## SCIENCE TEST

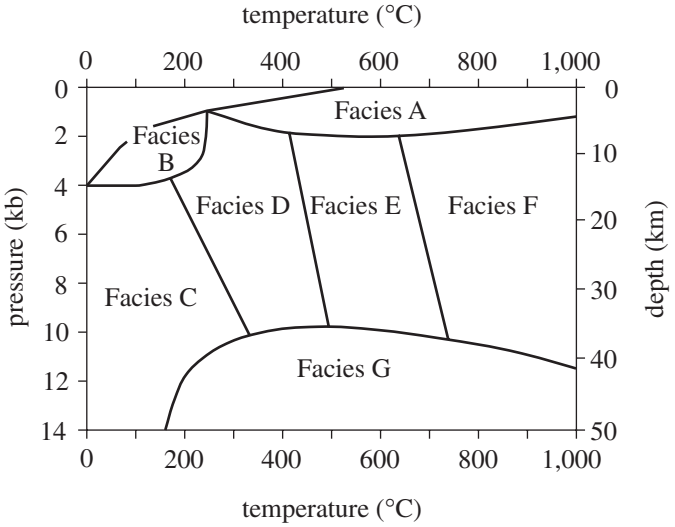
*35 Minutes—40 Questions*

**DIRECTIONS:** There are seven passages in this test. Each passage is followed by several questions. After reading a passage, choose the best answer to each question and fill in the corresponding oval on your answer document. You may refer to the passages as often as necessary.

You are NOT permitted to use a calculator on this test.

### Passage I

*Metamorphic rocks* form when temperature and/or pressure cause changes in preexisting rock. Figure 1 shows the temperature and pressure conditions in which certain *facies* (categories of metamorphic rocks) are formed.




(Note: Boundaries are not actually sharp, distinct lines.)

Figure 1

Figure adapted from Sheldon Judson, Marvin Kauffman, and L. Don Leet, *Physical Geology*. ©1982 by Prentice-Hall, Inc.

A rock's *metamorphic grade* (a measure of the intensity of metamorphism) is classified on a scale of low (very similar to the original rock) to high (very different from the original rock). Table 1 lists the grades of Facies A–G from Figure 1. Figure 2 shows characteristic minerals that may be present in rocks of a given grade.

Table 1

| Facies | Metamorphic grade* |
|---|---|
| A | low |
| B | low |
| C | low to medium |
| D | low to medium |
| E | medium |
| F | medium to high |
| G | high |

*Metamorphic grade is a measure of the intensity of metamorphism.

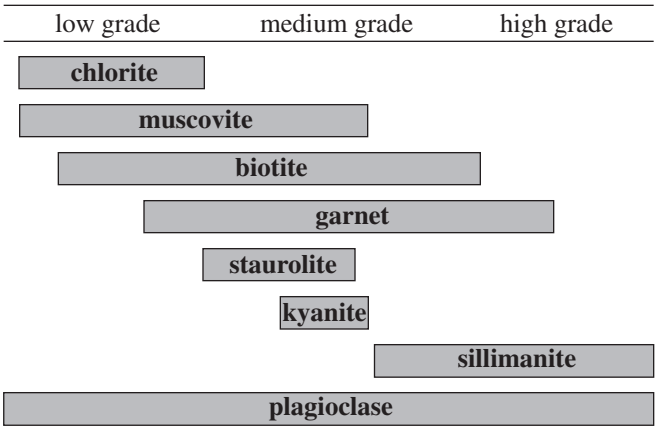



Figure 2

Figure 2 adapted from Frank Press and Raymond Siever, *Earth*. ©1986 by W. H. Freeman and Co.

**1.** According to Figure 2, which of the following minerals would most typically be found only in rocks of a medium grade?

**A.** Muscovite
**B.** Biotite
**C.** Kyanite
**D.** Plagioclase

**2.** According to Figure 1, a Facies G rock will most likely form under which of the following pressure and temperature conditions?

| | Pressure | Temperature |
|---|---|---|
| **F.** | 3 kb | 800°C |
| **G.** | 5 kb | 400°C |
| **H.** | 8 kb | 1,000°C |
| **J.** | 11 kb | 600°C |

**3.** Figure 1 indicates that as depth increases, pressure:

**A.** decreases only.
**B.** remains the same.
**C.** increases only.
**D.** increases, then decreases.

**4.** According to Figure 2, the presence of which of the following minerals in a metamorphic rock would be *least* helpful in determining that rock's grade?

