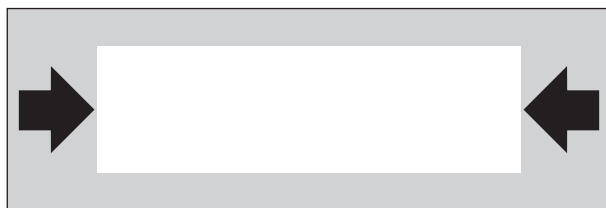
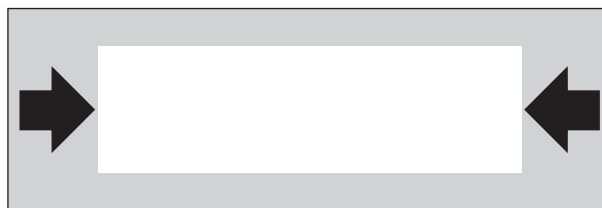


School Name



Student Name



**BRITISH
COLUMBIA**
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Science 10

Sample Examination 2004

Course Code = SC10

Student Instructions

1. Place the stickers with your Personal Education Number (PEN) in the allotted spaces above. **Under no circumstance is your name or identification, other than your Personal Education Number, to appear on this booklet.**
2. Ensure that in addition to this examination booklet, you have an **Examination Response Form**. Follow the directions on the front of the Response Form.
3. **Disqualification** from the examination will result if you bring books, paper, notes or unauthorized electronic devices into the examination room.
4. When instructed to open this booklet, **check the numbering of the pages** to ensure that they are numbered in sequence from page one to the last page, which is identified by

END OF EXAMINATION


.
5. At the end of the examination, place your Response Form inside the front cover of this booklet and return the booklet and your Response Form to the supervisor.

SCIENCE 10

Sample Exam

COURSE CODE = SC10

GENERAL INSTRUCTIONS

1. Aside from an approved calculator, electronic devices, including dictionaries and pagers, are **not** permitted in the examination room.
2. All answers must be entered on the Answer Sheet using a soft pencil. Answers entered in this examination booklet will **not** be marked.
3. This examination is designed to be completed in **two hours**. *Students may, however, take up to 30 minutes of additional time to finish.*
4. The examination has been divided into sections by curriculum suborganizer.
e.g. **LIFE SCIENCE**  **Genetics**
5. Students are reminded to use the Data Booklet provided, throughout the examination.

INSTRUCTIONS: For each question, select the **best** answer and record your choice on the Answer Sheet provided. Using a pencil, completely fill in the circle that has the letter corresponding to your answer.

LIFE SCIENCE

Cells

1. Chloroplasts are found in plant cells.
 - A. True
 - B. False

2. Which of the following is the function of mitochondria?
 - A. capturing the energy of sunlight
 - B. controlling the activities of the cell
 - C. providing the cell with useable energy
 - D. providing structural support for the cell

3. An animal cell will shrink when placed in water.
 - A. True
 - B. False

4. Which of the following describes osmosis?

I	the movement of water through a semi-permeable membrane
II	the movement of water from a region of higher water concentration to lower water concentration
III	the movement of salt from a region of lower salt concentration to higher salt concentration

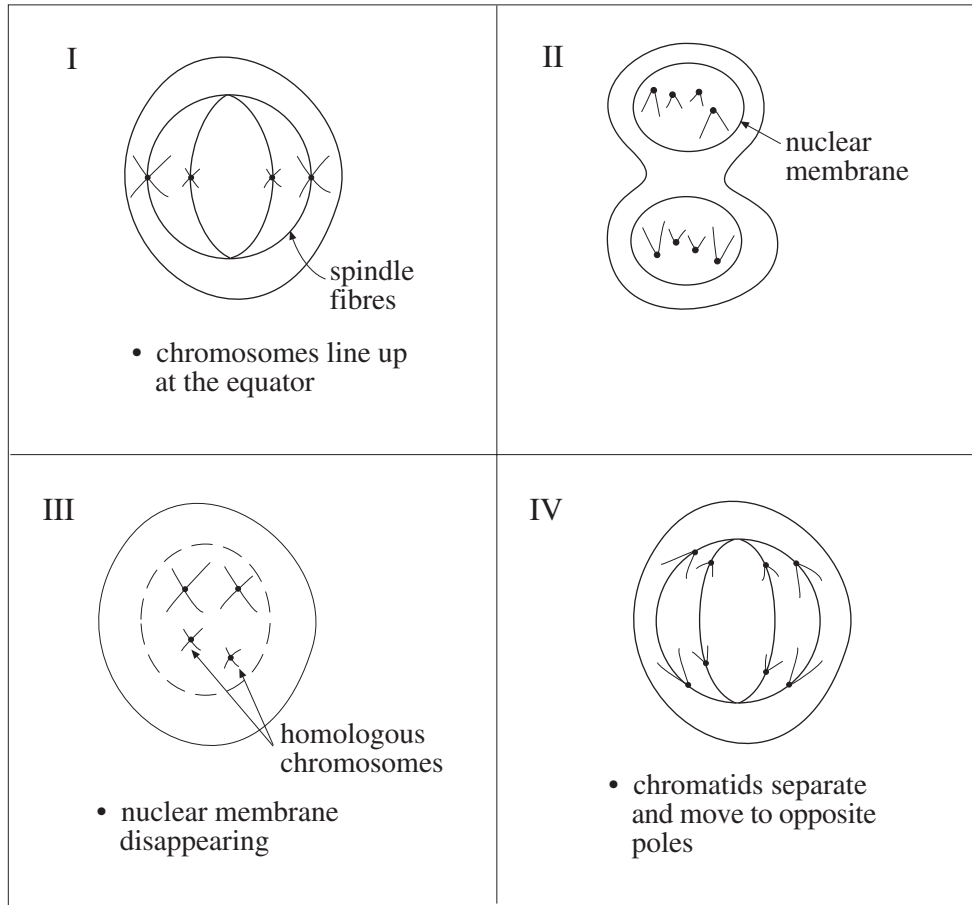
- A. I only
- B. II only
- C. I and II
- D. I and III

Use the following table of cell features to answer question 5.

Cell A	Cell B
<ul style="list-style-type: none">• cell with wrinkled surface• surface area of 9 cm^2• volume of 3 cm^3	<ul style="list-style-type: none">• cell with smooth surface• surface area of 3 cm^2• volume of 1 cm^3

5. Which of the following comparisons is correct for surface area to volume ratio?
- A. The surface area to volume ratios are equal.
 - B. The surface area to volume ratio for cell A is greater.
 - C. The surface area to volume ratio for cell B is greater.
 - D. A comparison cannot be determined from the information given.

Use the following diagrams of the stages of mitosis to answer question 6.

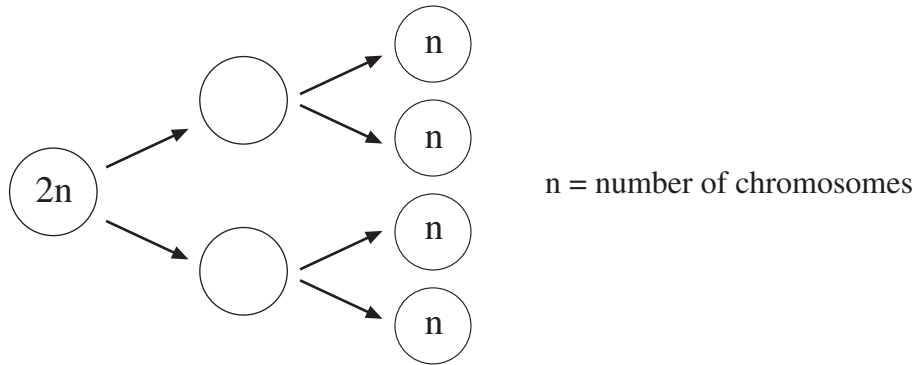


6. Which of the following arranges the stages of mitosis from earliest to latest?

	Earliest	→	Latest	
A.	III	I	IV	II
B.	III	II	I	IV
C.	II	I	IV	III
D.	II	III	I	IV

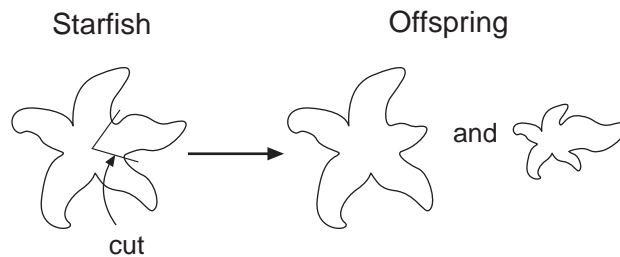
7. During which stage of a cell's cycle do the replicated chromosomes thicken and become visible?
- A. prophase
 - B. telophase
 - C. interphase
 - D. metaphase

Use the following diagram showing chromosome number to answer question 8.



