



SCIENCE 8 FINAL ACHIEVEMENT EXAM



Turn in your textbook today, or,
bring a cheque to cover the replacement cost.

You may do your rough work in this booklet and Mark the answer you are choosing for each question.
THEN, transfer your answers onto the SCANTRON Answer Card provided.

All test items in this exam have been covered on previous unit tests and quizzes.

You should have little difficulty if you have completed a thorough review of your year's work.

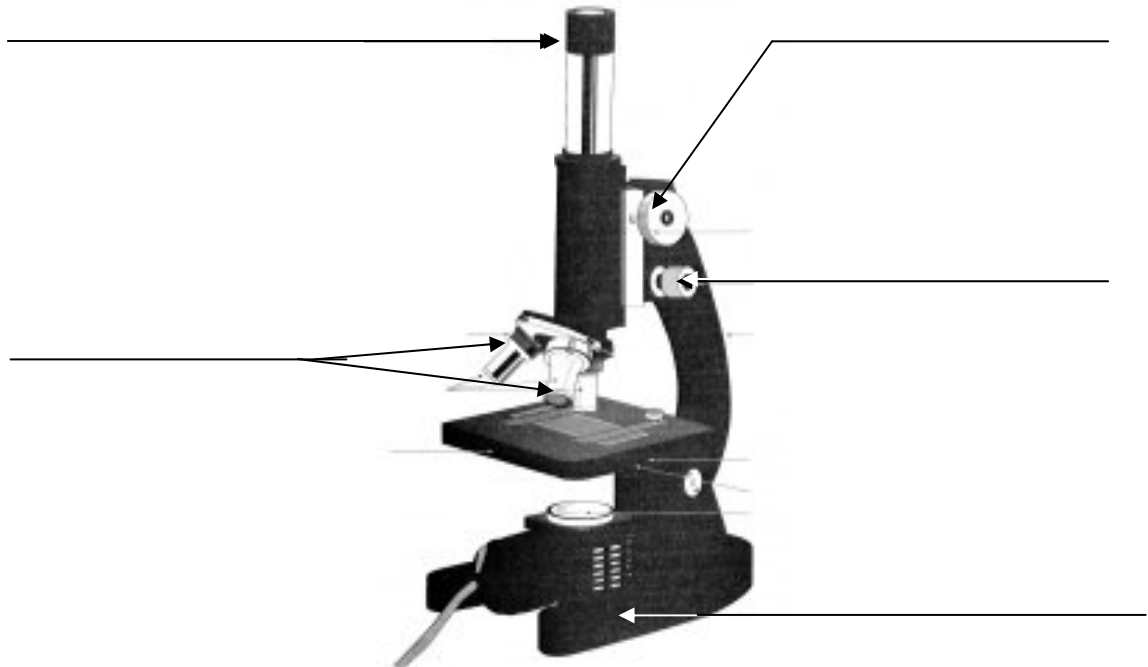
You must stay for **90** minutes to complete the exam.

If you require more time to complete the exam **30** additional minutes will be allowed.

If you are unsure of a question, raise your hand and wait for the teacher to respond to you.

Bonus Question (Attempt this only after you have completed all of the other questions)

Label the parts of the **Microscope**



Student Name _____

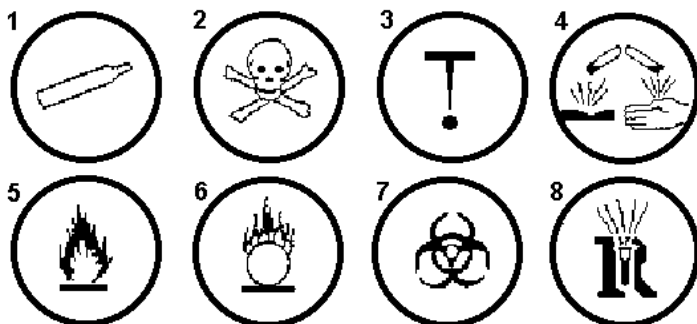
Class: **8D 8M**



MIX and FLOW of MATTER

- A hazard symbol that is a red octagonal shape means
 - compressed gas
 - warning
 - danger
 - caution
- Which of the following is considered a poor safety practice?
 - Washing your hands thoroughly with soap and water at the end of each lab period
 - Wearing gloves when working with hazardous chemicals
 - Removing your safety goggles when recording the data in your lab report
 - Asking your teacher for advice if you are still unsure of the procedure after carefully reading the directions

- Use the WHMIS symbols to answer the following question.



Symbol 6 above indicates ...