**F.** Chlorite
**G.** Muscovite
**H.** Staurolite
**J.** Plagioclase

**5.** *Hornfels* is a metamorphic rock formed when *magma* (molten rock) heats sedimentary rocks on Earth's surface. According to Figure 1, hornfels is most likely a member of which of the following facies?

**A.** Facies A
**B.** Facies C
**C.** Facies E
**D.** Facies G

## Passage II

In 1908, an object from outer space devastated 2,000 $km^2$ of forest in Siberia. The object was between 10 m and 100 m in diameter and traveled at a maximum speed of 15 km/sec. It exploded at an altitude of 8 km and released energy equivalent to 20 million tons of TNT. Two scientists discuss whether this object was a comet or an asteroid.

*Scientist 1*

The object was a comet, a body made of ices (such as frozen water or methane) and dust. Most of this cometary material is *volatile* (easily vaporized) and low in density. Friction in Earth's atmosphere heated the comet to a temperature at which it exploded, high above the ground. The majority of the ices and dust were vaporized in the explosion, which explains why no crater was formed at the site and why no large, identifiable fragments of the object were found. An asteroid would not have been completely destroyed. Intact asteroid fragments that reached the ground would have created one or more craters upon impact and left behind recoverable pieces. Evidence shows that the object decelerated rapidly before it exploded. Because of their low density, comets are capable of such rapid deceleration, whereas high-density objects, such as asteroids, are not.

*Scientist 2*

The object was a stony asteroid. As it entered Earth's atmosphere, its high speed created a large air pressure difference between the area just in front of the asteroid and the area just behind the asteroid. The large pressure difference eventually exceeded the structural strength of the asteroid. The asteroid flattened, decelerated rapidly due to the dramatic increase in its surface area, and fragmented before reaching the ground. This fragmentation would have appeared like an explosion. Calculations show that a comet between 10 m and 100 m in diameter would explode at an altitude much higher than 8 km, but a stony asteroid of that size would fragment at or near an altitude of 8 km. Recovery of large asteroid fragments is difficult due to the area's boggy soil; however, small, glassy fragments were recovered and are believed to be melted and resolidified pieces of the asteroid.

**6.** Which of the following phrases best describes the major point of difference between the 2 scientists' hypotheses?

**F.** The location of the event
**G.** The speed the object was traveling
**H.** The density of Earth's atmosphere
**J.** The type of object that entered Earth's atmosphere

**7.** According to Scientist 2's viewpoint, compared to the altitude at which a stony asteroid would have exploded in Earth's atmosphere, a comet of similar size would most likely have exploded at:

**A.** the same altitude.
**B.** a higher altitude.
**C.** a slightly lower altitude.
**D.** a much lower altitude.

**8.** Scientist 1's viewpoint indicates that when the materials that compose most of a comet are sufficiently heated, they change to:

**F.** solids.
**G.** gases.
**H.** liquids.
**J.** a vacuum.

**9.** Which of the following statements best describes how Scientist 2 would explain why no large, identifiable fragments of the object have been recovered?

**A.** Any large, identifiable fragments that reached the ground have been removed from the area by erosion.
**B.** Any large, identifiable fragments were thrown hundreds of kilometers from the site.
**C.** No large, identifiable fragments of the object reached the ground.
**D.** No large, identifiable fragments of the object have been recovered due to the soil conditions in the area.

**10.** How would the behavior of the asteroid differ from that described in Scientist 2's viewpoint if the asteroid had not been flattened by the air pressure difference? The asteroid would:

**F.** not have entered Earth's atmosphere.
**G.** have struck another planet in the solar system.
**H.** have decelerated more gradually.
**J.** have frozen.

**11.** Which of the following statements would both scientists most likely use to explain the damage to the forest caused by the object's explosion? Energy from the explosion:

**A.** traveled rapidly down to Earth's surface.
**B.** dissipated in the upper atmosphere.
**C.** was released less than 1 km above Earth's surface.
**D.** was released as the object struck Earth's surface.

**12.** Scientist 1's viewpoint would be *weakened* by which of the following observations about comets, if true?

**F.** Comets are composed mainly of frozen materials.
**G.** Comets are much larger than 100 m in diameter.
**H.** Comets often pass close enough to Earth to intersect Earth's atmosphere.
**J.** Comets orbit the Sun.

## Passage III

The seeds of some plants attract ants with a nutritious structure called an *elaiosome*. The ants carry the seeds to their nests, eat the elaiosomes, and then leave the seeds in a waste pile, where some seeds *germinate* (begin to grow). Three studies were conducted to examine this process.