8. What process is illustrated?
- A. formation of bacteria
 - B. production of viruses
 - C. fertilization of egg cells
 - D. production of sperm cells

9. The following diagram is an example of asexual reproduction.

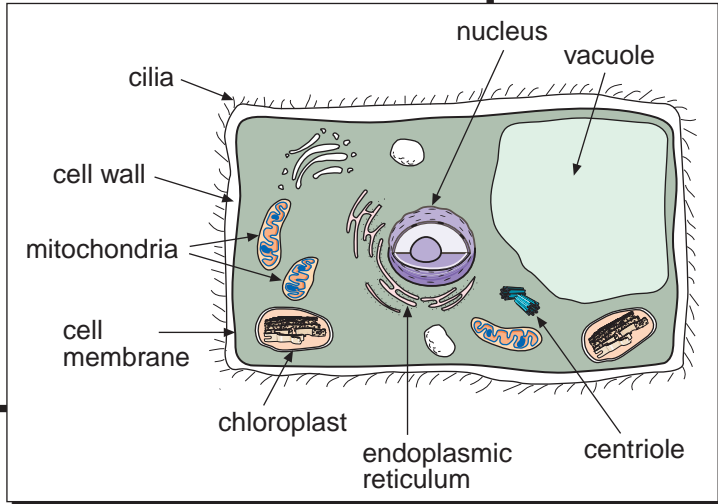


- A. True
- B. False

Read the following fictitious article to answer questions 10 to 12.

Scientists in Northern B.C. have discovered a brand new species. The species is a single-celled organism that seems to display both plant and animal characteristics. Scientists discovered the organism in deep, fresh-water ponds found in remote forests. When first discovered, the scientists noticed three obvious features.

1. The organism swam by using small hair-like features called cilia.
2. The organism contained a nucleus, a large vacuole and chloroplasts all surrounded by a rigid cell wall.
3. The organism contained centrioles.



10. Which of the following characteristics indicates the organism is plant-like?
- A. It has a nucleus.
 - B. It has a cell wall.
 - C. It uses cilia to move.
 - D. It needs water to live.
11. Which of the following characteristics indicates the organism is animal-like?
- A. It has a nucleus.
 - B. It has a cell wall.
 - C. It has a centriole.
 - D. It needs water to live.
12. How could scientists determine if chloroplasts were the organism's only energy source?
- A. Remove the organisms from sunlight.
 - B. Increase the temperature of the water.
 - C. Decrease the temperature of the water.
 - D. Place the organisms in a different pond.

13. A virus replicates inside a host cell.

- A. True
- B. False

14. What process carries alcohol across the placenta, and can possibly harm the fetus?

- A. mitosis
- B. diffusion
- C. respiration
- D. protein synthesis

LIFE SCIENCE

Genetics

**Match each Description on the left with the correct Term on the right.
Each Term may be used as often as necessary. Record your answers on the Answer Sheet.**

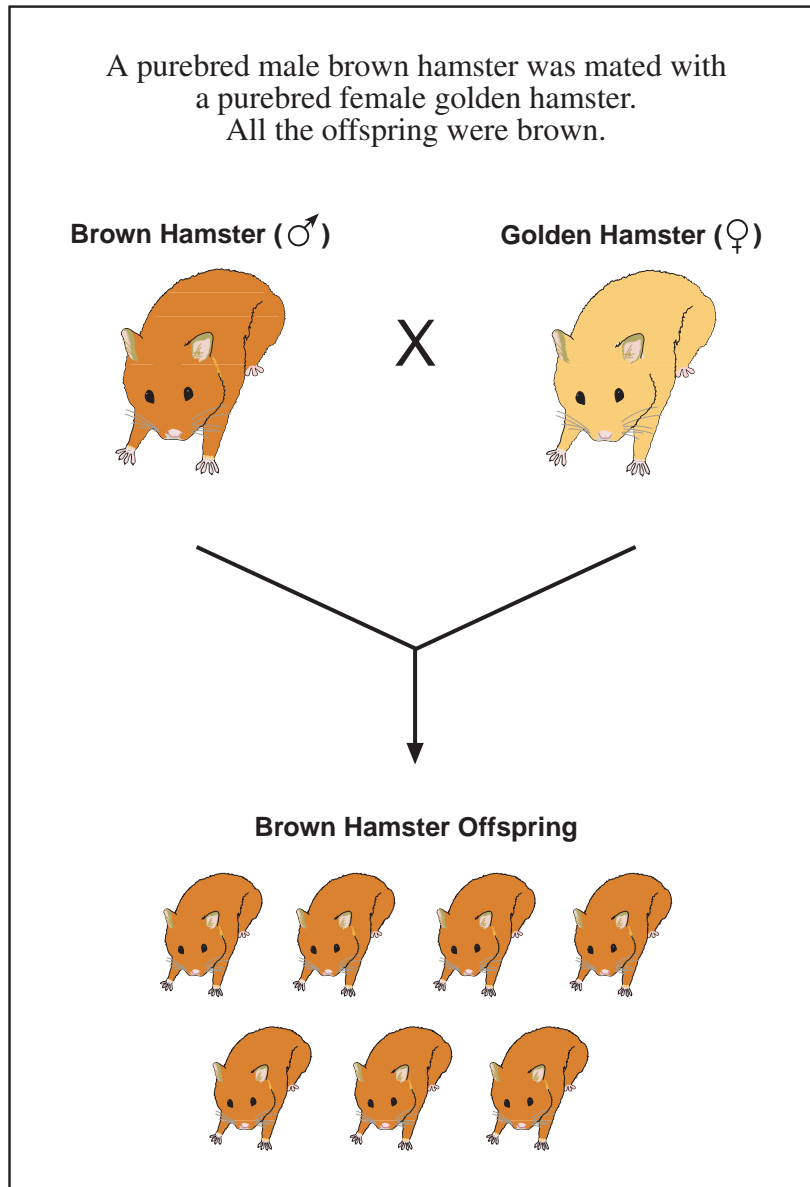
Description	Term
15. two different alleles	A. genotype
16. two alleles of the same type	B. phenotype
17. the physical appearance of an organism	C. homozygous
18. the combination of alleles in an organism	D. heterozygous
	E. F ₁ generation

Use the following representation of a Punnett square to answer question 19.

	P	Q
R	S	T
U	V	W

19. Which of the squares represent the offspring?
- A. PQ
 - B. RU
 - C. PQRU
 - D. STVW

Use the following information about two purebred hamsters to answer question 20.



20. Which of the following describes the allele for the colour brown?

- A. recessive
- B. dominant
- C. sex-linked
- D. codominant

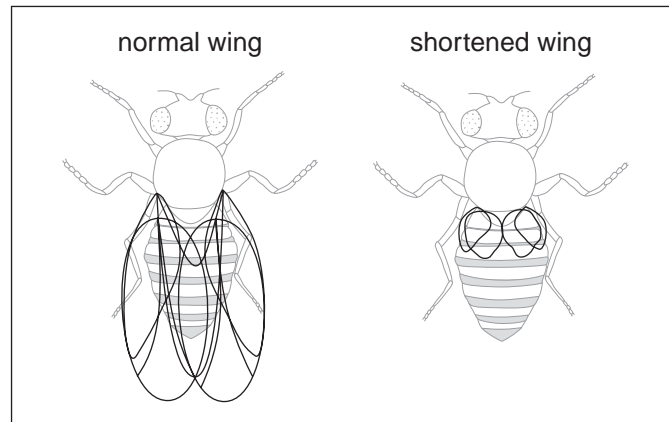
21. A homozygous, long-tailed cat is mated with a homozygous, short-tailed cat. If long tails are the dominant trait, which of the following would be expected in the offspring?
- A. all long-tailed
 - B. all short-tailed
 - C. 50% long-tailed; 50% short-tailed
 - D. 75% long-tailed; 25% short-tailed
22. A purebred black corn plant is crossed with a purebred white corn plant. The resulting F_1 generation all appear black. If two individuals from the F_1 generation are crossed, what is the probable appearance of the F_2 generation?
- A. 100% black
 - B. 100% white
 - C. 50% black and 50% white
 - D. 75% black and 25% white
23. Why is colour blindness a sex-linked trait?
- A. Only males can have colour blindness.
 - B. Only females can have colour blindness.
 - C. The allele causing colour blindness is on a Y chromosome.
 - D. The allele causing colour blindness is on an X chromosome.

