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

A muscle *twitch* (a stimulus-contraction-relaxation cycle) is divided into 3 phases (the *latent period*, the *contraction phase*, and the *relaxation phase*) based on the timing of the stimulus and changes in the force generated by the muscle. Table 1 shows when each phase starts and ends.

Table 1

Phase	Start	End
Latent period	Onset of stimulus occurs.	Force begins to increase.
Contraction phase	Force begins to increase.	Force begins to decrease.
Relaxation phase	Force begins to decrease.	Force stops decreasing.

Figure 1 shows the force generated by an *adductor pollicis* (a thumb muscle) undergoing an *isometric twitch* (a twitch that does not change the muscle's length). In Figure 1, force is given in newtons (N) and time is given in milliseconds (msec).

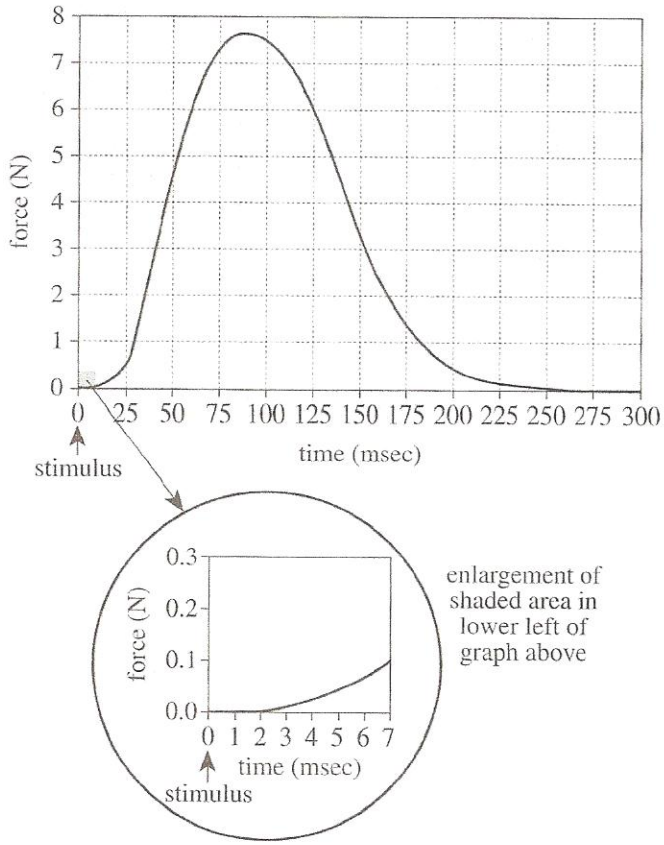


Figure 1

Figure 1 adapted from R. F. Schmidt, *Fundamentals of Neurophysiology*, 3rd ed. ©1985 by Springer-Verlag.

1. According to Figure 1, over which of the following time periods of the isometric twitch of the adductor pollicis does the force generated by the adductor pollicis both increase and decrease?

   A. 0–50 msec
   B. 50–100 msec
   C. 100–150 msec
   D. 150–200 msec

2. Based on Table 1 and Figure 1, what is the correct order of the 3 phases of the isometric twitch of the adductor pollicis, from the phase with the shortest duration to the phase with the longest duration?

   F. Latent period, contraction phase, relaxation phase
   G. Latent period, relaxation phase, contraction phase
   H. Contraction phase, relaxation phase, latent period
   J. Contraction phase, latent period, relaxation phase

3. According to Figure 1, during the isometric twitch of the adductor pollicis, the time that elapses from the start of the twitch until the muscle contracts with the greatest force is closest to which of the following?

   A. 30 msec
   B. 90 msec
   C. 150 msec
   D. 210 msec

4. If an adductor pollicis is stimulated multiple times at a high frequency, it can undergo a *tetanic contraction* (a sustained muscle contraction that prevents relaxation). In this state, the muscle generates a force that is about 2 times the maximum force generated during an isometric twitch. Based on Figure 1, during a tetanic contraction, the muscle would generate a force of about:

   F. 5 N.
   G. 15 N.
   H. 25 N.
   J. 35 N.

5. According to Figure 1, during the isometric twitch of the adductor pollicis, the muscle begins to generate force at approximately which of the following times?

   A. 2 msec before the stimulus occurs
   B. 10 msec before the stimulus occurs
   C. 2 msec after the stimulus occurs
   D. 10 msec after the stimulus occurs

Passage II

In August, the ozone (O_3) content of the stratosphere above Antarctica begins to decrease, reaching a minimum around October 15. Over this period, winds surrounding this *ozone hole* keep it isolated from adjacent areas where the air has greater O_3 content. In late October, the winds weaken, causing the O_3 content of the air in the ozone hole to increase again as this air mixes with the air from adjacent areas. Figures 1 and 2 show how the air temperature and *O_3 partial pressure* (a measure of O_3 content), respectively, changed with altitude in a portion of the stratosphere above a location in Antarctica on September 15, October 15, and November 15, 2000.