*Study 1*

For 2 plant species (A and B), seed mass per seed in milligrams (mg), elaiosome mass per seed (mg), and percentage of seed mass composed of elaiosome were recorded (see Table 1).

Table 1

| Species | Seed mass (mg) | Elaiosome mass per seed (mg) | Percentage of seed mass composed of elaiosome |
|---|---|---|---|
| A | 6.8 | 0.420 | 6.2 |
| B | 14.9 | 0.924 | 6.2 |

*Study 2*

Three study sites were established in order to determine the rate of seed collection by a single species of ant for the plants used in Study 1. In Site 1, Species A plants were absent; in Site 2, Species B plants were absent. Both plants were absent in Site 3.

Two seed dishes were placed in each site: 1 containing 20 Species A seeds and 1 containing 20 Species B seeds. The dishes were left out for 48 hours and the number of seeds taken from each dish was recorded. The results appear in Table 2.

Table 2

| Site | Plant species absent | Number of seeds removed from seed dishes containing: | |
|---|---|---|---|
| | | Species A | Species B |
| 1 | A | 13 | 3 |
| 2 | B | 2 | 12 |
| 3 | A and B | 8 | 9 |

Tables 1 and 2 adapted from Brent H. Smith et al., "Frequency-Dependent Seed Dispersal by Ants of Two Deciduous Forest Herbs." ©1989 by the Ecological Society of America.

*Study 3*

The researchers planted 2,550 seeds from a third species, Species C. They also observed 2,550 Species C seeds that were planted by ants in similar environments. All seeds were observed for 2 years. Table 3 presents the results.

Table 3

| Maturation of Species C seeds | Results from: hand-planted seeds | Results from: ant-planted seeds |
|---|---|---|
| Seeds that germinated | 26 | 39 |
| Plants alive after 1 year | 9 | 20 |
| Plants alive after 2 years | 4 | 13 |
| Seeds produced per plant after 2 years | 2,187 | 2,163 |

Table 3 adapted from Frances M. Hanzawa, Andrew J. Beattie, and David C. Culver, "Directed Dispersal: Demographic Analysis of an Ant-Seed Mutualism." ©1988 by The University of Chicago.

**13.** Based on the results of Study 3, one could generalize that compared to hand-planting of seeds, ant-planting of seeds results in:

**A.** increased seed germination.
**B.** increased seed production per plant.
**C.** decreased plant survival after 1 year.
**D.** decreased plant survival after 2 years.

**14.** Which of the following variables was controlled in the design of Study 2 ?

**F.** The number of ants in each site
**G.** The number of seed dishes placed in each site
**H.** The mass of the elaiosome of each seed
**J.** The type of seeds taken by the ants in each site

**15.** According to the results of the studies, Species A and Species B are most similar in that their:

**A.** seed masses are the same.
**B.** germination rates on ant waste piles are the same.
**C.** percentages of elaiosome mass per seed are the same.
**D.** rates of production of seeds after 1 year are the same.

**16.** In Study 2, Site 3 was used to study the:

- **F.** preference of a different ant species for the seeds of both plant species.
- **G.** seed preference of ants in an area in which both plant species were absent.
- **H.** growth and survival of both plant species in an area where ants were not present.
- **J.** effects of elaiosome mass on the seed preference of ants.

**17.** Which of the following is a weakness of the design of Study 2 ?

- **A.** Some plants were not present at each site.
- **B.** Some seeds were not present at each site.
- **C.** The seeds may have been removed from the dishes by animals other than ants.
- **D.** The plants may have been eaten by animals other than ants.

**18.** The results of Study 2 suggest that which of the following factors most affects the seed preference of ants?

- **F.** Seed mass
- **G.** Elaiosome mass
- **H.** Percentage of seed mass composed of elaiosome
- **J.** Abundance of a plant in a given area

## Passage IV

Some students conducted experiments using different brands of adhesive tape, one kind each of paper and plastic, a board, and a spring scale.

*Experiment 1*

A student stuck one end of a piece of tape onto the edge of a board that was wrapped with paper. The other end of the tape was clamped to a spring scale, as shown in Figure 1.