24. Which of the following are known to cause genetic mutation?

I	suntanning
II	living in a cold climate
III	eating a vegetarian diet
IV	smoking cigarettes over a long period of time

- A. I and IV
- B. I, II and III
- C. I, III and IV
- D. II, III and IV

Use the following illustration of two fruit flies to answer question 25.



25. In the fruit fly's natural environment, mutation resulting in shortened wings has a **negative** effect upon its survival.

- A. True
- B. False

Use the following article on antibiotic-resistant bacteria to answer question 26.

When Killer Bugs Bite Back

A century ago, an ear infection could have meant deafness; a staph infection could have meant death. Those days may seem long gone. But scientists warn that drug resistance could be our Achilles heel. “Just about every pathogen that causes human disease is becoming resistant to the drugs we rely on most to treat them,” says David Bell.

Streptococcus pneumoniae

WHAT IT DOES: Causes ear infections, pneumonia, meningitis (brain swelling) and death, especially in children.

HOW YOU GET IT: The bug lives in nose and throat tissue. Sneezes, coughs, and hand-shakes can transmit the microbe from one person to another.

TREATMENT: About 30 percent of cases now resist penicillin.

adapted/condensed from *Popular Science*, March 2003, page 50

26. Which of the following summarizes the intent of the article?
- A. Ear Infections Deadly
 - B. New Antibiotics Supereffective
 - C. Most Infections Resist Penicillin
 - D. Mutant Bacteria Threaten the World

**REFER TO
DATA BOOKLET**

For this section of the examination, refer to:

- Names, Formulae and Charges of Some Common Ions on page 1
- Alphabetical Listing of the Elements on page 2
- The Periodic Table on page 3

27. Which of the following best describes the properties of an electron?

	Relative Mass	Location
A.	large	in the nucleus
B.	large	orbiting the nucleus
C.	small	in the nucleus
D.	small	orbiting the nucleus

28. Which of the following statements about Li^{+1} are true?

I	Li^{+1} is a symbol for a lithium ion.
II	Li^{+1} is a symbol for a lithium atom.
III	Li^{+1} has lost one electron.
IV	Li^{+1} has gained one electron.

- A. I and III
- B. I and IV
- C. II and III
- D. II and IV

29. Cl_2 is an example of a diatomic molecule.

- A. True
- B. False

30. OH^{-1} is an example of an ionic compound.

- A. True
- B. False

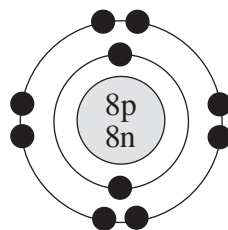
31. Which of the following represents the Bohr model electron arrangement of an argon atom?

- A. 2, 16
- B. 2, 18
- C. 2, 8, 6
- D. 2, 8, 8

32. Noble Gases react easily with other elements.

- A. True
- B. False

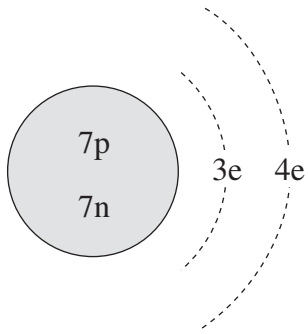
33. Which of the following is represented by the Bohr model below?



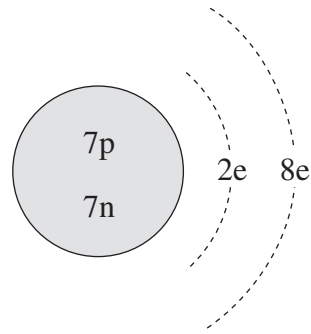
- A. an atom of neon
- B. an ion of oxygen
- C. a molecule of oxygen
- D. a neutral atom of oxygen

34. Which of the following is the Bohr model for a nitrogen atom?

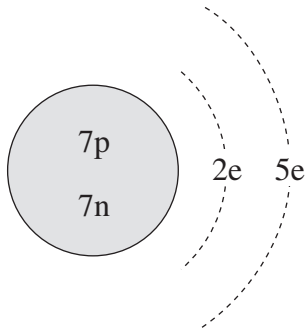
A.



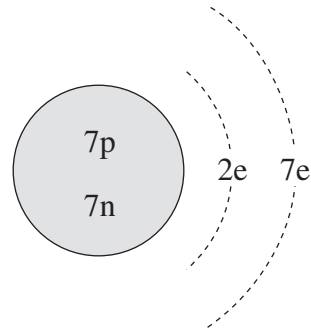
B.



C.



D.



35. Covalent bonding involves the _____ of electrons, while ionic bonding involves the _____ of electrons.

- A. sharing; splitting
- B. exchanging; sharing
- C. sharing; transferring
- D. transferring; sharing

Use the information below to answer question 36.

$\begin{matrix} 23 \\ \text{?} \\ 11 \end{matrix}$? represents the symbol of the element
--	---

36. Which of the following describes a neutral atom of the element?

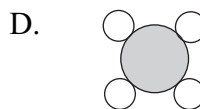
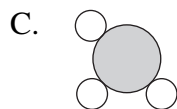
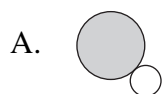
	Element	Sub-atomic particles
A.	Sodium	11 electrons, 12 neutrons
B.	Sodium	23 neutrons, 11 protons
C.	Vanadium	12 neutrons, 23 protons
D.	Vanadium	11 electrons, 11 protons

37. What is the formula for calcium hydroxide?

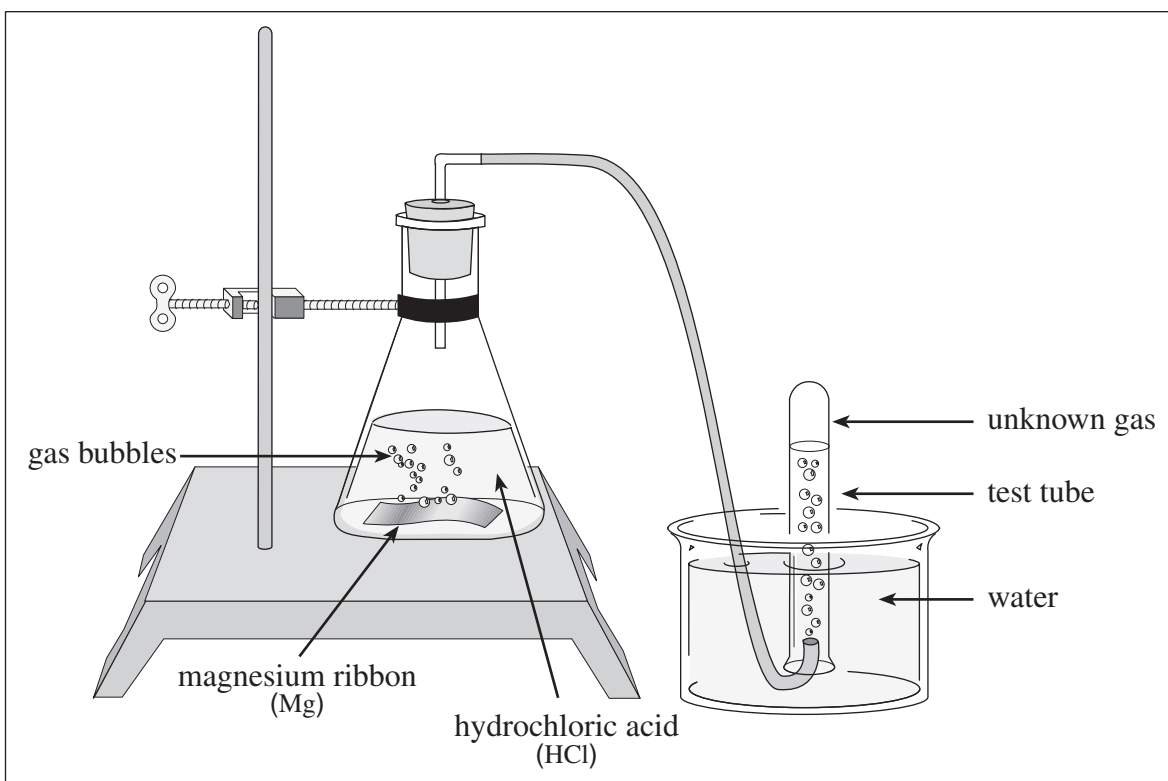
- A. CaOH
- B. CaOH₂
- C. Ca₂OH
- D. Ca(OH)₂

38. Which of the following represents the molecule formed when hydrogen reacts with nitrogen?

 hydrogen	 nitrogen
--	--



Use the following illustration of a chemical reaction to answer questions 39 and 40.