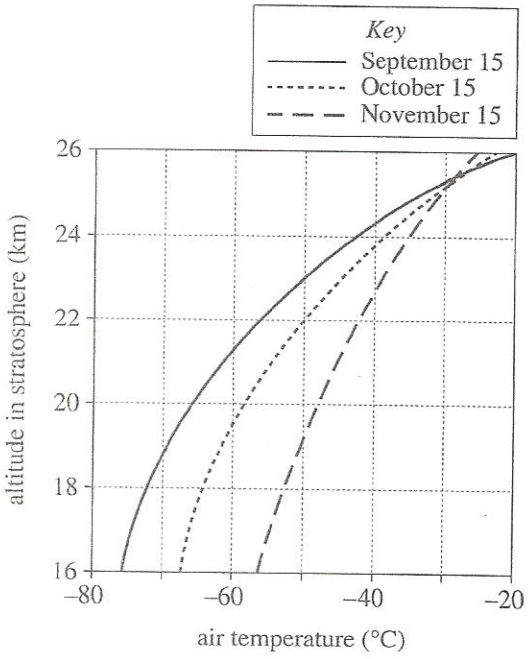
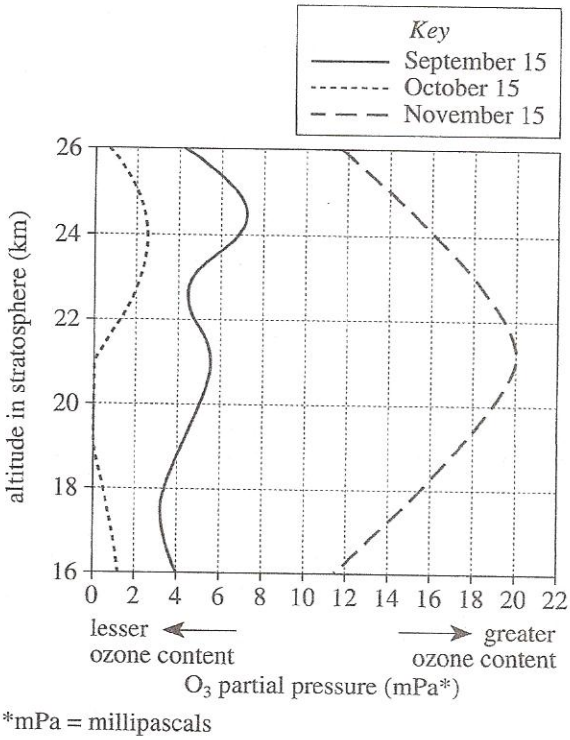


Figure 1



*mPa = millipascals

Figure 2

Figures adapted from O. Troshichev and I. Gabis, "Effects of Solar UV Irradiation on Dynamics of Ozone Hole in Antarctica." ©2005 by Elsevier, Ltd.

According to Figure 2, on October 15, 2000, the O_3 partial pressure was zero for all altitudes in which of the following ranges?

F. 18 km–20 km
G. 19 km–21 km
H. 20 km–22 km
J. 21 km–23 km

According to Figure 2, over the altitude range from 16 km to 26 km, what was the approximate maximum value of the O_3 partial pressure on September 15, 2000, and November 15, 2000, respectively?

	September 15	November 15
A.	2 mPa	7 mPa
B.	7 mPa	20 mPa
C.	20 mPa	2 mPa
D.	20 mPa	7 mPa

According to Figure 1, of the following altitudes, at which one did the air temperature vary the *least* from October 15, 2000, to November 15, 2000 ?

F. 22 km
G. 23 km
H. 24 km
J. 25 km

9. Consider the information in the passage about the annual changes in O_3 content in the stratosphere above Antarctica. Based on this information and Figure 2, on October 1, 2000, at an altitude of 18 km above the location in Antarctica, the O_3 partial pressure would most likely have been:

A. less than 4 mPa.
B. between 4 mPa and 5 mPa.
C. between 6 mPa and 7 mPa.
D. greater than 7 mPa.

10. Consider the ultraviolet radiation that reached the location in Antarctica on September 15, 2000, on October 15, 2000, and on November 15, 2000, after having passed through the stratosphere. Based on Figure 2, on which of the 3 dates was the intensity of the radiation greatest?

