

Practice Test 2

SESSION 1

- 1 *Aulacomnium* moss and *pulsatilla vulgaris rubra*, which are pictured below, each have feathery-looking parts and some red-colored parts. Though the plants look similar, the moss is classified as a nonvascular plant and the *pulsatilla* is classified as a vascular plant.



Aulacomnium moss



Pulsatilla vulgaris rubra

Which statement best supports classifying the moss as a nonvascular plant and the *pulsatilla* as a vascular plant?

- A One grows best in wet areas; the other grows best in dry areas.
- B One gets energy from sunlight; the other gets energy from food.
- C One has an internal system of tubes; the other lacks such a system.
- D One reproduces with another plant; the other reproduces on its own.

- 2** Electric motors and electrical generators both make use of electromagnetism. The table below lists common examples of these devices.

Electric Motor	Electrical Generator
Fan	Wind turbine
Hair dryer	Water turbine
Can opener	Gas turbine engine

What relationship is best demonstrated by all of these devices?

- A** A motor can always be used as a generator.
- B** Magnetism can be used to convert between electrical and mechanical energy.
- C** Mechanical energy can be used to convert between electrical energy and magnetism.
- D** Generators are more powerful than motors.

- 3** An insect bite leaves a horse with an open sore on its side.

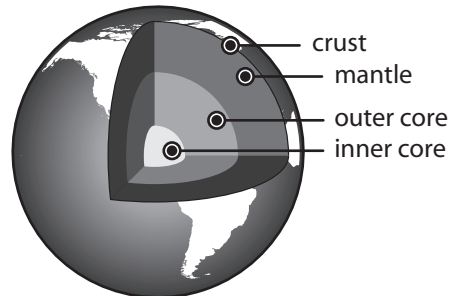
Which of these statements explains how the horse's body can repair itself?

- A** Cells undergo cell division.
- B** Cells in the area increase in size.
- C** Cells enter the body through the sore.
- D** Cells form a cell wall that blocks the sore.

Directions

Use the diagram below to answer Numbers 4 through 6.

A student draws a diagram of Earth's layers. It includes the core, mantle, and crust, as shown below.



4 What is the Earth's crust made up of?

- A several separate solid plates
- B solid iron from Earth's core
- C extremely hot magma from Earth's mantle
- D one large crustal shell that floats on Earth's mantle

5 Earth's mantle has properties of

- A solids
- B liquids
- C solids and liquids
- D liquids and gases

6 Which statement best compares the density of the core and the mantle?

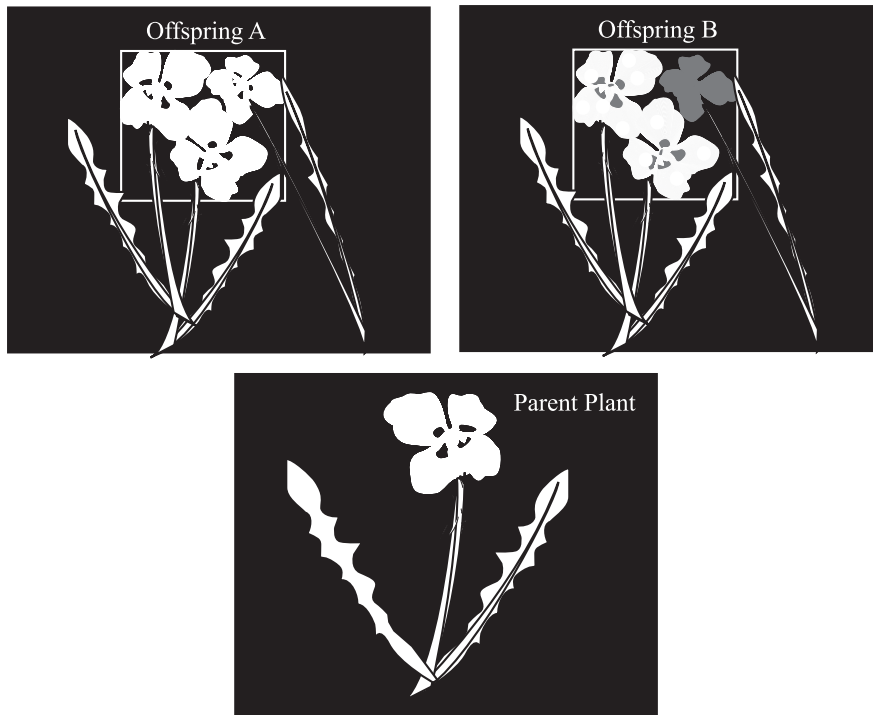
- A The densities cannot be compared without observation.
- B The density of the core is less than the density of the mantle.
- C The density of the core is the same as the density of the mantle.
- D The density of the core is greater than the density of the mantle.

- 7 Earth has a limited amount of natural resources, which must be preserved for future generations.

Which activity wastes a natural resource?

- A riding a bicycle
- B leaving on lights
- C taking short showers
- D making a compost pile

- 8 The offspring in groups A and B share a common parent plant. One group of offspring was produced asexually through cuttings from the parent plant. The other offspring was produced through sexual reproduction with another parent plant.



Explain why the two sets of offspring plants have different characteristics. In your explanation, be sure to include

- which type of reproduction was used to produce each group
- the way genetic material was passed to the offspring plants in each group
- why there is greater variation among one group of offspring

Write your answer in the space provided.

