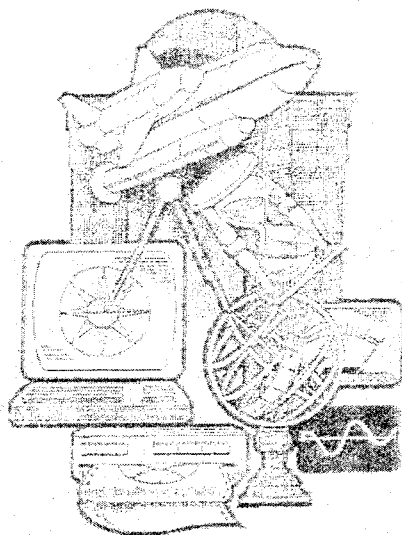


RELEASED ITEMS

2006



Grade 9 Science
Released Achievement Test Items

RELEASED ITEMS

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Introduction

The 10 multiple-choice questions and 1 numerical-response question presented in this booklet are from previously secured Grade 9 Science Achievement Tests and are representative of the questions that form these tests. The sample questions are released, in English and French, by Alberta Education for teacher and student use.

The table below provides information about each question: the keyed response, the difficulty of the item (the percentage of students who answered the question correctly), the topic, the reporting category, and the item descriptor.

Key and Descriptors for Released Questions

Question	Key	*Diff.%	Topic	Reporting Category	Item Descriptor
MC1	D	75.5	Biological Diversity	Skill	Interpret a graph to infer environmental factors that cause change
MC2	B	87.2	Biological Diversity	Knowledge	Understand the term artificial selection as it relates to certain domestic animals
MC3	B	52.9	Matter and Chemical Change	Knowledge	Identify physical properties
NR1	4132	87.7	Matter and Chemical Change	Skill	Compare and order metals according to their reaction with various substances (water, dilute acid, and oxygen)
MC4	A	76.3	Matter and Chemical Change	Skill	Interpret a graph to draw a conclusion
MC5	C	54.9	Environmental Chemistry	Knowledge	Recognize chemical factors harmful to the environment
MC6	A	63.8	Environmental Chemistry	Skill	Evaluate methods used to dispose of hazardous household chemicals
MC7	C	55.4	Electrical Principles and Technologies	Skill	Calculate, in percent, the efficiency of energy conversion in a light bulb
MC8	B	55.4	Electrical Principles and Technologies	Skill	Identify the diagram of a given circuit

Question	Key	*Diff. %	Topic	Reporting Category	Item Descriptor
MC9	B	64.1	Space Exploration	Knowledge	Identify instruments to determine angular coordinates of a star
MC10	A	70.1	Space Exploration	Skill	Analyze the spectra of four gases in order to identify the gases of a mystery star

*Difficulty—percentage of students answering the question correctly

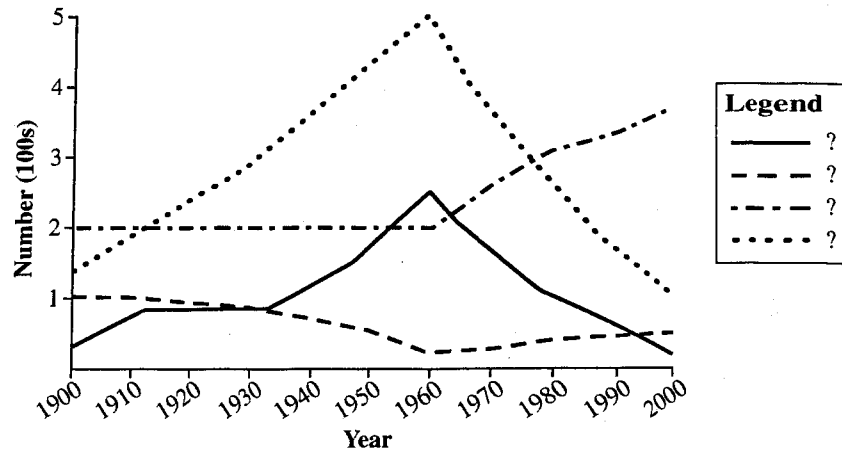
Grade 9 Science Released Questions, 2006

Use the following information to answer question 1.

Four Statements Related to a Particular Park

- **In** the first 60 years of the park's existence, the number of bird species was **negatively** affected by an increase in the number of visitors to the park and **by** an increase in the number of campsites being developed in the park.
- **The** number of plant species in the park increased over the last 40 years.
- **The** number of campsites in the park has been greatly reduced over the last 40 years.
- **The** number of visitors entering the park each day has sharply decreased over the last 40 years.

Graphical Representation of the Statements Above



1. Given the four statements above, which of the following legends could apply to the graph?

A.

—	Visitors to park
- - -	Plant species
- . - .	Campsites
.....	Bird species

B.