F. September 15, because the O_3 partial pressure averaged over the altitudes from 16 km to 26 km was the least on that date.
G. October 15, because the O_3 partial pressure averaged over the altitudes from 16 km to 26 km was the greatest on that date.
H. October 15, because the O_3 partial pressure averaged over the altitudes from 16 km to 26 km was the least on that date.
J. November 15, because the O_3 partial pressure averaged over the altitudes from 16 km to 26 km was the greatest on that date.

Passage III

In a chemistry class, the teacher placed a beaker containing a clear green liquid on a heat source. Over the next 12 min, the volume of the liquid steadily decreased and the liquid darkened in color. At 12 min, a white solid appeared that floated on top of the remaining liquid. At 16 min, all of the liquid was gone and only the white solid remained.

The teacher asked 4 students to provide explanations for what occurred over the 16 min.

Student 1

The beaker initially contained a solution made by dissolving a white solid in a pure, green solvent. Over the first 12 min, the solvent evaporated, causing the concentration of the dissolved solid to increase. At 12 min, the volume of solvent had decreased to a point at which the solid was no longer soluble, so it started to exit the solution. At 16 min, all of the solvent had evaporated.

Student 2

The beaker initially contained a solution made by dissolving a white solid in a pure, colorless solvent. Each molecule of the dissolved solid paired with (but did not react with) a solvent molecule to form a green-colored *solute-solvent complex* (SSC). Over the first 12 min, the solvent evaporated, causing the concentration of the SSC to increase. At 12 min, the volume of solvent had decreased to a point at which the solid was no longer soluble, so it started to exit the solution. At 16 min, all of the solvent had evaporated.

Student 3

The beaker initially contained a solution made by dissolving a green solid in a pure, colorless solvent. Over the first 12 min, the solvent evaporated, causing the concentration of the dissolved solid to increase. At 12 min, the high concentration and heat caused all of the dissolved solid to instantly react with some of the solvent to form an insoluble white solid. At 16 min, all of the remaining solvent had evaporated.

Student 4

The beaker initially contained a pure, green liquid. Over the first 12 min, the liquid slowly decomposed, but did not evaporate. At 12 min, the volume of liquid had decreased to a point at which the product of the decomposition was no longer soluble, so it started to exit the solution. At 16 min, all of the green liquid had decomposed.

11. Which of the students would agree that, before heating, the liquid in the beaker was a mixture of substances?

- **A.** Student 1 only
- **B.** Student 4 only
- **C.** Students 1, 2, and 3 only
- **D.** Students 1, 2, and 4 only

12. Based on Student 1's explanation, why did the volume of the liquid decrease over the first 12 min of heating?

- **F.** Heat caused an SSC to form.
- **G.** Heat caused a liquid to decompose into a solid.
- **H.** Heat caused a solid to be converted to a liquid.
- **J.** Heat caused a liquid to be converted to a gas.

13. Based on the description of the teacher's demonstration, was the density of the white solid that formed at 12 min less than or greater than the density of the remaining green liquid?

- **A.** Less, because the solid did not sink in the liquid.
- **B.** Less, because the solid sank in the liquid.
- **C.** Greater, because the solid did not sink in the liquid.
- **D.** Greater, because the solid sank in the liquid.

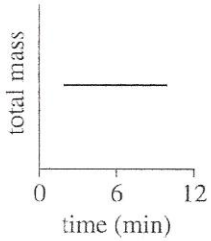
14. A chemist claimed that, in absence of a solute, NONE of the known liquids are green in color. This claim is *inconsistent* with the explanation(s) given by which of the students?

- **F.** Student 4 only
- **G.** Students 1 and 4 only
- **H.** Students 2 and 3 only
- **J.** Students 1, 2, and 3 only

15. Do Students 1 and 3 differ in their explanations of the source of the liquid's green color?

- **A.** No; both students claim that the source is a dissolved solid.
- **B.** No; both students claim that the source is a solvent.
- **C.** Yes; Student 1 claims that the source is a dissolved solid, whereas Student 3 claims that the source is a solvent.
- **D.** Yes; Student 1 claims that the source is a solvent, whereas Student 3 claims that the source is a dissolved solid.

Suppose the total mass of the beaker and contents was monitored from time = 2 min to time = 10 min during the heating and that the results were plotted in the graph shown below.



These results would have been most consistent with the explanation given by which student?

F. Student 1
G. Student 2
H. Student 3
J. Student 4

17. Suppose that after the demonstration, a colorless liquid had been mixed with the solid remaining in the beaker and the liquid then turned green. This observation would have been most consistent with the explanation given by which student?

A. Student 1
B. Student 2
C. Student 3
D. Student 4

Passage IV

Scientists investigated the effect of ultraviolet-B radiation (UV-B) on the eggs of 3 species of amphibians: *Hyla regilla*, *Rana cascadae*, and *Bufo boreas*. *H. regilla* populations are stable, but *R. cascadae* and *B. boreas* populations are declining.