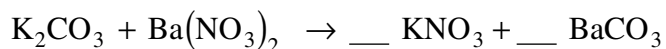
39. What are the reactants in the demonstration above?

- A. Mg and O_2
- B. Mg and H_2
- C. Mg and H_2O
- D. Mg and HCl

40. What gas is collected in the test tube?

- A. O_2
- B. H_2
- C. Cl_2
- D. MgH_2

41. Which of the following correctly balances the equation?



- A. $\text{KNO}_3 + \text{BaCO}_3$
- B. $\text{KNO}_3 + 2\text{BaCO}_3$
- C. $2\text{KNO}_3 + \text{BaCO}_3$
- D. $2\text{KNO}_3 + 2\text{BaCO}_3$

Match each Chemical Reaction on the left with the correct Reaction Type on the right. Each Reaction Type may be used as often as necessary. Record your answers on the Answer Sheet.

Chemical Reaction	Reaction Type
42. $2\text{KI} + \text{Pb}(\text{NO}_3)_2 \rightarrow \text{PbI}_2 + 2\text{KNO}_3$	A. synthesis
43. $\text{Mg} + 2\text{HCl} \rightarrow \text{H}_2 + \text{MgCl}_2$	B. decomposition
44. $2\text{K} + \text{Cl}_2 \rightarrow 2\text{KCl}$	C. single replacement
	D. double replacement
	E. neutralization (acid/base)

45. Which of the following equations are balanced?

I	$2\text{KCl} + \text{Ca}(\text{NO}_3)_2 \rightarrow 2\text{KNO}_3 + \text{CaCl}_2$
II	$\text{FeCl}_3 + 3\text{KOH} \rightarrow \text{Fe}(\text{OH})_3 + 3\text{KCl}$
III	$2\text{Na} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2$

- A. I and II
- B. I and III
- C. II and III
- D. I, II and III

46. Solid copper wire, Cu, is placed in a colourless, silver nitrate solution, AgNO₃. After 15 minutes, the solution has turned blue and silver crystals have formed. A reference text states that when dissolved in water:

- Cu⁺² ions are blue.
- Ag⁺ ions are colourless.
- NO₃⁻ ions are colourless.

Which of the following is the best conclusion?

- A. The silver atoms have lost electrons forming ions.
- B. The copper atoms have lost electrons forming ions.
- C. The silver atoms have gained electrons forming ions.
- D. The copper atoms have gained electrons forming ions.

47. Which of the following is the symbol for boron with a mass number of 11?

- A. ${}_{11}^3\text{B}$
- B. ${}_{11}^5\text{B}$
- C. ${}_{3}^{11}\text{B}$
- D. ${}_{5}^{11}\text{B}$

48. Which of the following explains the difference between the atoms of Cobalt-60 and Cobalt-58?

- A. Cobalt-60 has 2 fewer protons.
- B. Cobalt-60 has 2 more neutrons.
- C. Cobalt-60 has 2 more electrons.
- D. Cobalt-58 and 60 have the same number of neutrons.

**REFER TO
DATA BOOKLET**

For this section of the examination, refer to:

- Units and Abbreviations on page 4
- Formulæ on page 4
- The Electromagnetic Spectrum on page 5

49. Two positively charged objects are attracted to each other.
- A. True
B. False
50. A positively charged object and a neutral object are attracted to each other.
- A. True
B. False
51. Which of the following is a good electrical conductor?
- A. gold
B. glass
C. rubber
D. plastic
52. When a piece of acetate plastic is rubbed with a cotton cloth, some electrons are transferred from the plastic to the cloth. Which of the following is true of the acetate plastic?
- A. It is now neutral.
B. It is now positively charged.
C. It is now negatively charged.
D. It has gained protons from the cotton cloth.

53. Which of the following combinations of plastic sticks will **repel**?



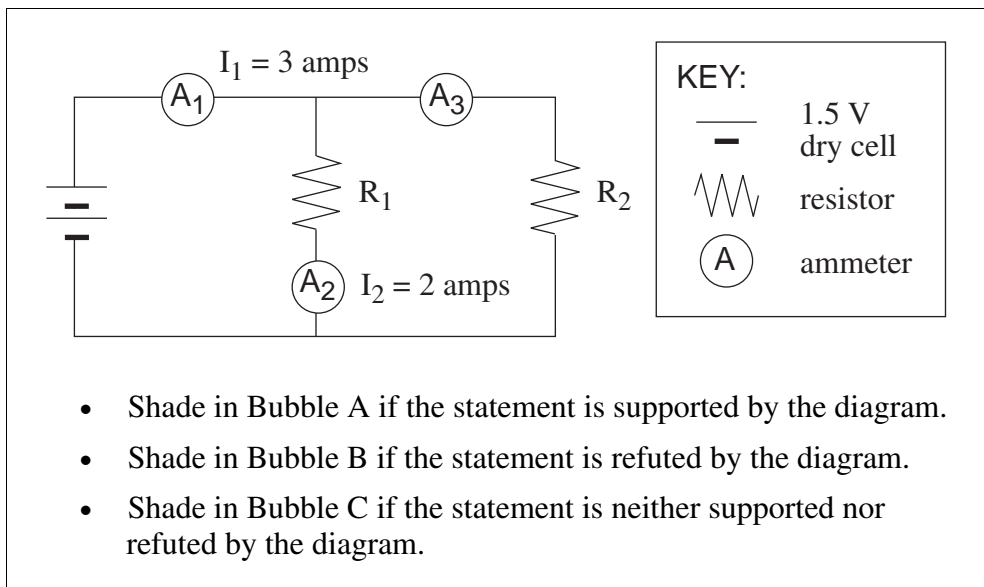
- A. I and II
- B. V and VI
- C. I, II and III
- D. IV, V and VI

54. Which of the following is true?

- A. Protons repel neutrons.
- B. Electrons repel protons.
- C. Electrons repel neutrons.
- D. Electrons repel electrons.

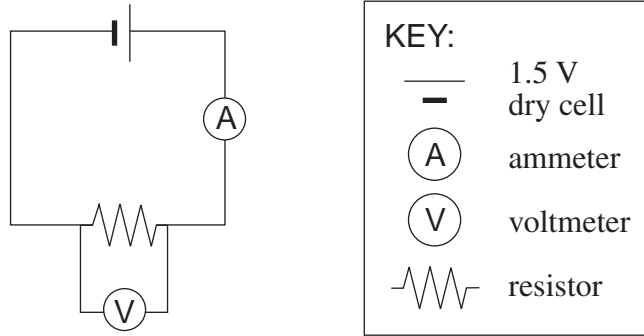
55. A lightning bolt is an example of electrons in motion.
- A. True
 - B. False
56. Which of the following is correct?
- A. A battery measures power.
 - B. An ammeter measure current.
 - C. A compass measures magnetism.
 - D. An ohmmeter measures heat flow.
57. In a circuit where voltage is constant, a resistor determines the current.
- A. True
 - B. False

Use the following diagram showing ammeters A1, A2, and A3 placed in a circuit to answer questions 58 to 62.