- bio-hazardous infectious material
 - oxidizing material
 - immediate, seriously toxic effects
 - flammable, combustible material
- Which of the following is not a homogeneous mixture?
 - Milk
 - Soda pop
 - Cookie
 - Stainless steel
 - You are making a drink using drink crystals. Which statement below is correct?
 - The crystals are the solute and the water is the solvent.
 - The water is the solute, and the crystals are the solvent.
 - The crystals are the solution and the water is the solute.
 - The water is the solution and the crystals are the solute.
 - Solubility is the
 - maximum amount of solvent that can be dissolved at a given temperature
 - maximum amount of a solute that can be dissolved in a fixed volume of solvent at a given temperature
 - minimum temperature that a solute must be in order to dissolve all of a given solvent
 - maximum temperature that a solvent must be in order to dissolve all of a given solute

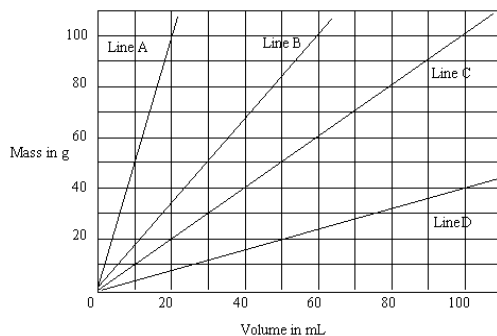
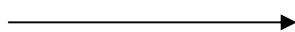


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7. Particles move most slowly in a
- cold solid
 - cold gas
 - hot solid
 - hot gas
8. You are cleaning your bike and want to clean the bearings. They are covered in grease. The best substance to use to clean the bearings will be
- a solvent that will not dissolve the grease
 - a solvent that will dissolve the grease
 - water
 - none of these
9. *In a ramp test, you are testing the viscosity of three different substances (molasses, corn syrup, and pancake syrup). You also have three different ramps, and are going to set the ramps to three different heights. The first experiment is to pour the same quantity of each substance down three different ramps at three different angles. You will measure the time for the substances to flow down the ramps to determine which is the most viscous.*
In a fair test, you need to change some elements and keep some the same.
Identify **what is wrong** with the above test.
- You should change the temperature of each of the substances before pouring them down the ramps.
 - You should keep only one type of substance and only one angle.
 - You should keep the same kind of ramp at three different heights.
 - There is nothing wrong.
10. You are designing an experiment to measure the viscosity of a substance. You think that if you take a marble of known mass and drop it in various substances, you will get one of the following results.
- The marble will drop fastest in the most viscous liquid.
 - The marble will not fall in any of the liquids.
 - The marble will drop at the same speed in all liquids.
 - The marble will drop the fastest in the least viscous liquid.
11. What is the relationship between mass and volume called?
- buoyancy
 - density
 - viscosity
 - solubility

Use this graph to answer the next question.



12. If Line C represents the density of distilled water, then Line D could represent the density of
- iron
 - wood
 - aluminum
 - gold



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13. Find the density of a sample of uranium with a 5.0-g mass and 0.27-mL volume.
- 18.5 g/mL
 - 0.054 g/mL
 - 18.5 mL/g
 - 0.054 mL/g
14. At the beginning of fall, your mechanic might check the antifreeze in the family car's radiator. The instrument that he/she uses is called a
- thermometer
 - hygrometer
 - hydrometer
 - barometer
15. According to the Particle Model of Matter, air is a more compressible fluid than a liquid, because
- air has more particles per volume
 - air particles are moving at greater speeds
 - liquids have more particles per volume
 - liquid particles are moving at lesser speeds
16. A pipeline pig is a special unit operating in a pipeline to
- clean the pipeline when it is empty
 - monitor the pressure of the gas in the pipeline
 - clean the pipeline while being pushed by the gas
 - make repairs as it moves through the pipeline

CELLS and SYSTEMS



17. Which is not a structural adaptation?
- A duck's webbed feet
 - A gibbon's long arms
 - A Canada goose flying south for the winter
 - A finch's ability to fly
18. Which is the correct term for a specialized structure in a cell?
- organ
 - organelle
 - tissue
 - system
19. The process that traps the sun's energy and converts it to chemical energy is called
- eating
 - respiration
 - chemosynthesis
 - photosynthesis
20. The powerhouse of the cell (the part where energy is converted into usable form) is called the
- mitochondria
 - nucleus
 - cytoplasm
 - chromosome



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21. The control centre for the cell is the
 - a. mitochondria
 - b. nucleus
 - c. lysosome
 - d. chromosome

