

**CENTENNIAL CVI**  
**SNC 1D1 Final Exam (PRACTICE)**

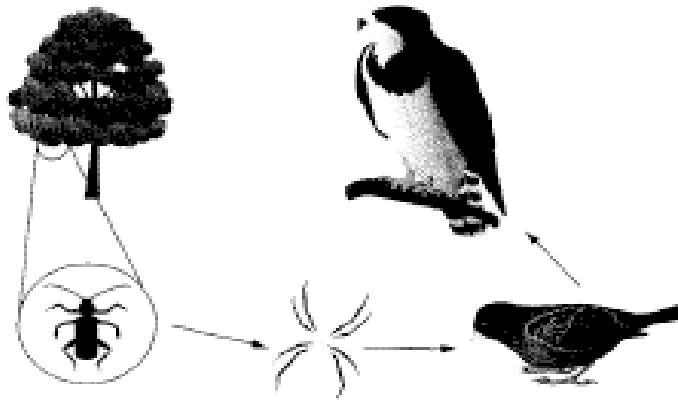
**TIME: 9:00 a.m.**  
**LENGTH: 1.5 Hours**

**Part A: Multiple Choice**


For the following multiple choice questions, select the most correct answer and place all of your answers on the answer grid provided in the other booklet. [50 marks]

- From this list of organisms choose the producers: oak tree, slugs, squirrels, bacteria, wheat, insects  
 (a) oak tree, slugs (b) oak tree, wheat  
 (c) bacteria, oak tree, wheat (d) oak tree, squirrels, insects
- Organisms that convert complex compounds into simpler compounds that are then returned to the environment for use by other organisms are best classified as  
 (a) consumers (b) producers (c) decomposers (d) autotrophs
- A step-by-step sequence showing how organisms feed on each other is referred to as  
 (a) an ecosystem (b) a food chain (c) a population (d) an ecological pyramid
- Which gas is a major cause of global warming?  
 (a) Nitrogen (b) Hydrogen (c) Oxygen (d) Carbon dioxide
- Which process removes nitrogen from the air?  
 (a) photosynthesis (b) denitrification (c) nitrogen fixation (d) nitrification

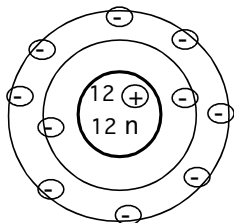
Use the following diagram, which shows a food chain, to answer the next 3 questions:



- Which organism would be part of a population that would have the least biomass?  
 (a) beetle (b) sparrow (c) spider (d) hawk
- Which organism would have the greatest population?  
 (a) maple tree (b) spider (c) beetle (d) sparrow
- Which level of organism has the least energy available to it?  
 (a) hawk (b) sparrow (c) spider (d) beetle

9. Which of the following equations correctly summarizes the process of photosynthesis?
- (a) carbon dioxide + oxygen  $\rightarrow$  sugar + water
  - (b) carbon dioxide + sugar  $\rightarrow$  oxygen + water
  - (c) carbon dioxide + water  $\rightarrow$  sugar + oxygen
  - (d) sugar + oxygen  $\rightarrow$  carbon dioxide + water
10. WHMIS stands for:
- a) Workplace Hazardous Materials Information System
  - b) Workplace Hazardous Materials Information Symbols
  - c) Workplace Harmful Materials Information Systems
  - d) Workplace Harmful Matter Information Symbols
11. The symbol below represents which of the following hazards?
- a) oxidizing material
  - b) biohazardous material
  - c) dangerously reactive material
  - d) corrosive material
- 
12. Identify the statement which is **not** part of the particle theory?
- a) Matter is made up of small particles.
  - b) All particles in the same pure substance are identical.
  - c) The attractive forces get stronger as the particles get farther apart.
  - d) The particles in matter are always in motion.
13. Which of the following cannot be broken down in a chemical reaction?
- a) elements and compounds only
  - b) elements only
  - c) compounds only
  - d) elements, compounds and solutions
14. Glucose is classed as a compound because
- a) it is a pure substance
  - b) it contains two or more atoms
  - c) it is homogeneous
  - d) its molecules have different kinds of atoms
15. Which of the following statements is true?
- a) elements are pure substances while compounds are mixtures
  - b) a physical change involves the rearrangement of identical particles
  - c) a colloid does not exhibit the Tyndall Effect
  - d) a group of molecules is known as an atom
16. Starch forms a cloudy mixture with water, it would be classified as a mechanical mixture mainly because:
- a) it would show the Tyndall Effect
  - b) it is homogeneous when mixed
  - c) it will settle out quickly and become heterogeneous
  - d) it is not transparent
17. A clear, colourless gas "pops" when tested with a burning splint. The gas is
- a) oxygen
  - b) hydrogen
  - c) carbon dioxide
  - d) helium
18. Which of the following is a chemical property of baking soda
- a) it is a white powder
  - b) it releases carbon dioxide gas when combined with vinegar
  - c) it is soluble in water
  - d) it is odourless
19. The total number of atoms in a molecule of  $\text{CH}_3\text{COOH}$  is
- a) 3
  - b) 6
  - c) 7
  - d) 8