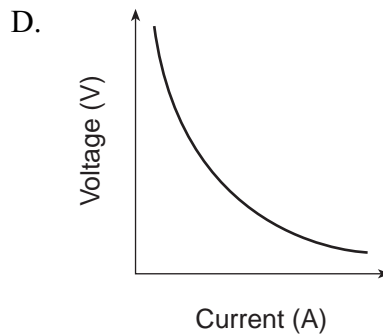
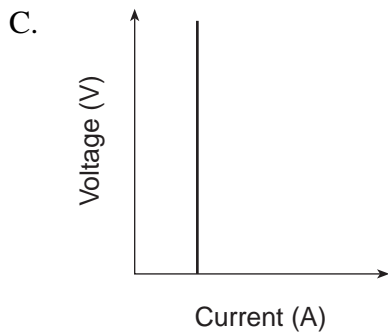
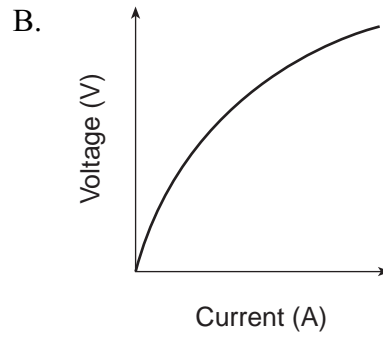
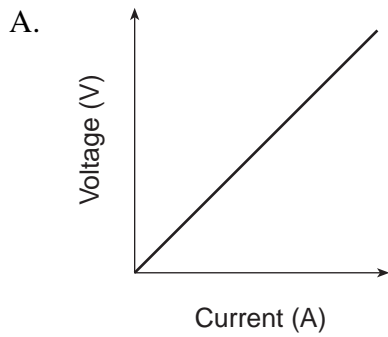


58. Resistor R₁ and R₂ are connected in parallel.
59. Two dry cells are connected in series.
60. The total voltage produced by the dry cells is 9 volts.
61. Ammeter A₃ has a reading of 1 amp.
62. This circuit used 4 joules of energy.

63. Dry cells were added to the following circuit, increasing the voltage.



Which of the following graphs best represents the relationship between voltage and current?



64. A 120 volt CD player draws 0.6 amperes of current. What is the resistance of the CD player?

- A. 200 ohms
- B. 600 ohms
- C. 1600 ohms
- D. 2400 ohms

Use the following comparison to answer question 65.

Portable Radio #1	Portable Radio #2
<ul style="list-style-type: none">• 6 volt battery• 2 amp current	<ul style="list-style-type: none">• 2 volt battery• 6 amp current

65. Which of the following statements is correct?
- A. Portable radio #1 uses more power.
 - B. Portable radio #2 uses more power.
 - C. The power of the two radios is equal.
 - D. Power cannot be determined from the information given.
66. A 240 V appliance draws 10 A of current. How much electrical energy does the appliance consume in 2 hours?
- A. 2 400 J
 - B. 48 000 J
 - C. 288 000 J
 - D. 17 280 000 J
67. What is the amount of electrical energy needed to operate a 1.4 kW appliance for 2.5 hours?
- A. 0.56 kW · h
 - B. 1.8 kW · h
 - C. 3.5 kW · h
 - D. 3.9 kW · h

Use the following comparison to answer question 68.

Circuit I	Circuit II
A resistor has 3 A of current flowing through it for 5 minutes. It is a 10 Ω resistor.	A resistor has 0.5 A of current flowing through it for 5 minutes. The voltage across the resistor is 15 V.

68. Which of the following statements is correct?
- A. Circuit I uses more energy.
 - B. Circuit II uses more energy.
 - C. Both circuits use equal energy.
 - D. The relationship cannot be determined from the information given.
69. Which of the following explains why electricity is transmitted to homes at a high voltage?
- A. High voltage is transmitted more quickly.
 - B. High voltage is a safer way to transmit energy.
 - C. Less current in the lines results in less energy lost.
 - D. More current in the lines results in less energy lost.
70. Which of the following devices decreases voltage to a level that can be used in a house?
- A. motor
 - B. solenoid
 - C. generator
 - D. transformer
71. Circuit breakers help protect your home from the possibility of an electrical fire.
- A. True
 - B. False
72. Which of the following is a unit of energy?
- A. W
 - B. kW
 - C. kW/h
 - D. kW · h

73. Which material would **not** be used to make a permanent magnet?

- A. iron
- B. cobalt
- C. sulfur
- D. nickel

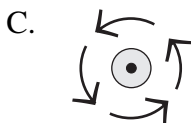
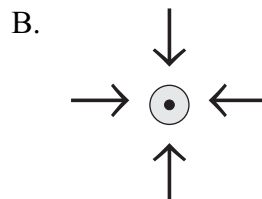
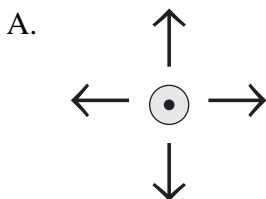
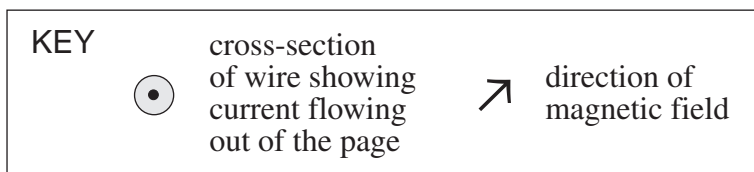
74. A current travelling through an electrical conductor will produce a magnetic field.

- A. True
- B. False

75. A coil of wire carrying a current is a solenoid.

- A. True
- B. False

76. If conventional current is being conducted out of the page, which diagram correctly represents the direction of the magnetic field?



77. Which of the following changes mechanical energy into electrical energy?

- A. a motor
- B. a resistor
- C. a generator
- D. a transformer

PHYSICAL SCIENCE

Radioactivity

**REFER TO
DATA BOOKLET**

For this section of the examination, refer to:

- The Periodic Table on page 3
- The Electromagnetic Spectrum on page 5
- Common Isotope Pairs on page 5

78. Which of the following types of radiation has the highest energy?

- A. microwaves
- B. gamma rays
- C. infrared waves
- D. ultraviolet rays

79. Which of the following statements are true?

I	Radio waves are sound waves.
II	All electromagnetic waves are visible.
III	Waves with a short wavelength have a low frequency.
IV	Waves with a short wavelength have a high frequency.
V	Gamma rays have a shorter wavelength than visible light.

- A. I and II
- B. I and III
- C. III and V
- D. IV and V

80. What is the charge on an alpha (α) particle?
- A. -2
 - B. 0
 - C. +2
 - D. +4
81. Which decay product will be attracted to a positively-charged surface?
- A. neutron
 - B. gamma ray
 - C. beta particle
 - D. alpha particle
82. What is the process called when uranium-235 absorbs a neutron and then breaks apart into smaller pieces?
- A. a fusion reaction
 - B. a fission reaction
 - C. a synthesis reaction
 - D. a decomposition reaction
83. What new isotope forms when ${}_{42}^{99}\text{Mo}$ decays by emitting a beta (β) particle?
- A. ${}_{43}^{99}\text{Tc}$
 - B. ${}_{42}^{98}\text{Mo}$
 - C. ${}_{41}^{93}\text{Nb}$
 - D. ${}_{42}^{96}\text{Mo}$

Read the following article about the storage of nuclear waste to answer questions 84 and 85.