22. If a cell has chloroplasts, it is a(n)
 - a. real cell
 - b. animal cell
 - c. plant cell
 - d. multi-cellular organism

23. The cell membrane is
 - a. permeable
 - b. semi-permeable
 - c. selectively permeable
 - d. impermeable

24. Peristalsis in the alimentary canal is caused by the
 - a. contraction of muscle layers
 - b. action of digestive enzymes
 - c. stretching of the mucosa
 - d. closing of the epiglottis

25. The correct order of food passage through the digestive system is
 - a. appendix, small intestine, rectum, large intestine
 - b. large intestine, small intestine, rectum, anus
 - c. small intestine, large intestine, rectum, anus
 - d. stomach, pancreas, liver, small intestine

26. The blood constituent that makes up the largest percentage of blood volume is the
 - a. red blood cells
 - b. plasma
 - c. white blood cells
 - d. they each make up one-third of the volume

27. Which statement is correctly associated with the circulatory system?
 - a. The right side pumps blood directly to the lungs.
 - b. Arteries carry blood to the heart.
 - c. The main function of red blood cells is to carry carbon dioxide to the cells.
 - d. Capillaries function to remove gases and nutrients from the lungs.

28. The elimination of urine is
 - a. a reflex in adults
 - b. excretion
 - c. not essential
 - d. nephritis

29. Which is the waste substance produced in the liver?
 - a. ammonia
 - b. urea
 - c. urine
 - d. salt



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30. What is the net movement of water through the human body each day?
- 0 mL
 - 2550 mL
 - 4 L
 - 5100 mL

LIGHT and OPTICAL SYSTEMS



31. The difference between a convex lens and a concave lens is:
- Convex lenses are thicker in the middle.
 - Concave lenses are thicker in the middle.
 - Convex lenses spread out light rays.
 - Concave lenses concentrate the light.
32. Over the years, many scientists have contributed to our understanding of light. All the properties listed below are correct except
- Light is a form of heat.
 - Light travels in straight lines.
 - Light can bend.
 - Light can be reflected.
33. Two characteristics that make telescopes useful for observing the skies are their ability to
- separate and magnify light
 - magnify and collect light
 - collect and separate light
 - magnify and clarify light
34. When looking into a shop window on a bright sunny day you see an image that is a mixture of your image and the items on display. The principles of light involved are
- reflection and absorption
 - refraction and absorption
 - refraction and transmission
 - reflection and transmission
35. A diamond sparkles mainly because of
- reflection
 - refraction
 - transmission
 - absorption
36. While driving home from a school basketball game late at night, you notice a cyclist crossing the street. Why is it that the strips on the track outfit stand out but the rider is only an outline?
- The strips exhibit regular reflection and the clothing is opaque.
 - The strips exhibit diffuse reflection and the cloth of the jacket is opaque.
 - The stripes are luminous and the cloth of the jacket exhibits diffuse reflection.
 - The strips exhibit regular reflection and the cloth of the jacket exhibits diffuse reflection.



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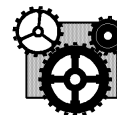
37. What angle does a normal make with a mirror?
- 0°
 - 45°
 - 90°
 - 180°
38. If you were using a mirror to help put in an earring, which of the following statements would be true?
- Your image appears larger and all movements appear reversed.
 - Your image appears smaller but only up and down movements are reversed.
 - Your image is the same size and all movements are reversed.
 - Your image is the same size and only up and down movements are reversed.
39. Students working with convex and concave mirrors noticed that with convex mirrors the focal point is
- in front of the mirror and objects are smaller
 - in front of the mirror and objects seem larger
 - behind the mirror and objects seem smaller
 - behind the mirror and objects seem larger
40. Which of the following statements about lenses is correct?
- A concave lens is thinner in the centre and focuses light.
 - A convex lens is thicker in the centre and focuses light.
 - A convex lens is thinner in the centre and disperses light.
 - A concave lens is thicker in the centre and disperses light.
41. When scientists look for evidence of extraterrestrial life such as life in outer space, they examine only electromagnetic radiation with
- waves with shorter wavelengths than microwaves
 - waves with longer wavelengths than microwaves
 - ultraviolet rays and X-rays
 - infrared rays and microwaves
42. The most common eye problems often involve being unable to focus properly on near or distant objects. The difference between being nearsighted and farsighted is:
- Farsighted people cannot see near objects clearly because their lens focal point is behind the eye.
 - Nearsighted people cannot see near objects clearly because their lens focal point is behind the eye.
 - Farsighted people cannot see distant objects clearly because their lens focal point is in front of the eye.
 - Nearsighted people cannot see distant objects clearly because their lens focal point is behind the eye.
43. Insect eyes differ from the eyes of animals such as a cat in that
- insects have simple eyes and cats have compound eyes
 - cats have compound eyes and insects have camera eyes
 - insects have compound eyes and cats have simple eyes
 - cats have camera eyes and insects have compound eyes
44. Which of the following types of electromagnetic radiation contain the greatest amount of energy?
- X-rays
 - microwaves
 - gamma rays
 - ultraviolet rays