—	Plant species
- - -	Bird species
- . - .	Campsites
.....	Visitors to park

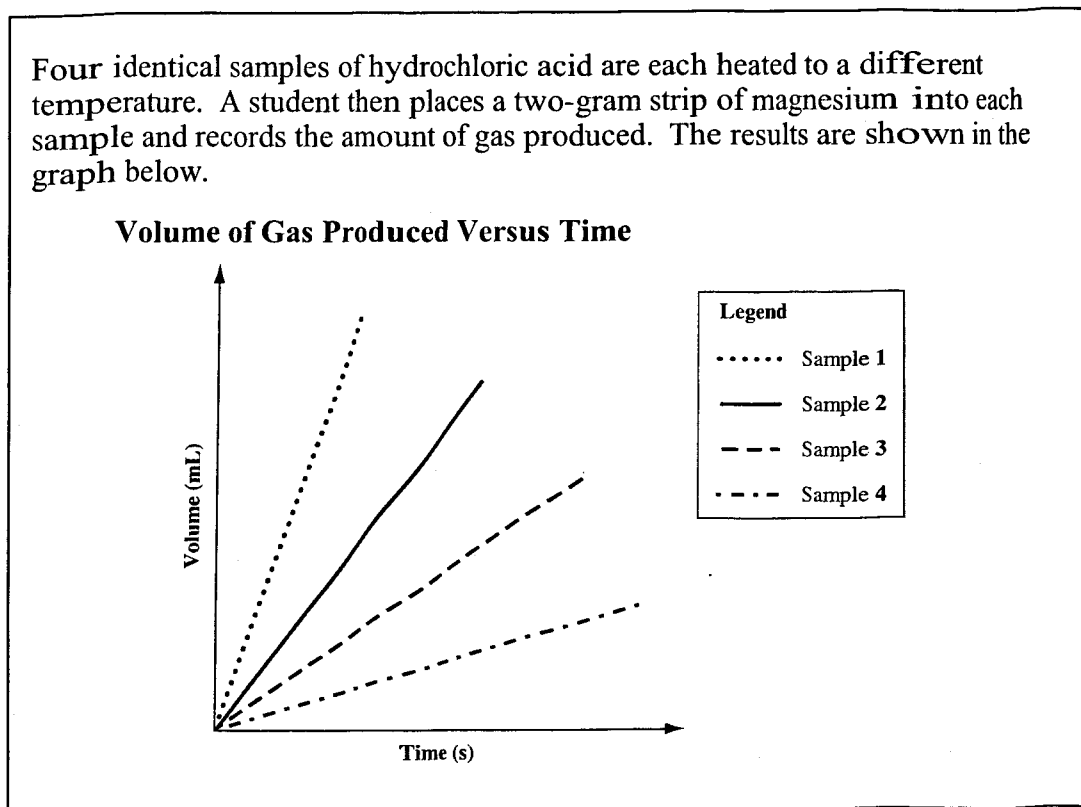
C.

—	Bird species
- - -	Plant species
- . - .	Campsites
.....	Visitors to park

D.

—	Campsites
- - -	Bird species
- . - .	Plant species
.....	Visitors to park

Use the following information to answer question 4.



4. The sample that was tested at the warmest temperature was likely
- A. Sample 1
 - B. Sample 2
 - C. Sample 3
 - D. Sample 4

Use the following list to answer question 5.

