in the gases table

	Oxygen	Carbon dioxide	Hydrogen
Test			
Result			

12. Which tests from question 8 and 11 are characteristic properties?

13. In the laboratory, you perform various tests on a liquid and note the following results:

1. The liquid makes cobalt chloride paper turn pink.
2. The density of the liquid is 1.2 g/mL.
3. The liquid has no effect on either red or blue litmus paper.

Which of the following statements is true?

- A) The liquid is a basic solution
- B) The liquid is an acidic solution
- C) The liquid is a mixture of water and something else
- D) The liquid is pure water

7. What is the functional unit of the lung?
8. What muscle controls respiration?
9. What controls the lungs getting bigger and smaller?
10. Explain the process which occurs during respiration.

11. Why does oxygen travel from the lung to the blood then to the cell?

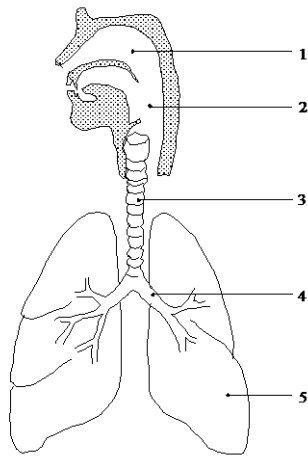
12. Why does carbon dioxide travel from the cell to the blood then to the lung?

13. Explain what diffusion is.

14. Why can diffusion occur?

15. Which type of blood vessel allows for diffusion?

16. Label all the parts not just 1 to 5.



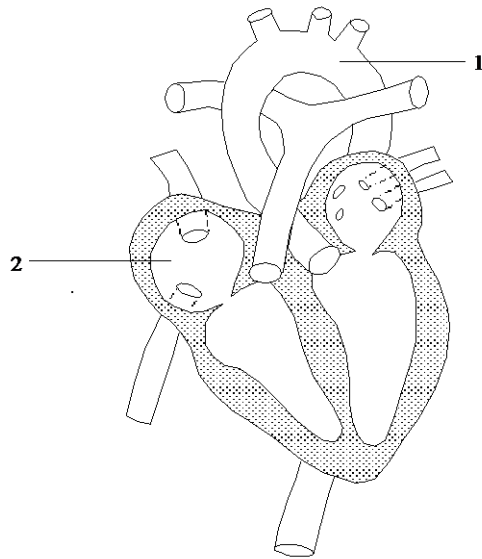
10. During a blood typing lab, how can we determine what our blood type is?

11. Which minor and major blood vessels carry arterial blood?

12. Which minor and major blood vessels carry venous blood?

13. What type of blood do capillaries have and why do they have it?

14. Label all the blood vessels and the chambers of the heart, not just numbers 1 and 2.



15. What is the function of the systemic circulation and what does it start and end with?

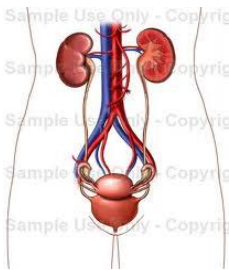
16. What is the function of the pulmonic circulation and what does it start and end with?

17. What is the function of the lymphatic system and lymph?

Term 3

Topic 1- Urinary system and dilutions.

1. What is the function of the urinary system?
2. On the diagram below, label the kidney, ureter, bladder and urethra and give the functions of each.



3. What is the function of the nephrons?
4. What are urea and uric acid and how are they produced and eliminated?
5. Once blood enters the kidneys, what are the 2 passageways the substances can take?
6. Fill in the table.