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45. The best explanation for shadows is ...
- black light is projected onto an object
 - light bends only part way around solid objects
 - when light hits an opaque object, it can't go further
 - when light strikes an object, the object is reflected



MECHANICAL SYSTEMS

46. A simple machine is called a simple machine because it is
- easy to operate
 - complex to operate
 - made of one basic machine
 - a machine that does simple work
47. One of the very first tools that was probably used was the
- wheel and axle
 - lever
 - pulley
 - wedge
48. A disadvantage of a wedge is
- you must exert a force over a greater distance than the load
 - you must move the load over a greater distance
 - it can only be used in one direction
 - you must turn a greater distance
49. Newer, more complex machines or devices were developed because
- people were needing more time for families
 - people were becoming dependent on simple machines
 - work became more and more complex
 - more people were living closer together
50. A gear train is a
- series of different-sized gears working together
 - special gear designed for use in trains
 - driving gear
 - driven gear
51. The mechanical advantage of a device refers to
- the amount of energy that is used in the device
 - the amount of energy that is saved in the device
 - the force used in the device
 - the multiplication of the force in the device
52. The unit for force is
- J
 - m
 - N
 - N/m^2



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53. You have a pulley system, which has an input force of 45 N and an output force of 245 N. What is the mechanical advantage?
- 200
 - 5.4 N^2
 - 5.4
 - 200 N^2
54. If a machine is only 30% efficient, it means that
- 30% of energy is lost
 - 70% of energy is lost
 - 30% of energy is converted into unusable energy
 - 70% of energy is converted into unusable energy
55. The amount of work done on an object depends on
- how much force is used
 - how far the object moves
 - how far an object moves and how high you lift it
 - how much force is used and how far the object moves
56. How much work would a student do if he picked up a 80-N box up off the floor and carried it to a height of 1.0 m then carried it 20 m and placed it on a shelf 1.8 m above the floor?
- 80 J
 - 144 J
 - 224 J
 - 1600 J
57. A device (simple machine or complex machine) can only be 100% efficient
- if a lot of care has been taken to make sure there is no friction
 - in a controlled laboratory setting with careful attention to outside influences
 - in the space laboratory where there is no gravity and atmosphere
 - in studying the device and ignoring friction in an ideal situation
58. If the area of the input piston is 50 cm^2 , and the input force is 85 N, what is the pressure exerted on the fluid?
- 47 Pa
 - 170 Pa
 - 4250 Pa
 - 17 000 Pa
59. What is the area of the output piston if the diameter is 1.4 m? Use the formula: $A = \pi r^2$.
- 8.8 m^2
 - 6.2 m^2
 - 4.4 m^2
 - 1.5 m^2
60. Building larger and faster planes has been a result of
- changes to the environment
 - changes in technology
 - changes in society
 - all of the above



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FRESH and SALTWATER SYSTEMS

61. All the water on Earth can be generally categorized as
- tropical and temperate
 - fresh and salt
 - oceans and lakes
 - rivers and lakes
62. A reservoir is
- an artificial lake
 - a small natural lake
 - a river flowing out of a dam
 - an underground lake
63. The term "water quality" is associated with drinking water. All the following are abiotic characteristics associated with water quality except
- organisms
 - organic matter
 - minerals
 - chemicals
64. A major source of disease in freshwater contamination is
- feces and pesticides
 - animal and human wastes
 - industry waste and pesticides
 - animal and industrial waste
65. Which of the following statements would be a result of hard water?
- Soap bubbles do not form easily and calcium scale builds up in pipes.
 - Soap bubbles do not form easily and scale is absent from pipes.
 - Soap bubbles form easily and scale is absent from pipes.
 - Soap bubbles do not form easily and sodium scale builds up in pipes.

66. Use the following information to answer the question.

*Carbon dioxide dissolved in water is acidic.
Bromothymol blue is an acid/base indicator.*

A contaminated water sample is placed into a container containing some bromothymol blue. Another sample of pure water is placed into a similar container containing bromothymol blue. Both containers were sealed and allowed to remain at room temperature, undisturbed, and in a darkened container for 24 h.