Offspring A

Offspring B

Directions

Use the information below to answer Numbers 9 through 11.

The map below shows the geographic relationship between two cities in the United States. Boston, Massachusetts is approximately 575 kilometers northeast of Baltimore, Maryland.



The data below represents the weather conditions on a specific Thursday in Boston, Massachusetts and Baltimore, Maryland.

Weather Condition	Boston	Baltimore
Temperature	8°C (46°F)	2°C (35°F)
Winds	From NE, 4 kilometers per hour	From NE, 38 kilometers per hour
Air pressure	1,016 millibars, stable	1,009 millibars, rising
Precipitation	None	Light rain
Cloud cover	Clear	Cloudy

- 9** A weather forecaster in Baltimore said, "The skies will begin to clear in Baltimore late Thursday night."

Which statement about the Thursday weather best supports this prediction?

- A** In Baltimore, it is raining lightly.
- B** In Boston, the air pressure is stable.
- C** In Baltimore, the air pressure is rising.
- D** In Boston, there is a strong breeze from the northeast.

- 10** On this Thursday, the weather in Boston is influenced by a

- A** nearby storm
- B** high temperature
- C** low pressure area
- D** high pressure area

- 11** Why would you expect Boston and Baltimore to have certain similarities in climate?

- A** They are on the same east-west, or latitude, line.
- B** They are on the same north-south, or longitude, line.
- C** They are both on the water, near the coast.
- D** They are both in the Northern Hemisphere.

Directions

Use the Periodic Table of the Elements and the information below to answer Numbers 12 through 14.

Periodic Table of the Elements

1 H 1.01																	2 He 4.00
3 Li 6.94	4 Be 9.01											5 B 10.81	6 C 12.01	7 N 14.01	8 O 16.00	9 F 19.00	10 Ne 20.18
11 Na 22.99	12 Mg 24.31											13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
19 K 39.10	20 Ca 40.08	21 Sc 44.96	22 Ti 47.88	23 V 50.94	24 Cr 52.00	25 Mn 54.94	26 Fe 55.85	27 Co 58.93	28 Ni 58.69	29 Cu 63.55	30 Zn 65.39	31 Ga 69.72	32 Ge 72.61	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
37 Rb 85.47	38 Sr 87.62	39 Y 88.91	40 Zr 91.22	41 Nb 92.91	42 Mo 95.94	43 Tc 97.91	44 Ru 101.07	45 Rh 102.91	46 Pd 106.42	47 Ag 107.87	48 Cd 112.41	49 In 114.82	50 Sn 118.71	51 Sb 121.75	52 Te 127.60	53 I 126.90	54 Xe 131.29
55 Cs 132.91	56 Ba 137.32	57 La 138.91	72 Hf 178.49	73 Ta 180.95	74 W 183.85	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Hg 200.59	81 Tl 204.38	82 Pb 207.20	83 Bi 208.98	84 Po 208.98	85 At 209.99	86 Rn 222.02
87 Fr 223.02	88 Ra 226.03	89 Ac 227.03	104 Rf 261	105 Db 262	106 Sg 266	107 Bh 264	108 Hs 269	109 Mt 268	110 Ds 271	111 Rg 272.15	112 Uub 277	113 Uut 284	114 Uuq 289	115 Uup 288	116 Uuh 292	118 Uuo 294	
Lanthanide Series			58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm 144.91	62 Sm 150.36	63 Eu 151.97	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97	
Actinide Series			90 Th 232.04	91 Pa 231.04	92 U 238.05	93 Np 237.05	94 Pu 244.06	95 Am 243.06	96 Cm 247	97 Bk 247	98 Cf 251	99 Es 252.08	100 Fm 257.10	101 Md 258.10	102 No 259.10	103 Lr 260.11	

Certain groups of elements within the table have special names and share common chemical properties. The noble gases, shaded black, are a group of mostly non-reactive elements that take gaseous form at room temperature. The halogen group, shaded dark gray, includes highly-reactive non-metal elements that have a strong unpleasant odor and can burn flesh. The highly-reactive alkali metals, shaded light gray, are a group of metals that react explosively to water. The alkali-earth metals, shaded medium gray, are also highly reactive.

12 According to the Periodic Table of the Elements, which element is not a highly reactive metal?

- A sodium (Na)
- B silver (Ag)
- C potassium (K)
- D magnesium (Mg)

13 The elements in the table are basic parts of

- A** all living things
 B rocks and metals
 C all non-living things
 D all living and non-living things

14 Which element shares the most properties with magnesium (Mg)?

- A** barium (Ba)
 B neon (Ne)
 C gold (Au)
 D fluorine (F)

15 A full moon, as viewed from Earth, is pictured below.



Which statement best describes the position of Earth, the Sun, and the Moon when a full moon occurs?

- A** The Moon is between Earth and the Sun.
 B The Sun is between Earth and the Moon.
 C Earth is between the Sun and the Moon, and blocking the Sun's light.
 D Earth is between the Sun and the Moon, but not blocking the Sun's light.

16 Radiation does not require matter to transfer heat energy.

Which example best illustrates radiation?

- A** heat circulating through a pool from jets of hot water
 B a heat lamp warming the water in a glass fish tank
 C a bird sitting on an egg to warm it with body heat
 D an oven burner heating a teapot filled with water