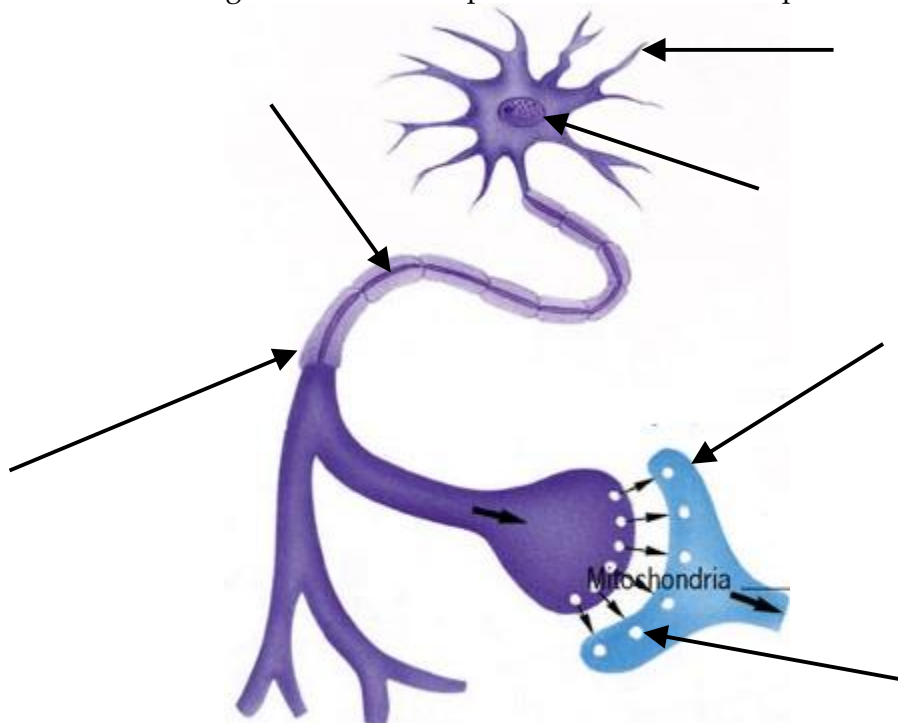
Must be eliminated	Could be eliminated or kept	Should not be eliminated

7. Give a situation where a person will have high absorption and low urination.
8. Give a situation where a person will have low absorption and high urination.

9. Explain what a dilution is.
10. You have 500 ml of a 14 g/L solution. You want to have 900 ml of the solution. What is the concentration of the diluted solution?
11. You have 4L of a 22 g/L solution. You want to have 300 ml of the solution. What is the concentration of the diluted solution?
12. Explain what solubility is and what factor can increase solubility.
13. You have 200 ml of a 10 g/L solution. You want to dilute it to 3 g/L. Give a procedure you would use to make the dilution.
14. You have 800 mL of a 16% solution. You want to dilute it to a 2% solution. What is the volume of the diluted solution?

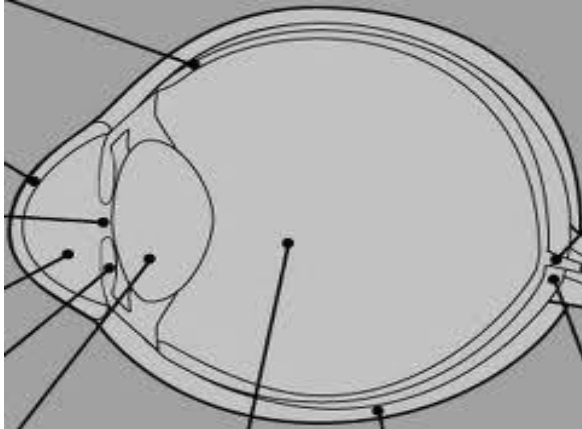
Topic 2- Nervous system

1. What is the function of the brain?
2. The basic function of the nervous system includes
 - a. Signals, Synapses, Muscle Contractions
 - b. Sensory Output, Integration, Motor Input
 - c. Neurons, Parasympathetic response, Motor output
 - d. Sensory Input, Integration, Motor Output
3. Explain how a reflex works.
4. What connects the brain to the spinal cord and what is its role?
5. What is the difference between a sensory neuron and a motor neuron?
6. Which are parts of the neuron?
 - a. Brain, brain stem, dendrites, myelin sheath
 - b. Dendrite, axon, cell body
 - c. Brain, dendrite, synapse, myelin sheath
 - d. Dendrite, axon, cell body, nucleus
7. Label the following nerve cell and explain what the different parts do:

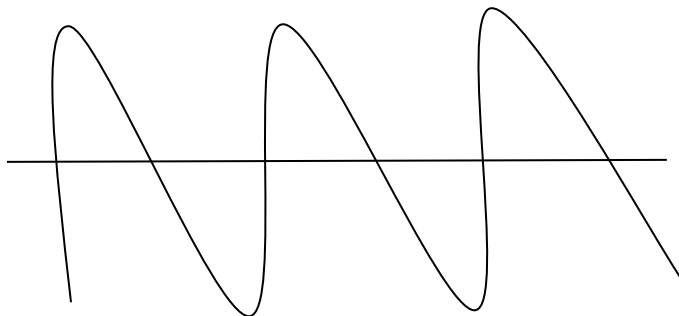


Topic 3 – Senses and Waves

1. Label all the parts of the eye diagram disgusted in your notes and give their function.



2. Explain what myopia is, why we see blurry when myopia occurs, the type of lens to use and why it solves the problem.
3. Explain what hyperopia is, why we see blurry when hyperopia occurs, the type of lens to use and why it solves the problem.
4. Label the trough, crest, amplitude and wavelength on the diagram, below.