Experiment 1

First, 1,800 newly laid eggs of *H. regilla* were collected from a high mountain lake. Next, 150 of the eggs were placed in each of 12 artificial enclosures: 4 that were covered with a filter, FB, that blocked UV-B; 4 that were covered with a filter, FT, that transmitted UV-B; and 4 that were not covered with any filter. Then, a set of these 3 types of enclosures was placed in the lake at each of 4 sites. All of the above procedures were repeated for the other 2 species. The enclosures were monitored until all the eggs had either hatched or died. The percent of total eggs that hatched for each species and type of enclosure is shown in Figure 1.

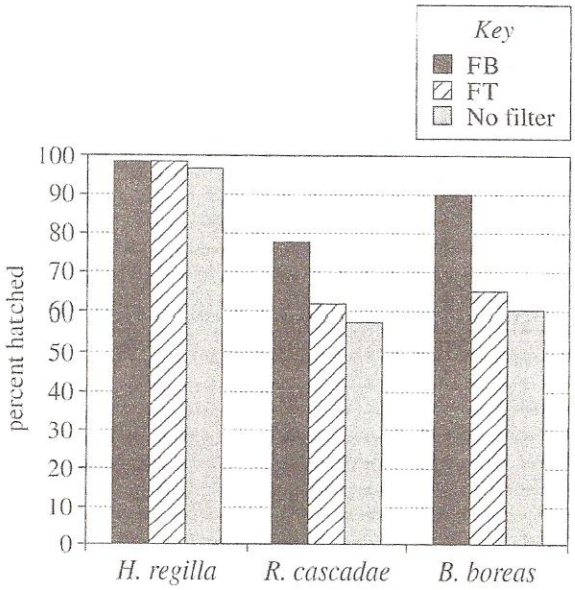


Figure 1

Experiment 2

Additional *B. boreas* eggs were collected and divided into 8 groups (Groups 1–8), each containing 30 eggs. Group 1 was not exposed to UV-B. Groups 2–8 were each exposed to a single dose of UV-B between 820 joules per square meter (J/m^2) and 4,100 J/m^2 (see Table 1). The percent of eggs that were surviving in each group was recorded each day for 10 days (see Figure 2).

Table 1

Group	UV-B dose (J/m^2)
1	0
2	820
3	1,368
4	1,915
5	2,460
6	2,730
7	3,550
8	4,100

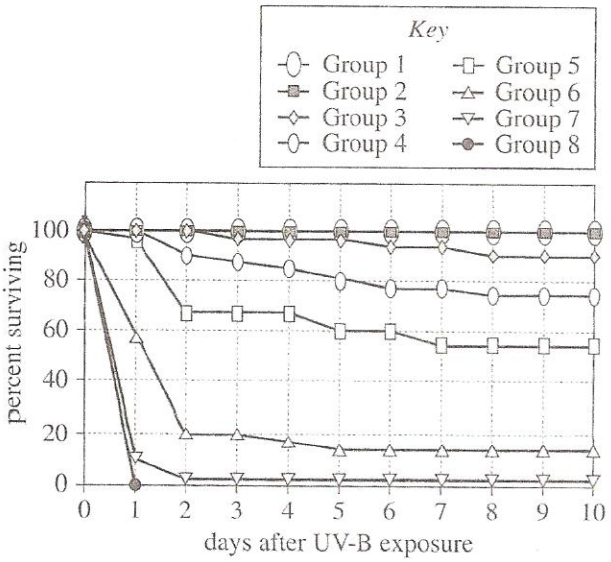
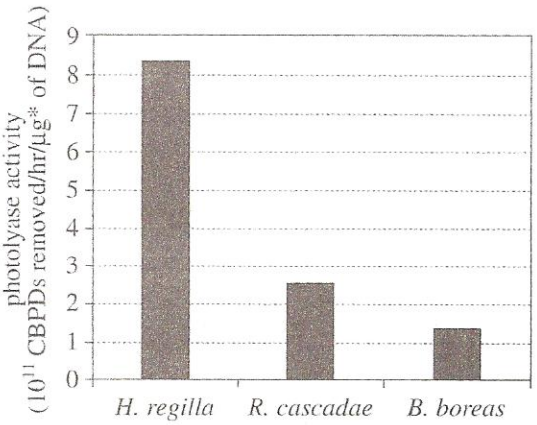


Figure 2

Table 1 and Figure 2 adapted from J. Herkovits, J. L. D'Eramo, and O. Fridman, "The Effect of UV-B Radiation on *Bufo arenarum* Embryos Survival and Superoxide Dismutase Activity." ©2006 by MDPI.

iment 3

JV-B damages cells by causing *cyclobutane pyrimidimers* (CBPDs) to be produced in their DNA. *Pho-e* is an enzyme found in some cells that repairs DNA moving CBPDs. The *photolyase activity* (the rate at CBPDs are removed from DNA) present in the eggs h of the 3 species was recorded (see Figure 3).