20. Magnesium is element number 12. The **mass number** and the **charge** of the magnesium particle shown, are



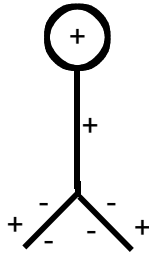
- a) 12, 0  
 b) 24, +2  
 c) 22, -10  
 d) 34, +0

21. Isotopes of an element have  
 a) the same mass numbers but different atomic numbers  
 b) the same numbers of electrons but different numbers of protons  
 c) the same numbers of protons and neutrons but different numbers of electrons  
 d) the same numbers of protons but different mass numbers
22. How many valence electrons are there in one atom of sulfur (S)?  
 a) 6                      b) 2                      c) 8                      d) 4
23. Which one of the following particles has the same number of electrons as an atom of argon?  
 a) S<sup>+2</sup>                      b) Mg<sup>+2</sup>                      c) K<sup>-1</sup>                      d) P<sup>-3</sup>
24. Covalent bonds are due to the  
 a) attraction between ions of opposite charge                      b) gain or loss of electrons by atoms  
 c) transfer of electrons from one atom to another                      d) sharing of two electrons by two atoms
25. Which of the following is a Noble Gas?  
 a) O                      b) F                      c) Ne                      d) H
26. Which of the following elements will have the most similar physical and chemical properties?  
 a) N, O, F, Ne                      b) Ca, Sr, Ba, Ra                      c) S, Si, Se, Sr                      d) Au, Ag, Pt, Cu
27. A positively charged object is positive because  
 a) the number of electrons exceeds the number of protons  
 b) the number of protons exceeds the number of neutrons  
 c) the number of neutrons exceeds the number of electrons  
 d) the number of protons exceeds the number of electrons
28. An ebonite rod is rubbed with fur. The ebonite and the fur  
 a) have the same kind of charge                      b) repel one another  
 c) have the opposite kind of charge                      d) will both remain neutral
29. Object X repels object Y and attracts object Z. If object Z is positive, object Y must be  
 a) neutral only                      b) negative only                      c) positive only                      d) neutral or negative
30. A metal leaf electroscope is being given a positive charge by induction. Which of the following statements correctly describes the motion of the charges during the charging?  
 a) electrons move from the ground to the metal sphere of the electroscope  
 b) electrons move from the metal sphere of the electroscope to the ground  
 c) protons move from the metal leaves of the electroscope to the metal sphere  
 d) protons move from the ground to the metal sphere of the electroscope.

31. A metal leaf electroscope is being charged positively by contact. Which particles move? In what direction do they move?

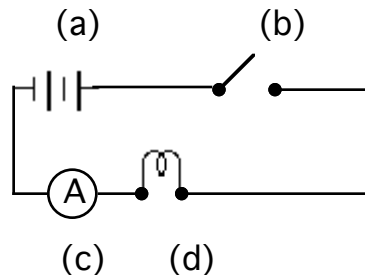
- a) electrons move from the sphere to the metal leaves
- b) electrons move from the sphere to the charged rod
- c) protons move from the sphere to the metal leaves
- d) protons move from the charged rod to the sphere

32. Which of the following statements is a correct explanation for the situation illustrated below?



- a) A neutral electroscope was touched with a negatively charged rod.
- b) An electroscope has been charged negatively due to the presence nearby of a negatively charged rod.
- c) A negatively charged rod, hidden from view, is being held close to the ball of a neutral electroscope.
- d) A positively charged rod, hidden from view, is being held close to the ball of a neutral electroscope.