5. On the line below, re-draw the image above, but the diagram must have short wavelengths and a high frequency.

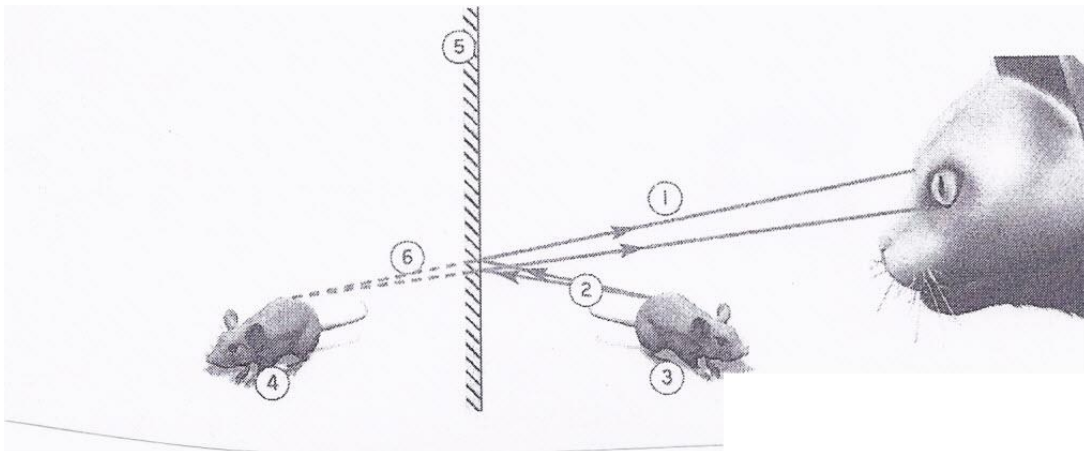
6. In the first row of the table below, rate the frequency for each wave. In the second row, rate the energy

	Radio waves	Micro wave	Infra red	Visible light	UV	Xray	Gamma rays
Frequency							
Energy							

7. Explain why we can see different colours.

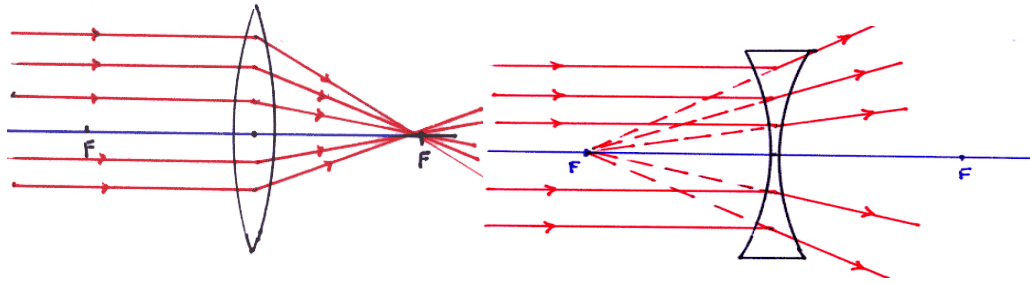
8. Explain the process of reflection.

9. Label parts 1 to 6, which is the real and which is the virtual image?



10. Explain the process of refraction.

11. What are the differences between the images below? Circle the F and box the F¹ for each.



12. Label all the parts discussed in class and give their function.



13. Explain how a sound wave is produced?

14. What are differences between light and sound waves?

15. What is the pathway followed by a sensory signal?

16. What are the functions of the ear?

17. Name four non-tactile functions of the skin.

18. Name four conditions that must be met for a substance to be tasted

19. The following statements are connected to the steps in perceiving sound. Put them in order:
- a) Vibration of the ossicles ripples through the vestibule liquid.
 - b) The pinna picks up sound vibrations from the air.
 - c) The vibration of the eardrum makes the ossicles vibrate.
 - d) Nerve cells transform the stimulus into nerve impulses.
 - e) Vibrations in the air make the eardrum vibrate.
 - f) The vibrations are transmitted to the cochlea.
 - g) The auditory nerve transmits the information to the cerebrum.