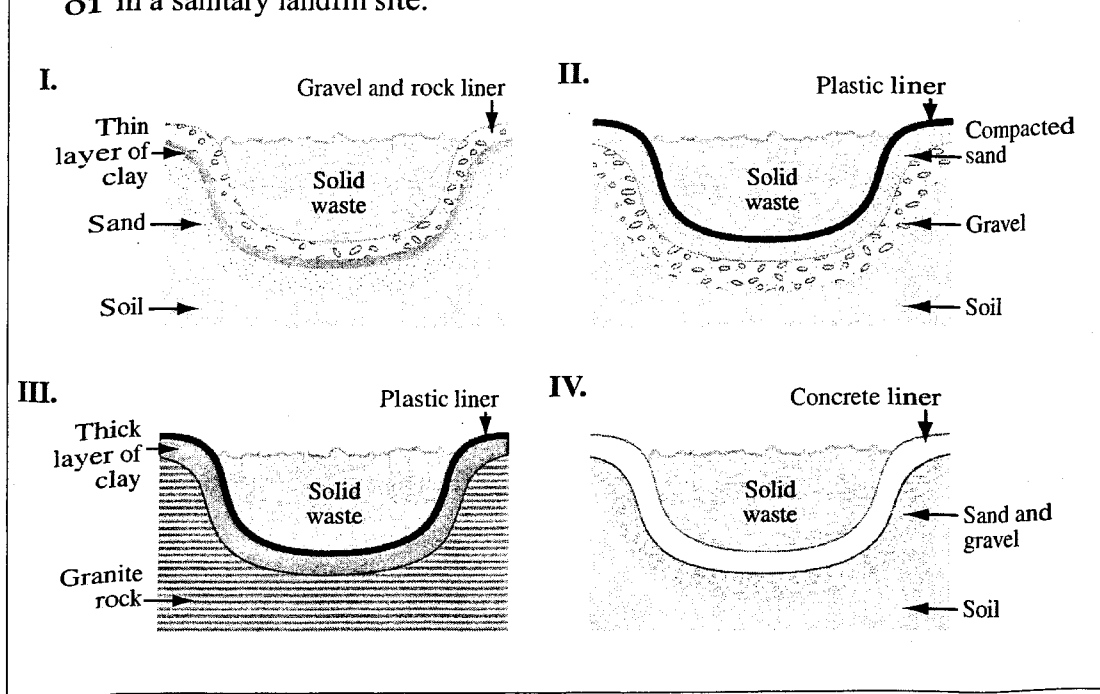
Four Types of Pollution

- I. Carbon dioxide
- II. Heat
- III. Radioactive materials
- IV. Sulfur dioxide

5. The types of pollution released during the combustion of fossil fuels are types
- A. I and IV only
 - B. II and IV only
 - C. I, II, and IV only
 - D. I, III, and IV only

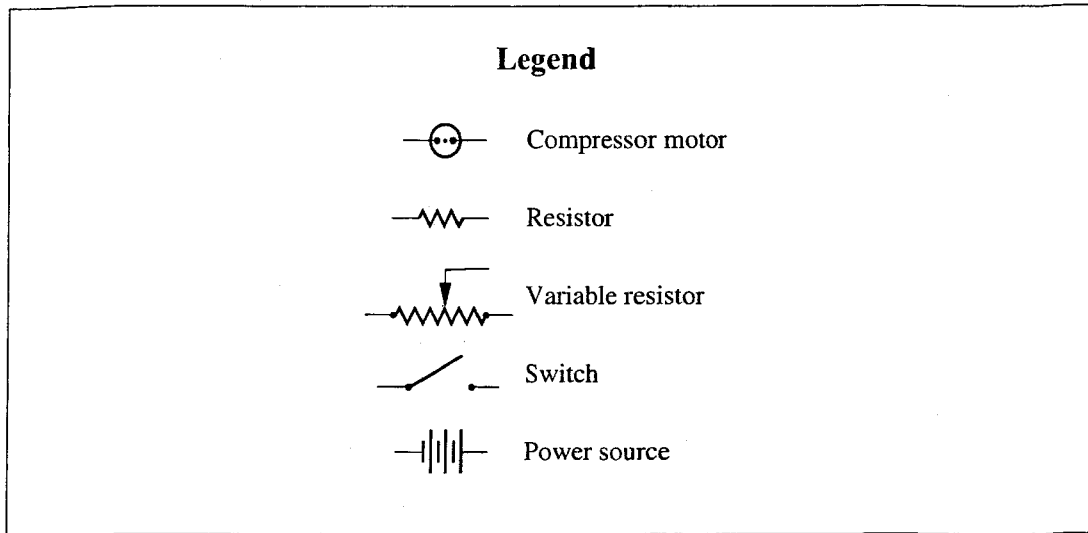
Use the following information to answer question 6.

Some resort owners plan to develop a new sanitary landfill site. Four possible types of landfills are shown below. The resort is located in a forested area and is near a lake. A design engineer has stressed that caution will need to be exercised if the resort's solid wastes are disposed of in a sanitary landfill site.

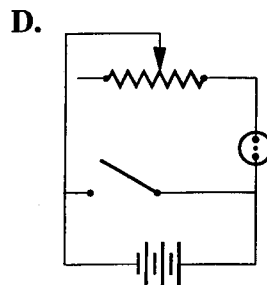
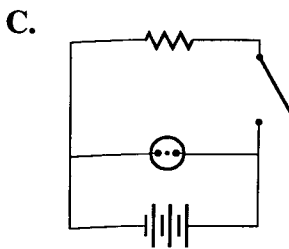
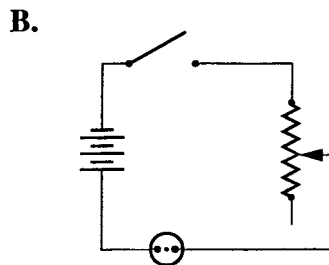
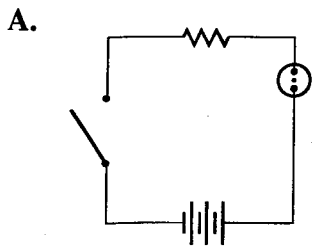


6. Which of the designs for sanitary landfill sites shown above would **most likely** result in the contamination of the nearby lake as a result of leaching?
- A. Design I
 - B. Design II
 - C. Design III
 - D. Design IV
-
7. If a fluorescent light bulb uses 120 J of electrical energy and emits 23.4 J of energy in the form of light, then the efficiency of the light bulb is
- A. 5.1%
 - B. 16.3%
 - C. 19.5%
 - D. 24.2%

Use the following information to answer question 8.