33. In the following circuit diagram, which symbol represents the light bulb?



34. What is the unit for electrical potential difference?

- a) ampere
- b) ampere-hour
- c) volt
- d) joule

35. The danger caused by a short circuit is prevented by

- a) a switch
- b) a lamp
- c) a fuse
- d) conducting wires

36. The coulomb is a unit of

- a) charge
- b) current
- c) potential difference
- d) energy

37. If a  $100\ \Omega$  resistor is connected to a 10 V source, the current through the resistor will be

- a) 10 A
- b) 0.10 A
- c) 100 A
- d) 1000 A

38. In a series circuit consisting of a battery and two light bulbs, if one light bulb burns out

- a) the current in the other bulb increases
- b) the current in the other light bulb remains unchanged
- c) the current drops to zero in the entire circuit
- d) the circuit will become overloaded

39. Which of the following statements describes the current in a series circuit?

- a) the same at every point
- b) largest through the load
- c) largest next to the positive terminal
- d) largest next to the negative terminal

40. Two bulbs "X" and "Y" are connected in parallel to a dry cell. The switch is closed. If bulb "X" is then unscrewed, the brightness of bulb "Y" will

- a) double
- b) halve
- c) remain the same
- d) become zero

41. Three resistors with values of  $10\ \Omega$ ,  $20\ \Omega$  and  $30\ \Omega$  are connected in series. The total resistance of the circuit is equal to  
 a)  $5\ \Omega$                       b)  $10\ \Omega$                       c)  $30\ \Omega$                       d)  $60\ \Omega$
42. The astronomical unit (AU) is the  
 a) distance from Earth to the Sun  
 b) time for light to travel from the Sun to Earth  
 c) distance from Earth to the Moon  
 d) temperature of the Sun
43. In the Sun-centered model of the solar system, the orbital paths of (most of) the planets  
 a) pass through the Sun's photosphere  
 b) lie in the solar plane  
 c) intersect  
 d) are straight lines
44. Which of the following planets travels faster around the Sun than Earth?  
 a) Venus                      b) Mars                      c) Jupiter                      d) Pluto
45. Which of the following planets is larger than Earth?  
 a) Mars                      b) Mercury                      c) Uranus                      d) Pluto
46. The end state of a very massive star is a  
 a) black hole                      b) white dwarf                      c) planet                      d) black dwarf
47. The process that produces the Sun's energy is  
 a) combustion                      b) fusion                      c) fission                      d) boiling
48. Extra-solar planets are planets that  
 a) have two suns                      b) are located around distant stars  
 c) are not in the solar plane                      d) orbit a very large star
49. The colour of a star is an indicator of its  
 a) size                      b) luminosity                      c) age                      d) temperature
50. The end product of hydrogen fusion is  
 a) helium                      b) carbon                      c) iron                      d) water

### ANSWERS TO MULTIPLE CHOICE

1. B	11. D	21. D	31. B	41. D
2. C	12. C	22. A	32. C	42. A
3. B	13. B	23. D	33. D	43. B
4. D	14. D	24. D	34. C	44. A
5. C	15. B	25. C	35. C	45. C
6. D	16. C	26. B	36. A	46. A
7. C	17. B	27. D	37. B	47. B
8. A	18. B	28. C	38. C	48. B
9. C	19. D	29. B	39. A	49. D
10. A	20. B	30. B	40. C	50. A

**Part B: Matching**

Match the definition in column A with the correct term in column B. Mark the correct letter on the answer grid provided in the other booklet. [10 marks]

## COLUMN A

1. Organisms that produce their own food.
2. A group of organisms of the same species that live in the same area.
3. Factors that affect an ecosystem that are not living.
4. These are cycled through ecosystems.
5. The process by which organisms obtain energy from glucose.
6. An interaction between two or more organisms that use the same resources.
7. The formation of a new substance with new properties
8. A homogeneous mixture of one or more metals
9. A group of related elements
10. In the Bohr model of the atom, electrons occupy these
11. This represents the number of protons in an atom
12. These compounds fit together in a crystal lattice formation
13. The bond formed when two atoms share their electrons
14. Used to detect small amounts of charge
15. To connect an object through a conducting material to the earth
16. The unit for electric current
17. A cloud of dust or gas in space
18. The most abundant element in stars
19. Last shining stage of a low mass star
20. The force that keeps the planets in orbit