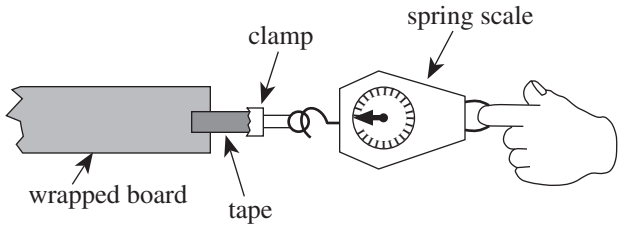



Figure 1

While one student held the board, a second student pulled the spring scale until the tape came off the paper wrapping; a third student recorded the force in newtons, N, indicated on the spring scale at the moment the tape came off the paper wrapping.

The procedure was repeated for 3 different brands of tape; each brand of tape came in many different widths, of which 2 or 3 were tested. The results are shown in Table 1.

Table 1

| Tape brand | Tape width (cm) | Force (N) to remove tape: | | | |
|---|---|---|---|---|---|
| | | Trial 1 | Trial 2 | Trial 3 | Average |
| X | 1.0 | 1.6 | 1.9 | 2.2 | 1.9 |
| | 2.0 | 3.9 | 3.7 | 4.1 | 3.9 |
| | 3.0 | 6.0 | 5.6 | 5.8 | 5.8 |
| Y | 2.0 | 4.0 | 4.5 | 4.3 | 4.3 |
| | 2.5 | 5.4 | 5.1 | 5.7 | 5.4 |
| Z | 1.0 | 2.2 | 1.6 | 1.8 | 1.9 |
| | 2.0 | 4.1 | 3.9 | 3.6 | 3.9 |

*Experiment 2*

The students performed an experiment similar to Experiment 1, except that the paper wrapping was replaced by a plastic wrapping. The results are shown in Table 2.

Table 2

| Tape brand | Tape width (cm) | Force (N) to remove tape: | | | |
|---|---|---|---|---|---|
| | | Trial 1 | Trial 2 | Trial 3 | Average |
| X | 1.0 | 1.7 | 1.5 | 1.6 | 1.6 |
| | 2.0 | 3.2 | 3.2 | 3.3 | 3.2 |
| | 3.0 | 5.0 | 5.0 | 5.1 | 5.0 |
| Y | 2.0 | 4.3 | 4.3 | 4.3 | 4.3 |
| | 2.5 | 5.5 | 5.4 | 5.4 | 5.4 |
| Z | 1.5 | 2.8 | 2.8 | 2.9 | 2.8 |

**19.** The results of the 2 experiments support the conclusion that, for a given brand of tape, as the tape's width increases, the force required to remove the tape from a given wrapping:

**A.** increases only.
**B.** decreases only.
**C.** remains constant.
**D.** varies, but with no particular trend.

**20.** In Experiment 2, had Brand X tape in a 4.0 cm width been tested, the force required to remove the tape from the plastic wrapping would have been closest to:

**F.** 5.0 N.
**G.** 7.0 N.
**H.** 9.0 N.
**J.** 11.0 N.

**21.** Based on the average results of Experiments 1 and 2, which of the following brands of tape adhered better to the paper than to the plastic?

**A.** Brand X
**B.** Brand Y
**C.** Brands X and Y
**D.** Brands Y and Z

**22.** Which brand(s) of tape was/were used at only 2 different widths in both experiments?

**F.** Brand X only
**G.** Brand Y only
**H.** Brand Z only
**J.** Brands Y and Z only

**23.** For the students to determine the force required to remove tape from a wrapping, which of the following attractive forces had to exceed the adhesive force between the tape and the wrapping?

**A.** The force between the clamp and the tape
**B.** The force between the clamp and the paper or plastic wrapping
**C.** The force between the Earth and the wrapping
**D.** The force between the Earth and the tape

**24.** The students' instructor gave them a strip of tape that was 2.5 cm wide and asked them to identify the brand. The students repeated the procedures from Experiments 1 and 2 using the tape and obtained average forces of 4.9 N for paper and 4.1 N for plastic. Which of the following brands would most likely have produced these results?

**F.** Brand X only
**G.** Brand Y only
**H.** Brands X and Y only
**J.** Brands Y and Z only

## Passage V

Researchers conducted an experiment to determine the factors affecting heat flow. In each trial, one or more blocks of a particular material was (were) placed between two walls at constant temperatures $T_1$ and $T_2$ in one of the configurations shown in Figure 1. Heat was transferred through the block(s) from the hotter wall to the cooler wall. This heat flow, measured in joules per second (J/sec), is shown in Table 1.

(Note: All blocks used in the experiment were identical in size and shape. In each configuration, the *contact area* was the surface area of the end of the block(s) against one wall.)