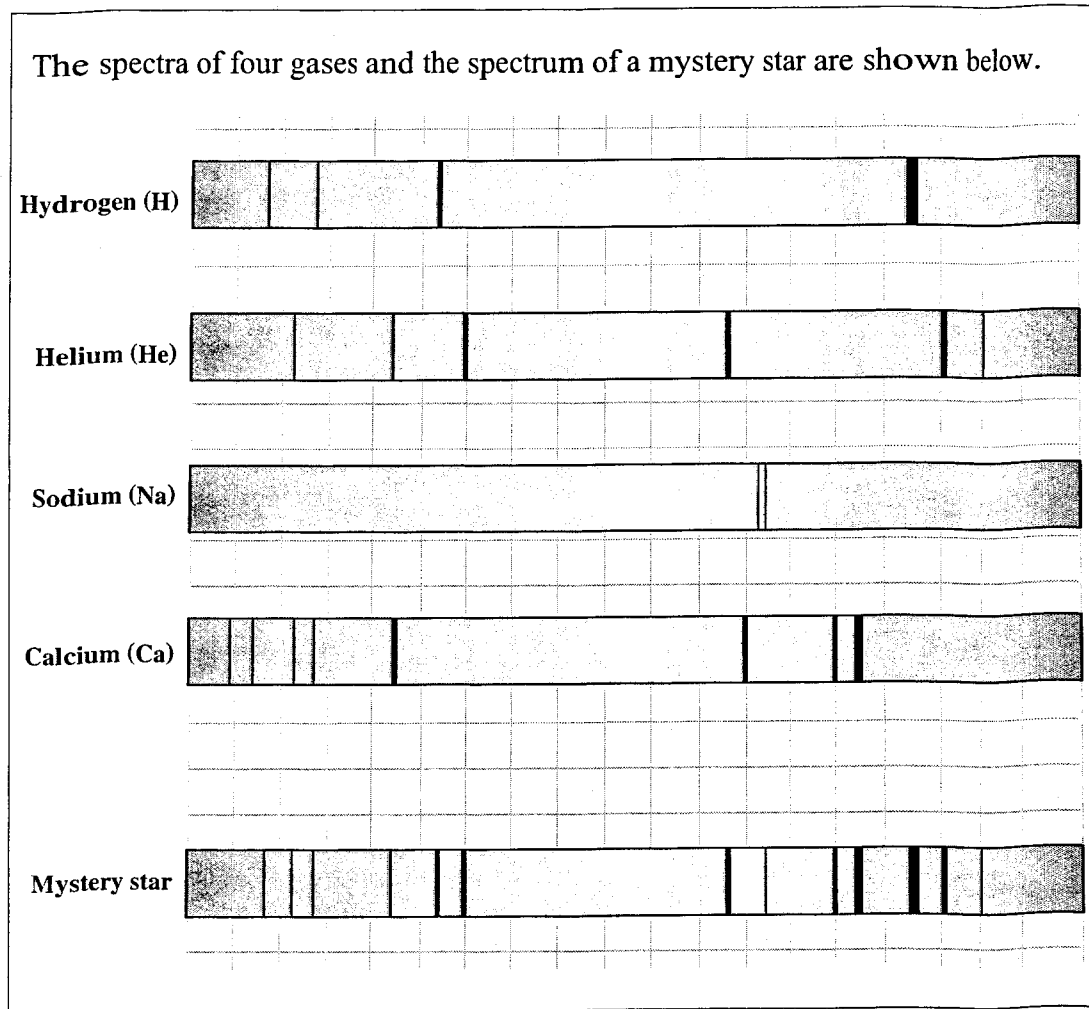


8. One type of electric air compressor that mechanics use is designed so that its motor speed can be changed. Which of the following diagrams represents the circuit of an air compressor of this type?



9. The coordinates of a star can be determined by using
- A. a ruler and an astrolabe
 - B. a compass and an astrolabe
 - C. the North Star and a telescope
 - D. a Global Positioning System and the star's zenith

Use the following information to answer question 10.



10. Given the spectra of the four gases, what are two of the gases that are present in the mystery star?
- A. Hydrogen and helium
 - B. Hydrogen and calcium
 - C. Helium and sodium
 - D. Sodium and calcium