What would be a valid prediction for this experiment?

- Living organisms will use up the oxygen causing the water to turn blue.
- Living organisms will give off carbon dioxide causing the water to turn yellow.
- Living organisms will use up the oxygen causing the water to turn yellow.
- Living organisms will give off carbon dioxide causing the water to turn blue.



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67. Distillation of water involves which of the following changes?
- boiling and freezing
 - boiling and condensing
 - condensing and freezing
 - sublimation and condensing
68. Use the following information to answer the next question.
- Students from the local school went to a lake near their community to collect aquatic plants and animals for their science room aquarium. The lake was located in an environmental protection area.*
- Some of the students noticed signs posted along the beach which restricted power-boat speed. The main purpose of these signs was to
- prevent injury to swimmers
 - reduce noise pollution
 - prevent shore erosion
 - reduce lake bottom destruction
69. The drainage patterns of Alberta are primarily a result of
- erosion and volcanic action
 - erosion and glaciation
 - plate tectonics and glaciation
 - plate tectonics and volcanic action
70. Formations resulting from large blocks of glacial ice and debris left behind when the glaciers retreated are
- drumlins
 - eskers
 - moraines
 - kettle lakes
71. Shallow areas adjacent to the continental lithosphere and areas where molten rock pushes up causing Continental Drift, respectively, are called
- oceanic ridges and oceanic trenches
 - continental shelves and oceanic trenches
 - sea mounts and oceanic ridges
 - continental shelves and oceanic ridges
72. All the following are adaptations to aquatic life except
- gills
 - natural antifreeze
 - fins
 - teeth
73. Which of the following statements about the ocean is correct?
- The salinity of the oceans in the world is not constant.
 - All adaptations are physical changes in organisms.
 - Marine species cannot live in fresh water.
 - Deep ocean water temperatures are higher in the tropics.
74. When studying aquatic organisms, students found that diversity is
- high in freshwater ecosystems and low in marine ecosystems
 - the highest in open tropical waters
 - low in tropical reefs and high in estuaries
 - high in tropical reefs and low in open ocean waters



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75. Alberta generates much of its electrical power by using thermo-electric generating plants. These plants burn coal or natural gas and require a great deal of water to condense the steam after it has left the generators. Which of the following statements would correctly describe the effect of this industry on the water quality of the lakes adjacent to them?
- A decrease in the amount of water in lakes.
 - The gases they release carry away valuable nutrients.
 - Thermal pollution increases.
 - The nearby lakes become increasingly more basic.
76. All of the following statements correctly describe how water quality requirements influence populations except
- Brine shrimp live in lakes with high salinity.
 - Trout are not found in slow moving warm water.
 - Thermo-electric plants use cooling ponds.
 - Alkaline lakes have few if any aquatic plants.
77. What percent of water used in the world is used for irrigation?
- 91%
 - 73%
 - 50%
 - 10%
78. What two practices result in discharge of water into streams and lakes?
- power stations and factories
 - run-off and factories
 - power stations and run-off
 - factories and sewage
79. Which of these are used by a storm sewer and sewage disposal in large cities?
- dilution and chemical treatment
 - containment and chemical treatment
 - dilution and atmospheric dispersal
 - atmospheric dispersal and containment
80. The total amount of dissolved salts in water is referred to as the water's
- concentration
 - chlorine solution
 - salinity
 - purity



Final Exam Answer Key



(Can you find NEMO?)

Mix and Flow		Cells and Systems		Light and Optics		Mechanical Systems		Fresh and Saltwater Systems	
1.	c	17.	c	31.	a	46.	c	61.	b
2.	c	18.	b	32.	a	47.	b	62.	a
3.	b	19.	d	33.	b	48.	c	63.	a
4.	c	20.	a	34.	d	49.	d	64.	b
5.	a	21.	b	35.	b	50.	a	65.	a
6.	b	22.	c	36.	d	51.	d	66.	b
7.	a	23.	c	37.	c	52.	c	67.	b
8.	b	24.	a	38.	c	53.	c	68.	c
9.	c	25.	c	39.	d	54.	d	69.	c
10.	d	26.	b	40.	b	55.	d	70.	d
11.	b	27.	a	41.	b	56.	b	71.	d
12.	b	28.	b	42.	a	57.	d	72.	d
13.	a	29.	b	43.	d	58.	d	73.	a
14.	c	30.	a	44.	c	59.	d	74.	d
15.	c			45.	c	60.	d	75.	c
16.	c	14		15		15		76.	c
	16							77.	b
								78.	a
								79.	a
								80.	c