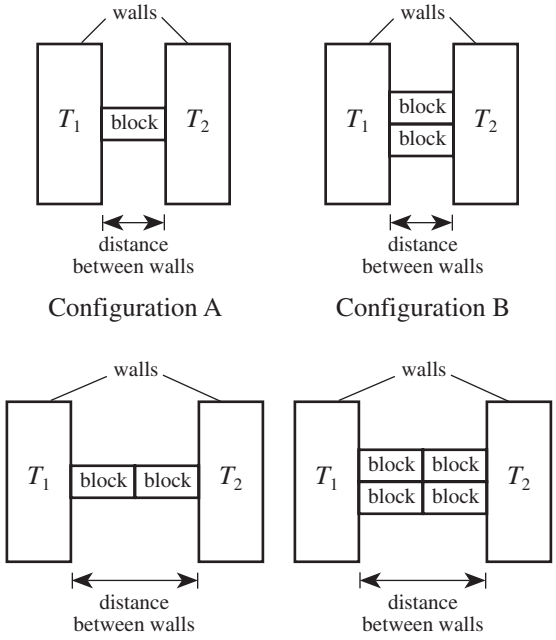



Figure 1

Table 1

| Trial | Block material | Configuration | $T_1$ (°C) | $T_2$ (°C) | Heat flow (J/sec) |
|---|---|---|---|---|---|
| 1 | glass wool | A | 50 | 20 | 0.025 |
| 2 | glass wool | B | 50 | 20 | 0.050 |
| 3 | glass wool | C | 50 | 20 | 0.013 |
| 4 | glass wool | D | 50 | 20 | 0.025 |
| 5 | glass wool | A | 100 | 70 | 0.025 |
| 6 | glass wool | A | 20 | 50 | 0.025 |
| 7 | wood | A | 50 | 20 | 0.072 |
| 8 | brick | A | 50 | 20 | 0.500 |
| 9 | concrete | A | 50 | 20 | 0.540 |
| 10 | steel | A | 50 | 20 | 31 |
| 11 | aluminum | A | 50 | 20 | 140 |
| 12 | aluminum | A | 60 | 20 | 190 |
| 13 | aluminum | A | 70 | 20 | 240 |

**25.** According to the information provided, heat flowed from the wall at temperature $T_2$ to the wall at temperature $T_1$ in which trial?

**A.** Trial 4
**B.** Trial 6
**C.** Trial 10
**D.** Trial 12

**26.** *Insulators* are materials that are poor heat conductors. According to Trials 7 through 10, a wall of a given thickness built of which of the following materials would provide the best insulation between a room and the outdoors?

**F.** Wood
**G.** Brick
**H.** Concrete
**J.** Steel

**27.** The results of Trials 1 and 5 are consistent with the hypothesis that heat flow from a hotter wall to a cooler wall is dependent on the:

**A.** temperature of the hotter wall only.
**B.** temperature of the cooler wall only.
**C.** sum of the wall temperatures.
**D.** difference between the wall temperatures.

**28.** Materials differ in their *thermal conductivities*: the higher the thermal conductivity, the greater the heat flow through the material. According to Trials 6 through 11, which of the following statements about relative thermal conductivities is NOT true?

**F.** Brick has a higher thermal conductivity than glass wool.
**G.** Brick has a higher thermal conductivity than wood.
**H.** Steel has a higher thermal conductivity than aluminum.
**J.** Steel has a higher thermal conductivity than concrete.

**29.** Trials 1 and 3 provide evidence that heat flow depends on which of the following factors?

**A.** Distance between walls
**B.** Contact area
**C.** Temperature of the hotter wall
**D.** Temperature of the cooler wall

## Passage VI

*Flameless ration heaters* (FRHs) are used by combat soldiers to heat their meals in the field. The heat is produced when magnesium reacts with water:

$$Mg(s) + 2H_2O(l) \rightarrow Mg(OH)_2(s) + H_2(g) + \text{heat}$$

The rate of the reaction increases in the presence of iron (Fe) and sodium chloride (NaCl). The following experiments were done to determine how to design FRHs.

*Experiment 1*

A 1.0-mole (mol) piece of Mg ribbon, 0.10 mol of Fe powder, and 0.10 mol of NaCl were added to 25 mL of $H_2O$ at 20°C in an insulated container. The mixture was stirred constantly and its temperature was measured every 50 sec. The experiment was repeated with Mg ribbon cut into 100 pieces and with Mg powder (see Figure 1).