Nuclear Fallout

The federal government gave Yucca Mountain, Nevada, (U.S.A.) a preliminary thumbs-up as [the] nation's nuclear waste repository in February, despite critics' contentions that it would leak radioactive waste into surrounding soil and water. Government scientists acknowledge that the waste will seep out, but not, they say, for tens of thousand of years, at which point the radioactivity will have subsided to safe levels. The volcanic rock is full of fissures [cracks]—which turns out to be a problem because rainwater could seep in through them and corrode the nickel-chromium-molybdenum waste containers.

adapted/condensed from *Popular Science*, January 2003, page 75

84. According to the article, how does rainwater reach the radioactive waste containers?
- A. by volcanic activity
 - B. by landslides on Yucca Mountain
 - C. by a cave-in at the nuclear waste repository
 - D. by travelling through fissures or cracks in the volcanic rock
85. After reading the article, predict why rainwater corrosion of the waste containers is hazardous?
- A. Rainwater and radioactive material will undergo a nuclear reaction.
 - B. Leaking radioactive materials will cause environmental contamination.
 - C. Leaking radioactive gases will escape through fissures into the atmosphere.
 - D. Rainwater will cause a steam explosion when heated by the radioactive waste.
86. The isotope carbon-14 is used for radioactive carbon dating.
- A. True
 - B. False

**REFER TO
DATA BOOKLET**

For this section of the examination, refer to:

- **Common Isotope Pairs Chart on page 5**
- **Geologic Time Scale on page 6**
- **Map of the Pacific Coast of North America on page 7**
- **World Map on page 8**

87. Which of the following epochs has the shortest time span?

- A. Eocene
- B. Pliocene
- C. Paleocene
- D. Pleistocene

88. Most of the geological history of the Earth occurred in the Precambrian Era.

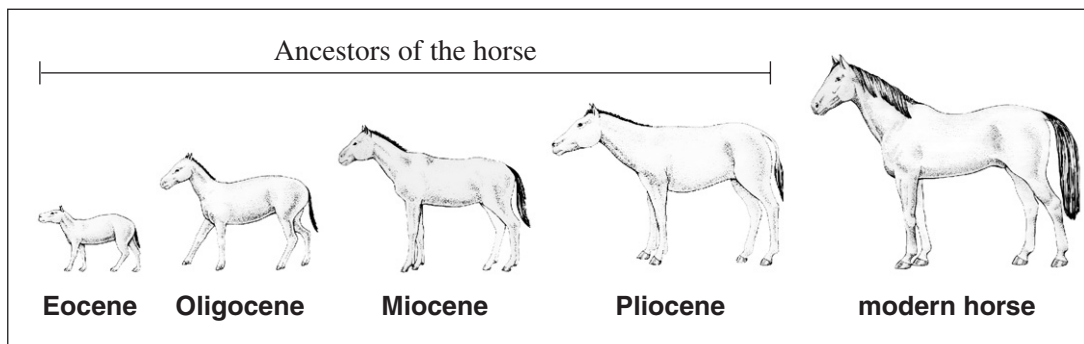
- A. True
- B. False

**Match each Life form on the left with the correct Era on the right.
Each Era may be used as often as necessary.
Record your answers on the Answer Sheet.**

Life form	Era
89. trilobite 90. primates	A. Cenozoic B. Mesozoic C. Paleozoic D. Precambrian

91. Which of the following fossils would **not** be found in rock containing dinosaur fossils?
- A. birds
 - B. trilobites
 - C. mammals
 - D. flowering plants
92. How were the divisions of the Geological Time Scale determined?
- A. based on rock type
 - B. based on fossil evidence
 - C. set up in equal amounts of time
 - D. named in the order they were discovered

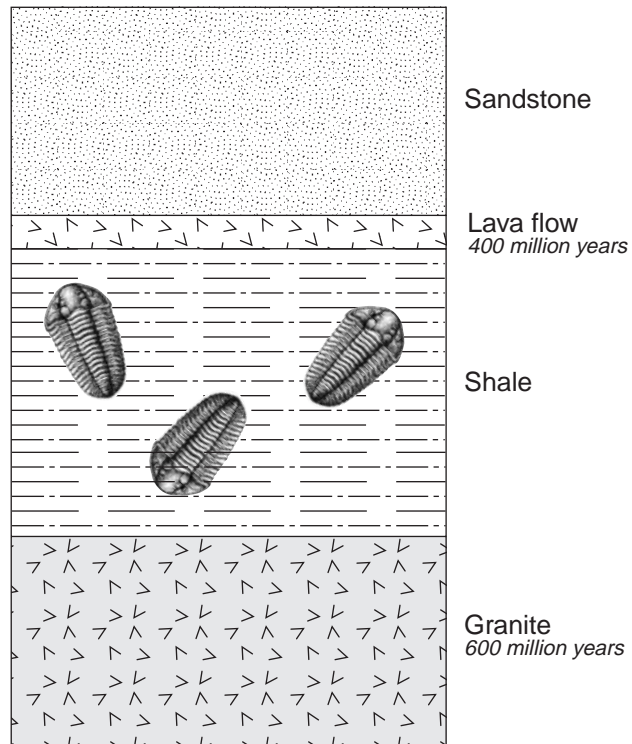
Use the following diagram illustrating relative heights of ancestral horses to answer question 93.



adapted from *Biology*, D. R. Ritchie and R. Carola, Addison-Wesley Publishing Co., 1983, p. 224

93. The ancestry of the horse illustrates that life forms change over time.
- A. True
 - B. False
94. The cross-cutting rule indicates that an event affecting a rock layer must be older than the rock layer itself.
- A. True
 - B. False

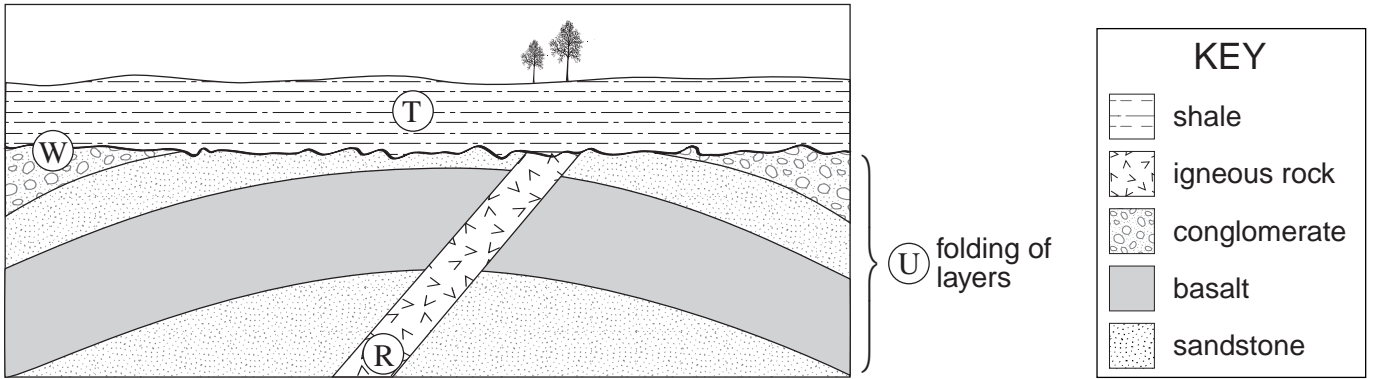
Use the following geological cross-section to answer question 95.



95. What is the **most likely** age of the trilobite fossils?

- A. 400 million years old
- B. 600 million years old
- C. more than 400 million years old and less than 600 million years old
- D. less than 400 million years old or greater than 600 million years old

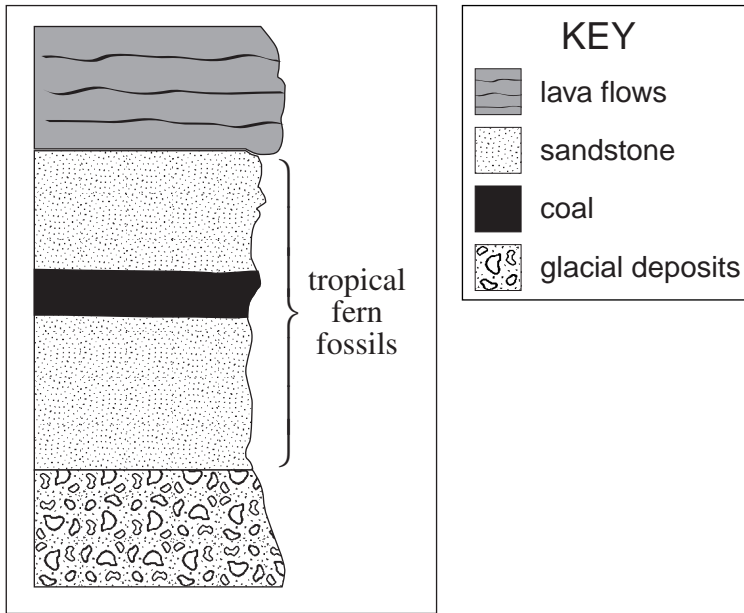
Use the following geological cross-section to answer question 96.