## COLUMN B

- A. nutrients
- B. chemical family
- C. competition
- D. white dwarf
- E. energy levels
- F. ionic compounds
- G. energy
- H. limiting factor
- I. electroscope
- J. neutrons
- K. population
- L. cellular respiration
- M. nebula
- N. alloy
- O. grounding
- P. autotrophs
- Q. amperes
- R. chemical change
- S. hydrogen
- T. gravity
- U. covalent
- V. abiotic
- W. atomic number
- X. electrostatics

**ANSWERS TO MATCHING**

1. P	6. C	11. W	16. Q
2. K	7. R	12. F	17. M
3. V	8. N	13. U	18. S
4. A	9. B	14. I	19. D
5. L	10. E	15. O	20. T

## PERIODIC TABLE

1																	18
1 H 1.01	2											13	14	15	16	17	2 He 4.0
3 Li 6.9	4 Be 9.0											5 B 10.8	6 C 12.0	7 N 14.0	8 O 16.0	9 F 19.0	10 Ne 20.2
11 Na 23.0	12 Mg 24.3	3	4	5	6	7	8	9	10	11	12	13 Al 27.0	14 Si 28.1	15 P 31.0	16 S 32.1	17 Cl 35.5	18 Ar 40.0
19 K 39.1	20 Ca 40.1	21 Sc 45.0	22 Ti 47.9	23 V 50.9	24 Cr 52.0	25 Mn 54.9	26 Fe 55.8	27 Co 58.9	28 Ni 58.7	29 Cu 63.5	30 Zn 65.4	31 Ga 69.7	32 Ge 72.6	33 As 74.9	34 Se 79.0	35 Br 79.9	36 Kr 83.8
37 Rb 85.5	38 Sr 87.6	39 Y 88.9	40 Zr 91.2	41 Nb 92.9	42 Mo 95.9	43 Tc 98	44 Ru 101	45 Rh 103	46 Pd 106	47 Ag 108	48 Cd 112	49 In 115	50 Sn 119	51 Sb 122	52 Te 128	53 I 127	54 Xe 131
55 Cs 133	56 Ba 137	57 La 139	72 Hf 179	73 Ta 181	74 W 184	75 Re 187	76 Os 190	77 Ir 192	78 Pt 195	79 Au 197	80 Hg 201	81 Tl 204	82 Pb 207	83 Bi 209	84 Po 210	85 At 210	86 Rn 222
87 Fr 223	88 Ra 226	89 Ac 227	104 Rf 257	105 Db 260	106 Sg 263	107 Bh 262	108 Hs 265	109 Mt 266	110 Uun	111 Uuu	112 Uub	114 Uuq					
		58 Ce 140	59 Pr 141	60 Nd 144	61 Pm 147	62 Sm 150	63 Eu 152	64 Gd 157	65 Tb 159	66 Dy 163	67 Ho 165	68 Er 167	69 Tm 168	70 Yb 173	71 Lu 175		
		90 Th 232	91 Pa 231	92 U 238	93 Np 237	94 Pu 242	95 Am 243	96 Cm 247	97 Bk 247	98 Cf 249	99 Es 254	100 Fm 253	101 Md 256	102 No 254	103 Lr 257		

## Equations:

$$I = \frac{Q}{\Delta t} \quad V = \frac{E}{Q} \quad R = \frac{V}{I} \quad P = \frac{E}{\Delta t} \quad P = VI \quad \text{Eff} = \frac{E_{\text{out}}}{E_{\text{in}}} \times 100\%$$

**Series**  $I_t = I_1 = I_2 = I_3$

$$V_t = V_1 + V_2 + V_3$$

$$R_t = R_1 + R_2 + R_3$$

$$D = \frac{M}{V}$$

**Parallel**  $I_t = I_1 + I_2 + I_3$

$$V_t = V_1 = V_2 = V_3$$

$$\frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

**CENTENNIAL CVI**

**SNC 1D1 Final Exam – BOOKLET 2 of 2**  
(PRACTICE)

**TIME: 9:00 a.m.**  
**LENGTH: 1.5 Hours**

**Student's Name** \_\_\_\_\_

**Part A: Multiple Choice Answer Grid (50 Marks)**

To select your answer place an "X" over the correct letter.