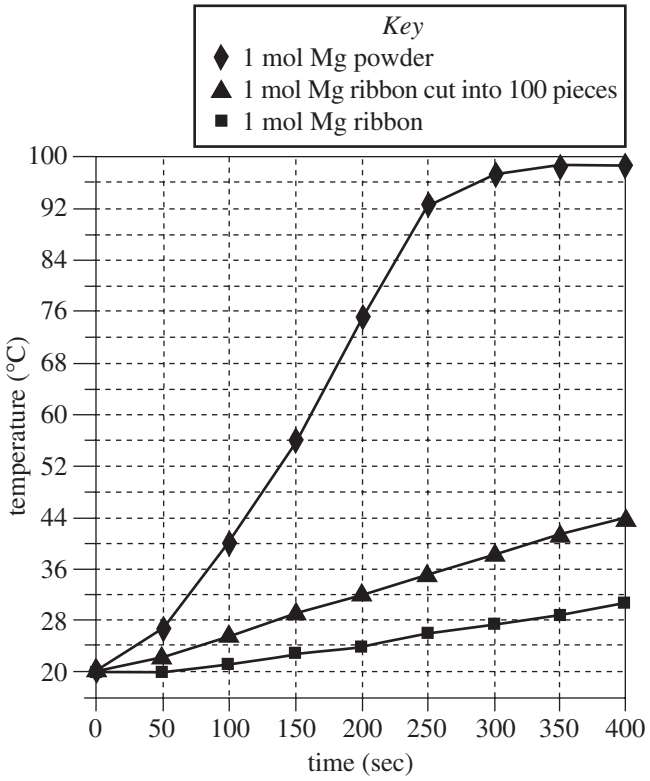



Figure 1

*Experiment 2*

Powdered Mg (0.10 mol) was mixed with 0.10 mol of NaCl. The mixture was added to 100 mL of $H_2O$ at 20°C in an insulated container. The mixture was stirred constantly and the maximum temperature increase that occurred within 15 min was recorded. The procedure was repeated with different amounts of Fe powder added to each mixture (see Table 1).

Table 1

| Fe added (mol) | Maximum temperature increase (°C) |
|---|---|
| 0 | 4 |
| 0.10 | 23 |
| 0.20 | 34 |
| 0.30 | 44 |
| 0.40 | 55 |
| 0.50 | 66 |
| 0.60 | 66 |
| 0.70 | 66 |

*Experiment 3*

Powdered Mg (0.10 mol) was mixed with 0.50 mol of Fe powder and added to 100 mL of $H_2O$ at 20°C in an insulated container. The mixture was stirred constantly and the maximum temperature increase that occurred within 15 min was recorded. The procedure was repeated with different amounts of NaCl (see Table 2).

Table 2

| NaCl added (mol) | Maximum temperature increase (°C) |
|---|---|
| 0 | 0 |
| 0.025 | 19 |
| 0.050 | 34 |
| 0.075 | 50 |
| 0.100 | 66 |
| 0.125 | 82* |

*Solution was boiling.

**30.** Which of the following is the most likely reason that amounts greater than 0.125 mol of NaCl were not tested in Experiment 3 ? The results showed that:

**F.** adding more NaCl no longer increased the reaction rate.
**G.** adding more NaCl would decrease the reaction rate.
**H.** the boiling point was reached, so no further data could be gathered with this procedure.
**J.** more Fe would need to be added for any greater increase in temperature to occur.

**31.** Based on the results of Experiment 3, one can reasonably conclude that as the amount of NaCl added increased from 0 mol to 0.100 mol, the maximum rise in temperature within 15 min of the start of the reaction:

**A.** increased only.
**B.** increased, then stayed the same.
**C.** decreased only.
**D.** decreased, then stayed the same.

**32.** If a trial had been done in Experiment 3 with 0.060 mol of NaCl added, the maximum temperature increase of the mixture that would have occurred within 15 min would have been closest to:

**F.** 34°C.
**G.** 42°C.
**H.** 50°C.
**J.** 62°C.

**33.** Which of the following factors affecting the reaction of Mg and $H_2O$ was studied in Experiment 1, but not in Experiments 2 or 3 ?

**A.** Reaction temperature
**B.** Addition of NaCl
**C.** Addition of Fe
**D.** Surface area of Mg

**34.** An engineer is designing an FRH, to be used with 100 mL of $H_2O$, that will most rapidly generate the greatest amount of heat with the *least* amount of materials. Based on the results of Experiments 1, 2, and 3, which of the following specifications should she choose?