96. Which of the following shows the correct order of events shown in the diagram?

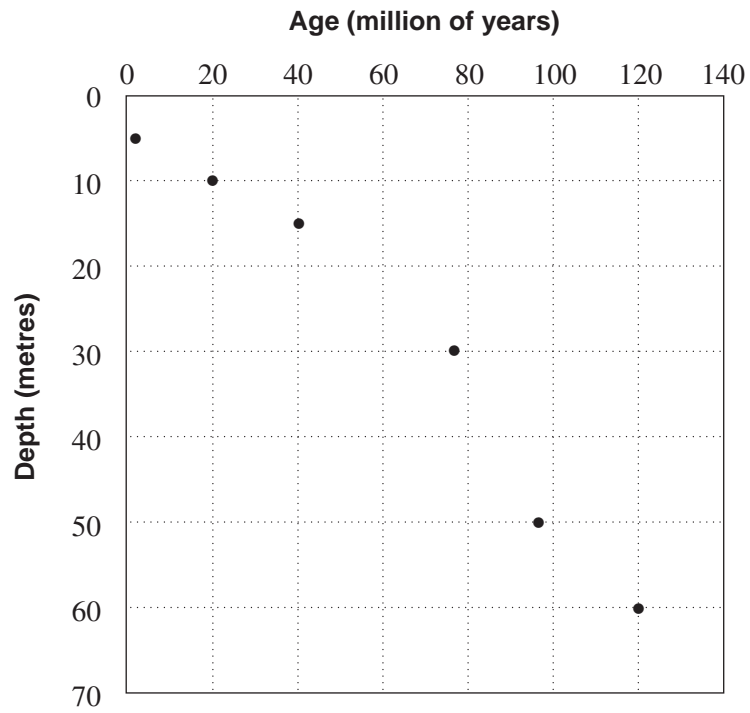
	oldest	→	youngest	
A.	intrusion of R	erosion at W	folding of layers U	deposition of T
B.	folding of layers U	intrusion of R	erosion at W	deposition of T
C.	deposition of T	folding of layers U	erosion at W	intrusion of R
D.	deposition of T	erosion at W	intrusion of R	folding of layers U

Use the following geological cross-section of a cliff face to answer question 97.



97. A geologist concluded that the glacial deposits are older than the tropical fern fossils. Which of the following supports this conclusion?
- A. the cross-cutting rule
 - B. the theory of plate tectonics
 - C. the law of superposition
 - D. tropical fossils are not found near glacial deposits.

Use the following graph that plots the results of dating layers of rock on a cliff to answer question 98.

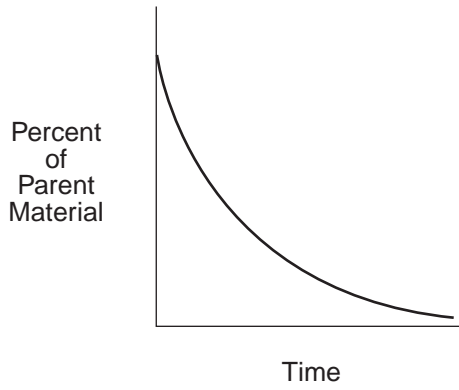


98. At what depth would a 50 million year old layer be found?

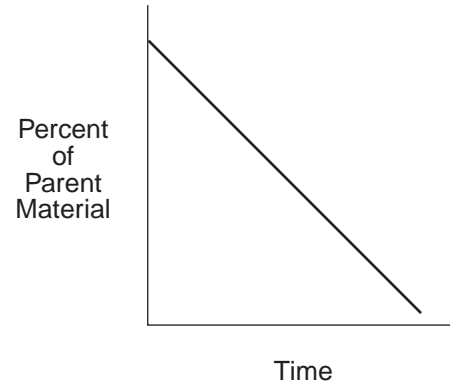
- A. 15 metres
- B. 20 metres
- C. 70 metres
- D. 95 metres

99. Which graph illustrates radioactive decay?

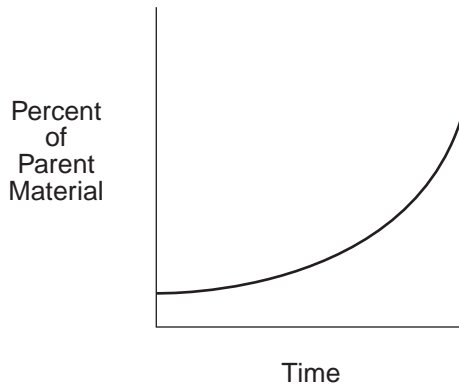
A.



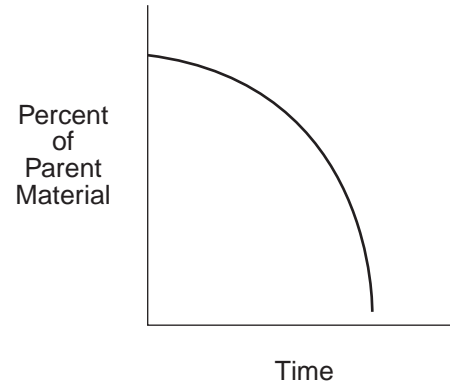
B.



C.



D.

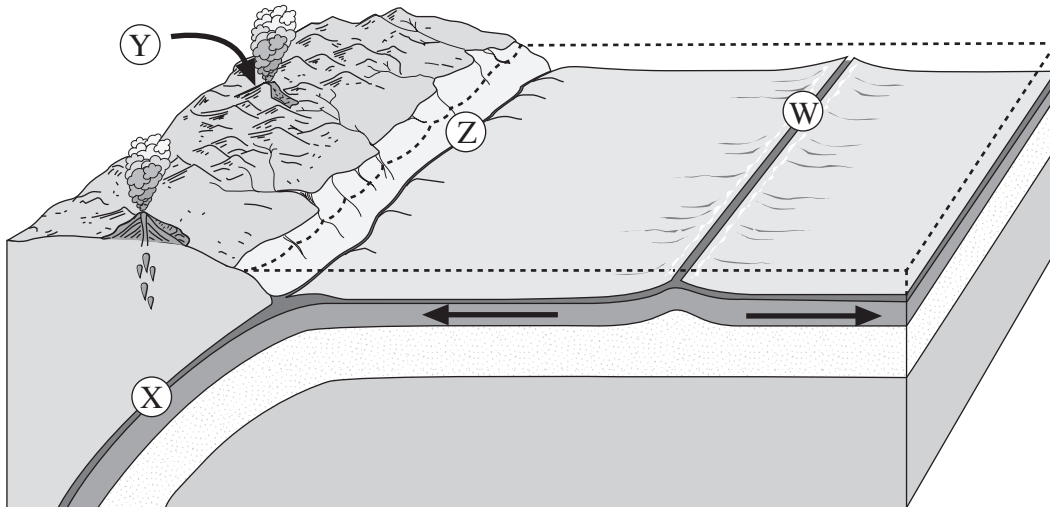


100. What fraction of an original radioactive substance remains after three half-lives?

- A. $\frac{1}{16}$
- B. $\frac{1}{8}$
- C. $\frac{1}{6}$
- D. $\frac{1}{4}$

101. Which would be most appropriate for finding the absolute age of Holocene fossils?
- A. index fossils
 - B. C-14 dating
 - C. K-40 dating
 - D. U-238 dating
102. Ocean trenches are found along which of the following?
- A. ocean ridges
 - B. diverging boundaries
 - C. transform boundaries
 - D. subduction boundaries
103. Which of the following explains why no volcanoes are found along the San Andreas fault?
- A. It is a subduction zone.
 - B. There is no melting crust.
 - C. The oceanic plates are diverging.
 - D. The continental plates are converging.