*µg = microgram

Figure 3

s 1 and 3 adapted from Andrew R. Blaustein et al., "UV and Resistance to Solar UV-B in Amphibian Eggs: A Link to ıtion Declines?" ©1994 by the National Academy of Sciences United States of America.

ccording to the results of Experiment 2, for which of ıe following groups did the percent of eggs surviving ecrease more over the first day after exposure than ver any subsequent day after exposure?

. Group 2
. Group 4
. Group 5
. Group 7

ccording to the results of Experiment 2, as the dose f UV-B increased from 820 J/m^2 to 4,100 J/m^2, how d the percent of *B. boreas* eggs that were surviving) days after UV-B exposure vary with dose?

. Increased only
. Decreased only
. Increased, then decreased
. Decreased, then increased

20. According to the results of Experiment 1, eggs of which of the 3 species suffered less than 5% mortality when exposed to UV-B ?

F. *H. regilla* only
G. *H. regilla* and *B. boreas* only
H. *R. cascadae* and *B. boreas* only
J. *H. regilla*, *R. cascadae*, and *B. boreas*

21. Based on the results of Experiment 3, did *H. regilla* or *B. boreas* exhibit a greater rate of removal of CBPDs ?

A. *H. regilla*, because the photolyase activity was lower for *H. regilla* than for *B. boreas*.
B. *H. regilla*, because the photolyase activity was higher for *H. regilla* than for *B. boreas*.
C. *B. boreas*, because the photolyase activity was lower for *B. boreas* than for *H. regilla*.
D. *B. boreas*, because the photolyase activity was higher for *B. boreas* than for *H. regilla*.

22. Following the experiment, the scientists wanted to calculate how many more *B. boreas* eggs hatched in enclosures with FBs than in enclosures with no filters. Based on the results of Experiment 1, which of the following expressions gives this number?

F. $(0.90 \div 600) + (0.60 \div 600)$
G. $(0.90 \times 600) - (0.60 \times 600)$
H. $(0.90 - 600) \times (0.60 - 600)$
J. $(0.90 + 600) \div (0.60 + 600)$

23. A scientist suggested that the decline in some amphibian populations is caused by an increase in UV-B exposure. Experiment 1 provided which of the following pieces of evidence in support of this hypothesis? For *R. cascadae* and *B. boreas* the percent hatched was:

A. greater for enclosures with FBs than for enclosures with FTs, whereas for *H. regilla* the percent hatched for enclosures with FBs was the same as for enclosures with FTs.
B. less for enclosures with FBs than for enclosures with FTs, whereas for *H. regilla* the percent hatched for enclosures with FBs was the same as for enclosures with FTs.
C. the same for enclosures with FBs as for enclosures with FTs, whereas for *H. regilla* the percent hatched was greater for enclosures with FBs than for enclosures with FTs.
D. the same for enclosures with FBs as for enclosures with FTs, whereas for *H. regilla* the percent hatched was less for enclosures with FBs than for enclosures with FTs.

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Passage V

In an enclosed space, an aqueous salt solution produces an atmosphere that has a constant relative humidity (*RH*). Chemists did 3 experiments to study this phenomenon using 5 identical apparatuses. One of the 5 is shown in Figure 1.

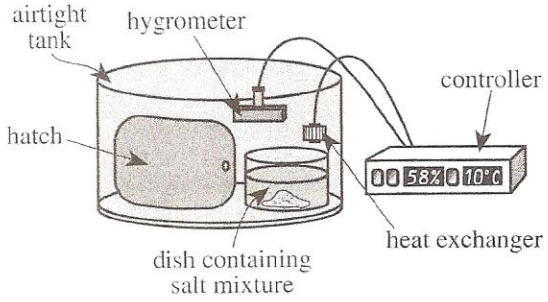

Figure 1

A hatch could be opened to place a dish containing a *salt mixture* (solid salt in an aqueous solution of the salt) in the airtight tank. A heat exchanger could increase or decrease the temperature in the tank. A *hygrometer* measured the *RH* in the tank and the *aqueous tension* (a measure of the tendency of the H_2O to evaporate from a solution) of the salt mixture in the tank. The controller regulated the temperature and recorded the hygrometer readings.