**F.** 0.50 mol Fe powder, 0.125 mol NaCl, and 0.10 mol of Mg powder
**G.** 0.50 mol Fe powder, 0.125 mol NaCl, and 0.10 mol of Mg ribbon
**H.** 0.70 mol Fe powder, 0.125 mol NaCl, and 0.10 mol of Mg powder
**J.** 0.70 mol Fe powder, 0.125 mol NaCl, and 0.10 mol of Mg ribbon

**35.** It has been observed that as Mg and $H_2O$ react, the $Mg(OH)_2$ (magnesium hydroxide) that is produced forms an unreactive coating on the Mg surface. Which of the following models for why NaCl speeds up the reaction is most consistent with this observation and the results of the experiments?

**A.** NaCl absorbs heat produced in the reaction, causing the $Mg(OH)_2$ to melt off of the Mg surface.
**B.** NaCl binds with Fe to inhibit the reaction of Mg with $H_2O$.
**C.** NaCl reacts with $Mg(OH)_2$ to form a stronger barrier against $H_2O$.
**D.** NaCl reacts with $Mg(OH)_2$, removing the coating from the Mg, allowing more contact with $H_2O$.

## Passage VII

*Enzymes* are large protein molecules that increase the rate of chemical reactions in living systems. The *substrate* is the substance that interacts with the enzyme in a reaction. The *acceleration factor* is the factor by which the enzyme increases the rate of a reaction. Figures 1–3 show the effects that changes in temperature, pH, and substrate concentration have on the rate of reaction of a substrate when Enzymes A and B are present. Figure 4 shows the effects that changes in the concentrations of Enzymes A and B have on the rates of reaction in substrate solutions of the same concentration.

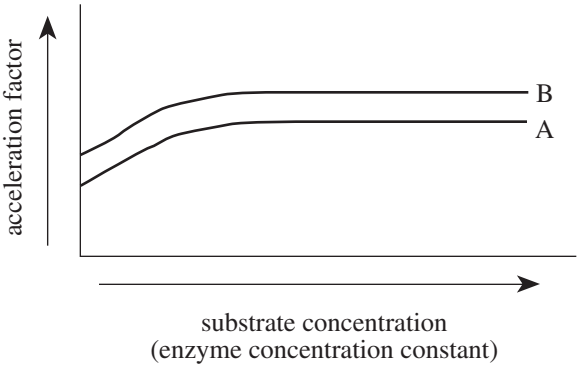



Figure 3

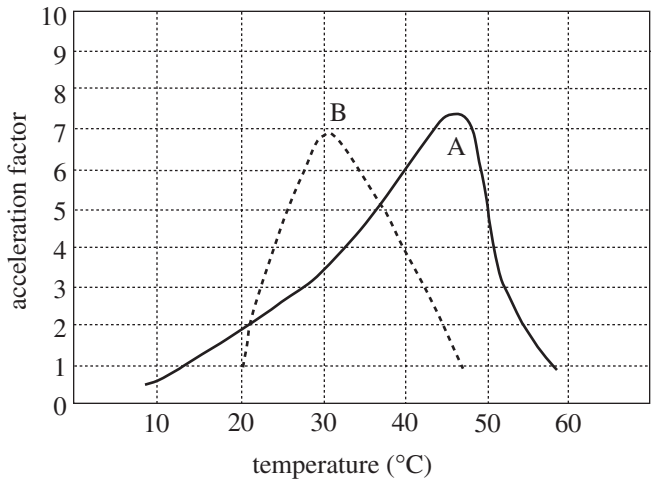



Figure 1

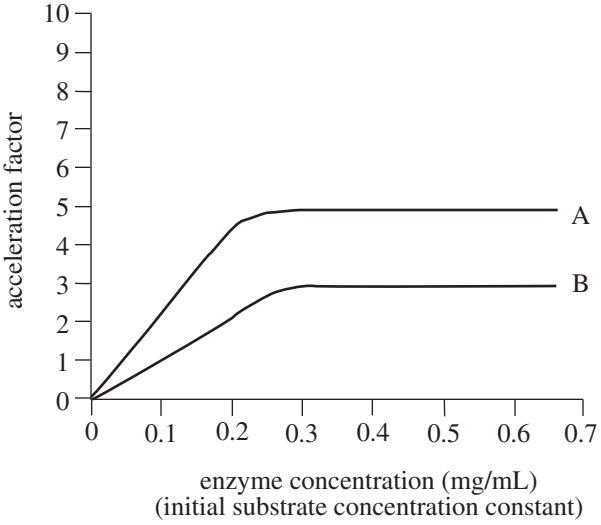



Figure 4

Figures adapted from Carl M. Raab, *Reviewing Biology*. ©1987 by Amsco School Publications, Inc.