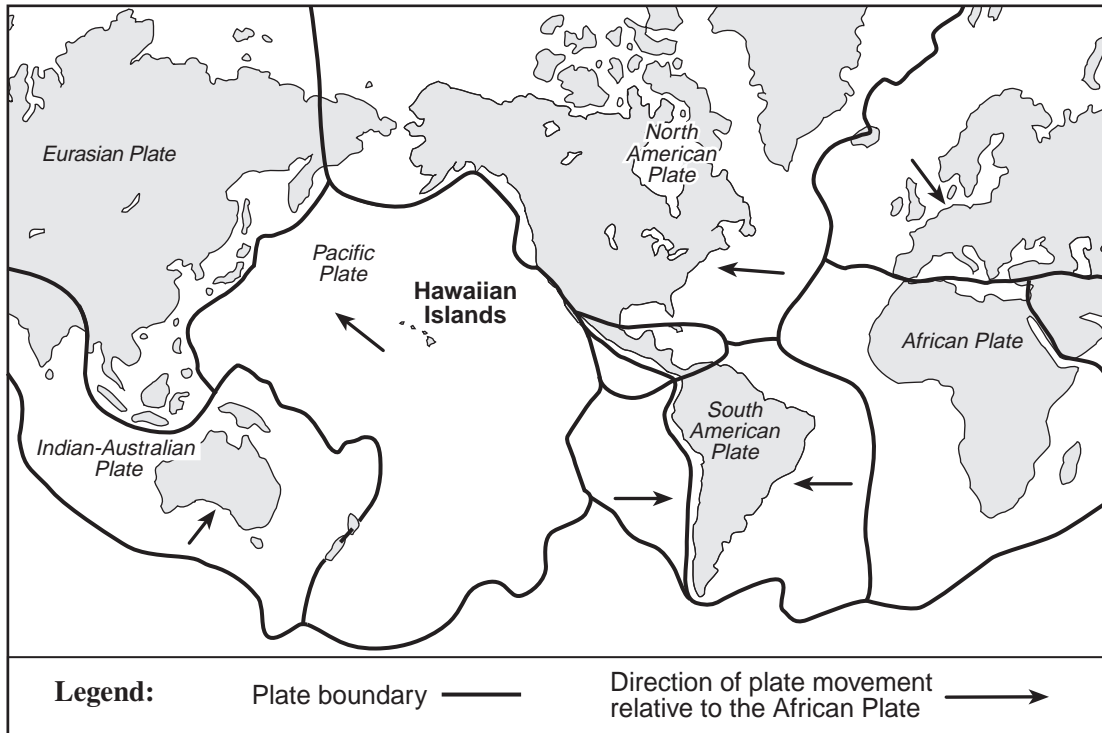
Use the following diagram of a cross-section of plate boundaries to answer question 104.



104. Where is rock melting due to subduction?

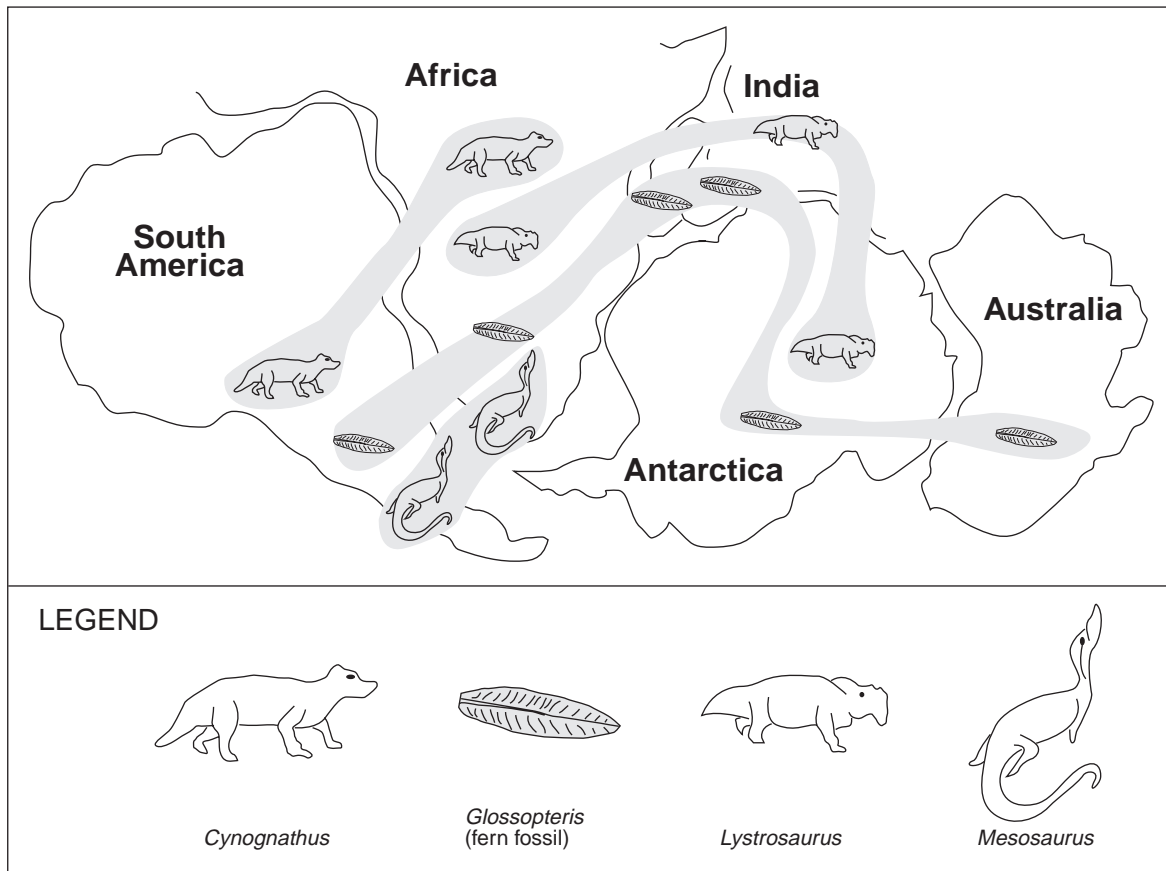
- A. W
- B. X
- C. Y
- D. Z

Use the following map of the Hawaiian Islands and surrounding plates to answer questions 105 and 106.



105. Which of the following explains volcanic activity in Hawaii?
- A. hot spot
 - B. transform fault
 - C. mid-ocean ridge
 - D. subduction zone
106. Why are South America and Africa moving away from each other?
- A. They are both on the same crustal plate.
 - B. South America is made from denser material.
 - C. The floor of the Atlantic Ocean is spreading apart.
 - D. The African continent is larger than the South American continent.

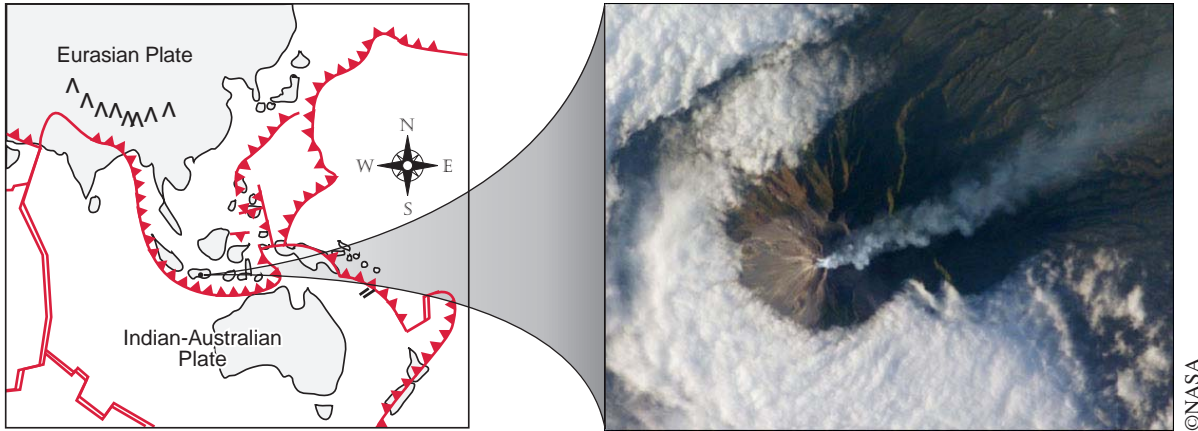
Use the following illustration of fossil distribution to answer question 107.



107. To support the theory of Continental Drift, the fossils must be between 225 and 275 million years old.

- A. True
- B. False

Use the following map excerpt from page 8 of the Data Booklet to answer questions 108 to 110.



Merapi volcano is located north of the city of Yogyakarta in central Java.
More than 50,000 people live near the volcano.

108. Which type of plate boundary is responsible for the eruption of Merapi volcano?
- A. hot spots
 - B. divergent plates
 - C. convergent plates
 - D. transform boundaries
109. Which of the following hazards is shown in the satellite image of Merapi?
- A. ashfall
 - B. flooding
 - C. forest fire
 - D. earthquake
110. When the satellite image of Merapi was taken, the volcano was dormant.
- A. True
 - B. False

END OF EXAMINATION