Experiment 1

On Day 1, in preparation for the experiment, a drying agent was placed in each tank. Then, 5 salt mixtures were made by placing an excess of a salt in H_2O. The mixtures were stirred overnight.

By Day 2, the *RH* in each tank was 0.0%, so the drying agent was removed from each tank. Then, 5 dishes, each containing 1 of the 5 salt mixtures, were placed in separate tanks. The temperature in each tank was adjusted to a constant 10°C. By Day 3, the *RH* and the aqueous tension had each reached a constant value in each tank (see Table 1).

Table 1

Tank	Salt in mixture	*RH* (%)	Aqueous tension (torr)
1	KOH	13	1.2
2	K_2SO_4	98	9.0
3	$MgCl_2$	34	3.1
4	$Mg(NO_3)_2$	57	5.2
5	NaCl	76	7.0

Experiment 2

Experiment 1 was repeated except that the temperature in each tank was maintained at 30°C (see Table 2).

Table 2

Tank	Salt in mixture	*RH* (%)	Aqueous tension (torr)
1	KOH	7	2.2
2	K_2SO_4	96	30
3	$MgCl_2$	33	11
4	$Mg(NO_3)_2$	52	17
5	NaCl	75	24

Experiment 3

Experiment 1 was repeated except that the temperature in each tank was maintained at 60°C (see Table 3).

Table 3

Tank	Salt in mixture	*RH* (%)	Aqueous tension (torr)
1	KOH	5	7.5
2	K_2SO_4	96	140
3	$MgCl_2$	30	45
4	$Mg(NO_3)_2$	43	64
5	NaCl	75	110

Tables adapted from James G. Speight, *Lange's Handbook of Chemistry*, 16th ed. ©2005 by McGraw-Hill, Inc.

24. When the results of Experiment 2 were recorded, the moisture content of the air was *lowest* in which tank?

F. Tank 1
G. Tank 2
H. Tank 3
J. Tank 4

25. Suppose another salt, KCl, had been tested in Experiment 3 and that the *RH* recorded for KCl was 81%. The aqueous tension for KCl would most likely have been:

A. less than 45 torr.
B. between 45 torr and 110 torr.
C. between 110 torr and 140 torr.
D. greater than 140 torr.

A student predicted that for a given salt in Experiments 1–3, *RH* would always *decrease* as temperature increased. This prediction was consistent with the results for which, if any, of the salts listed below?

I. $MgCl_2$
II. $Mg(NO_3)_2$
III. NaCl

F. I only
G. I and II only
H. II and III only
J. Neither I, II, nor III

A student predicted that under any of the conditions used in Experiments 1–3, if the *RH* in any 2 tanks was the same, then the aqueous tensions of the salt mixtures in the tanks would be the same. Do the results of Experiments 2 and 3 support this claim?

A. Yes; the *RH* in Tank 2 in Experiment 2 was equal to the *RH* in Tank 3 in Experiment 3, and the aqueous tensions were the same.
B. Yes; the *RH* in Tank 5 in Experiment 2 was equal to the *RH* in Tank 5 in Experiment 3, and the aqueous tensions were the same.
C. No; the *RH* in Tank 2 in Experiment 2 was equal to the *RH* in Tank 3 in Experiment 3, but the aqueous tensions were different.
D. No; the *RH* in Tank 5 in Experiment 2 was equal to the *RH* in Tank 5 in Experiment 3, but the aqueous tensions were different.

28. What was the purpose of the first procedure that was carried out on Day 1 ?

F. To remove any H_2O present in the tanks
G. To make different aqueous salt solutions to place in the tanks
H. To ensure that the temperature in each tank was constant
J. To ensure that the aqueous tension of the salt mixture in each tank was constant

29. In Experiments 1–3, was *RH* an independent variable or a dependent variable?

A. Independent, because *RH* was a factor established directly by the chemists.
B. Independent, because *RH* was a result measured by the chemists.
C. Dependent, because *RH* was a factor established directly by the chemists.
D. Dependent, because *RH* was a result measured by the chemists.

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Passage VI

The pressure, P_L, exerted by a liquid varies with the depth, D, below the surface of the liquid and with the liquid's density, ρ. If a tank of liquid is open to the atmosphere, the total pressure, P_T, at D equals P_L at D plus the atmospheric pressure, P_A.

Table 1 lists ρ, in kilograms per cubic meter (kg/m^3), for 4 liquids at 25°C.

Table 1

Liquid	ρ (kg/m^3)
Carbon tetrachloride	1,580
Ethanol	786
Ethylene glycol	1,130
Water	997

Figure 1 shows, for D = 10 m, a graph of P_L (in kilopascals, kPa) versus ρ (1 kPa = 10^3 Pa = 10^3 newtons/m^2). Figure 2 shows a graph of P_L versus D and a graph of P_T versus D for 25°C water in a tank that was open to the atmosphere on a particular day.