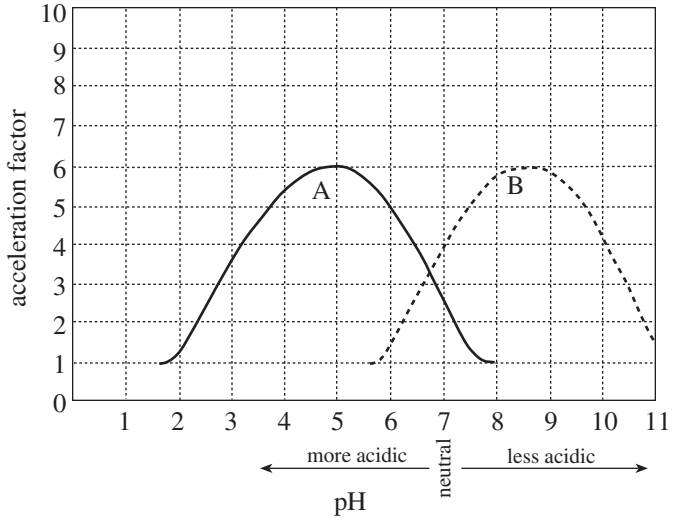



Figure 2

**36.** According to Figure 2, Enzyme A has the fastest rate of reaction at a pH closest to:

**F.** 5.
**G.** 6.
**H.** 8.
**J.** 9.

**37.** Based on the data in Figure 2, at which of the following pHs, if any, do Enzymes A and B have the same acceleration factor?

**A.** At pH 5 only
**B.** At pH 6.7 only
**C.** At all pHs between 2 and 11
**D.** At none of the pHs shown in the figure

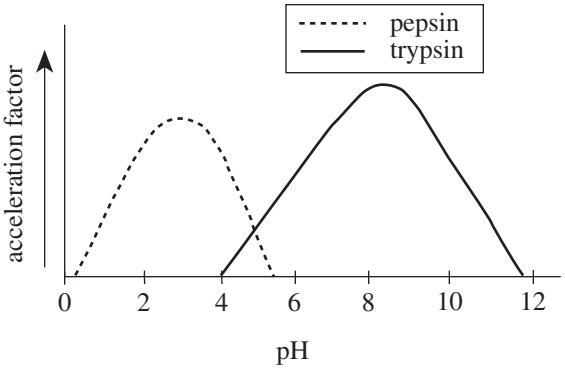
**38.** A scientist claims that the acceleration factor of Enzyme B is dependent on both enzyme and substrate concentration. Do the data in Figures 3 and 4 support her claim?

- **F.** No; the acceleration factor is dependent on enzyme concentration, but not on substrate concentration.
- **G.** No; the acceleration factor is not dependent on either enzyme or substrate concentration.
- **H.** Yes; the acceleration factor is dependent on enzyme concentration, but not on substrate concentration.
- **J.** Yes; the acceleration factor is dependent on both enzyme and substrate concentration.

**39.** A scientist claims that for the conditions used to obtain the data for Figure 4, the acceleration factor of Enzyme B at a given concentration will always be greater than that of Enzyme A at the same concentration. Do the data support his conclusion?

- **A.** No; Enzyme B shows a lower acceleration factor at all the enzyme concentrations tested.
- **B.** No; Enzyme B shows a lower acceleration factor at all the substrate concentrations tested.
- **C.** Yes; Enzyme B shows a higher acceleration factor at all the enzyme concentrations tested.
- **D.** Yes; Enzyme B shows a higher acceleration factor at all the substrate concentrations tested.

**40.** The figure below shows the relative acceleration factors for *pepsin*, an enzyme found in the stomach, and *trypsin*, an enzyme found in the small intestine.




Based on this figure and Figure 2, one would best conclude that compared to the acidity of solutions in the stomach, the solutions in the small intestine are:

- **F.** more acidic.
- **G.** less acidic.
- **H.** equally acidic.
- **J.** less acidic for pepsin, but more acidic for trypsin.

**END OF TEST 4**

**STOP! DO NOT RETURN TO ANY OTHER TEST.**

**Note:** If you plan to take the ACT Writing Test, take a short break and then continue testing on page 57.

If you do not plan to take the ACT Writing Test, turn to page 59 for instructions on scoring your multiple-choice tests.