- |             |             |             |             |
|-------------|-------------|-------------|-------------|
| 1. a b c d  | 16. a b c d | 31. a b c d | 46. a b c d |
| 2. a b c d  | 17. a b c d | 32. a b c d | 47. a b c d |
| 3. a b c d  | 18. a b c d | 33. a b c d | 48. a b c d |
| 4. a b c d  | 19. a b c d | 34. a b c d | 49. a b c d |
| 5. a b c d  | 20. a b c d | 35. a b c d | 50. a b c d |
| 6. a b c d  | 21. a b c d | 36. a b c d |             |
| 7. a b c d  | 22. a b c d | 37. a b c d |             |
| 8. a b c d  | 23. a b c d | 38. a b c d |             |
| 9. a b c d  | 24. a b c d | 39. a b c d |             |
| 10. a b c d | 25. a b c d | 40. a b c d |             |
| 11. a b c d | 26. a b c d | 41. a b c d |             |
| 12. a b c d | 27. a b c d | 42. a b c d |             |
| 13. a b c d | 28. a b c d | 43. a b c d |             |
| 14. a b c d | 29. a b c d | 44. a b c d |             |
| 15. a b c d | 30. a b c d | 45. a b c d |             |

**Part B: Matching (10 Marks)**

Select the correct word from COLUMN B by writing the corresponding letter on the blank beside the correct question number.

- |          |           |           |           |
|----------|-----------|-----------|-----------|
| 1. _____ | 6. _____  | 11. _____ | 16. _____ |
| 2. _____ | 7. _____  | 12. _____ | 17. _____ |
| 3. _____ | 8. _____  | 13. _____ | 18. _____ |
| 4. _____ | 9. _____  | 14. _____ | 19. _____ |
| 5. _____ | 10. _____ | 15. _____ | 20. _____ |

**Part C: Short Answer (30 Marks)**

Answer the questions below in the space provided. Answer in complete sentences and show full solutions.

1. What abiotic factors may affect the growth of a maple tree in an Ontario forest. *[3 Marks]*
2. Describe an example of overexploitation. *[2 marks]*
3. What would happen to an ecosystem that had all of its decomposers removed. *[2 marks]*
4. A block of copper has a volume of  $21.2 \text{ cm}^3$ . If the density of copper is  $8.9 \text{ g/cm}^3$ , find the mass of the copper. **SHOW ALL YOUR WORK!** *[2 marks]*
5. Draw a Bohr-Rutherford model for an atom of  $^{35}_{17} \text{Cl}$ . Be sure to indicate the number of protons and neutrons in the nucleus as well as the electron configuration. *[3 marks]*
6. Give an example of an everyday element or compound and describe how its properties determine how it is used. *[3 marks]*
7. A negatively charged rod is brought near several neutral rice puffs. The rice puffs cling to the rod, but then, a short time later, they fly off in all directions. Explain why this happens. *[3 marks]*
8. A hair dryer uses 360 000 J of energy in 5.0 minutes. What is its power in watts? **SHOW ALL YOUR WORK!** *[3 marks]*
9. Draw a circuit that keeps two lights on all the time and can switch two other light bulbs on and off independently from each other. *[3 marks]*
10. Describe the stages of our Sun's life cycle. *[3 marks]*
11. Compare the four inner planets with the four outer planets in terms of composition, size, shape and position in the solar system. *[3 marks]*

**Part D: Extended Response**

**\*\*\*Answer only ONE (1) of the following questions.\*\*\***

1. Discuss one of the following in terms of its effects on ecosystems:
  - Invasive species
  - Use of long-lasting pesticides, such as DDT
  - deforestation
2. Both hydrogen and helium can be used in balloons. Compare their suitability for this purpose by comparing their physical and chemical properties **in detail**.
3. Describe what someone would have to do to live "off the grid" (ie. not connected to the major electrical distribution system).