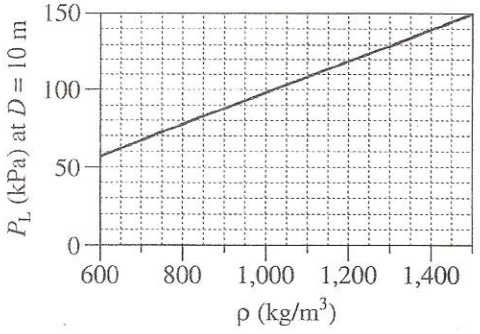

Figure 1

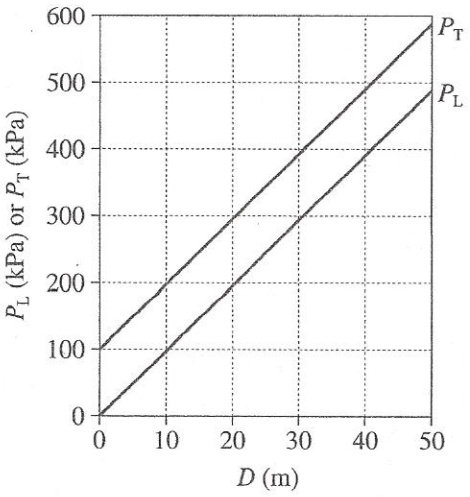

Figure 2

30. What is the correct ranking of the liquids listed in Table 1, from the liquid with the least density at 25°C to the liquid with the greatest density at 25°C ?

- **F.** Carbon tetrachloride, ethanol, ethylene glycol, water
- **G.** Carbon tetrachloride, ethylene glycol, water, ethanol
- **H.** Water, ethanol, carbon tetrachloride, ethylene glycol
- **J.** Ethanol, water, ethylene glycol, carbon tetrachloride

. Based on Table 1 and Figure 1, compared to P_L at $D = 10$ m in 25°C ethanol, P_L at $D = 10$ m in 25°C carbon tetrachloride will be approximately:

A. $\frac{1}{4}$ as great.

B. $\frac{1}{2}$ as great.

C. 2 times as great.

D. 4 times as great.

. Based on Table 1, the mass of 3 m^3 of ethylene glycol at 25°C would be closest to which of the following values?

F. 1,130 kg

G. 2,260 kg

H. 3,390 kg

J. 4,520 kg

33. Based on Figure 2, the relationship between P_L (in kPa) and D (in m) for the water in the tank is best represented by which of the following equations?

A. $P_L = 9.8 \times D$

B. $P_L = \frac{D}{9.8}$

C. $P_L = 19.6 \times D$

D. $P_L = \frac{D}{19.6}$

34. Based on Figure 2, on the particular day, 20 m below the surface of the water in the open tank, P_L plus P_A was closest to which of the following values?

F. 100 kPa

G. 200 kPa

H. 300 kPa

J. 400 kPa

Passage VII

In some locations, drainage water from agricultural areas contains *selenium* (Se), a substance that can be harmful to wildlife. Se can be removed from water by plant uptake or by adsorption onto soil and organic particles. Three studies were done to examine Se removal by human-made wetlands.

Study 1

Five open-water wetlands (Wetlands 1–5), each 15 m × 76 m in area, were constructed at a location in May 1997. At that time, 4 of the wetlands were planted with the same density of 1 or 2 types of wetland plants. From January 1998 through December 2000, drainage water containing an average Se concentration of 22 micrograms per liter (µg/L) was continuously fed into each wetland at a flow rate of 300 m^3/day. The average *residence time* (RT, how long a volume of water remained in the wetland) was determined for each wetland (see Table 1).

Table 1

Wetland	Type(s) of plants in wetland	Average RT (days)
1	bulrush	11
2	none	5
3	cordgrass	10
4	bulrush and cordgrass	19
5	cattail	13

Study 2

Every week from January 1998 through December 2000, the outflow water from each wetland was sampled and analyzed for Se. The average annual Se concentration of the outflow was determined for each year (see Figure 1).

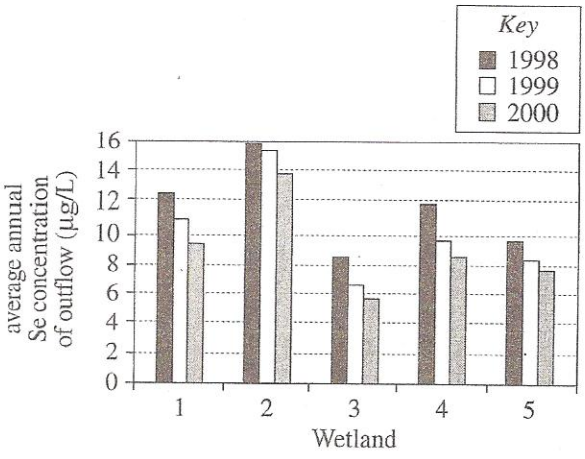

Figure 1

Study 3

In December 2000, samples of each of the following materials were collected from several locations in each wetland: fallen *plant litter* (dead but not decayed plant matter), *organic detritus* (decayed organic matter on top of the soil), and the top 5 cm of the soil. The samples of each material were analyzed for Se, and their average Se concentration, in milligrams per kilogram dry weight (mg/kg dw), was determined (see Figure 2).

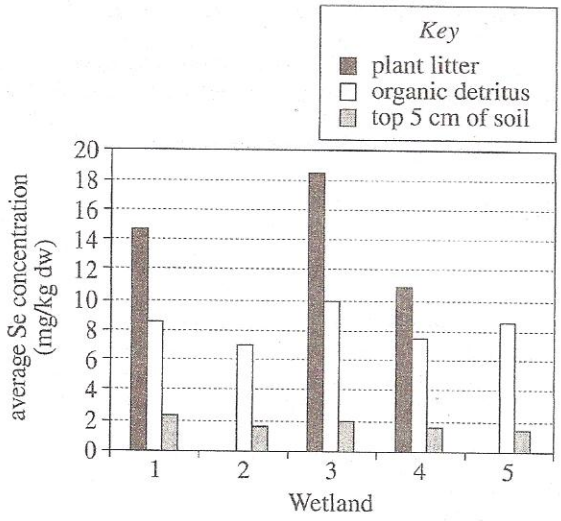

Figure 2

Table and figures adapted from S. Gao et al., "Selenium Removal and Mass Balance in a Constructed Flow-Through Wetland System." ©2003 by the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America.

35. Figure 2 indicates that the average Se concentration of organic detritus, averaged across all 5 wetlands, was closest to which of the following?

A. 2 mg/kg dw
B. 5 mg/kg dw
C. 8 mg/kg dw
D. 11 mg/kg dw

36. In the studies, which wetland served as the control for the effect of plants on Se removal?

F. Wetland 1
G. Wetland 2
H. Wetland 3
J. Wetland 4

37. Is the statement "The outflow having the least average annual Se concentration for 1999 was from the wetland having the greatest average RT" supported by the results of Studies 1 and 2 ?

A. Yes; Wetland 4 had the greatest average RT, and the outflow from Wetland 4 had the least average annual Se concentration for 1999.
B. Yes; Wetland 5 had the greatest average RT, and the outflow from Wetland 5 had the least average annual Se concentration for 1999.
C. No; Wetland 4 had the greatest average RT, but the outflow from Wetland 4 did not have the least average annual Se concentration for 1999.
D. No; Wetland 5 had the greatest average RT, but the outflow from Wetland 5 did not have the least average annual Se concentration for 1999.

38. Water having an Se concentration of 5 μg/L or greater is considered harmful to wetland wildlife. If Study 2 had been continued through December 2001, which wetland would most likely have produced outflow in 2001 having an average annual Se concentration no longer considered harmful to wetland wildlife?

F. Wetland 1
G. Wetland 2
H. Wetland 3
J. Wetland 4

39. Why was the unit of measurement for Se concentration different in Studies 2 and 3 ? In Study 2, the Se concentration:

A. of a liquid was being determined, whereas in Study 3, the Se concentration of each of several solids was being determined.
B. of each of several solids was being determined, whereas in Study 3, the Se concentration of a liquid was being determined.
C. of a liquid was being determined, whereas in Study 3, the Se concentration of a different liquid was being determined.
D. of a solid was being determined, whereas in Study 3, the Se concentration of a different solid was being determined.

40. Do the results of Study 3 for Wetlands 1, 3, and 4 indicate that in these wetlands, plant uptake reduced the Se concentration of the water more than did adsorption onto soil particles?

F. Yes; in these wetlands, the average Se concentration of the plant litter was greater than the average Se concentration of the top 5 cm of soil.
G. Yes; in these wetlands, the average Se concentration of the top 5 cm of soil was greater than the average Se concentration of the plant litter.
H. No; in these wetlands, the average Se concentration of the plant litter was greater than the average Se concentration of the top 5 cm of soil.
J. No; in these wetlands, the average Se concentration of the top 5 cm of soil was greater than the average Se concentration of the plant litter.

END OF TEST 4

STOP! DO NOT RETURN TO ANY OTHER TEST.