

# Practice Questions

for the New York Regents Exam

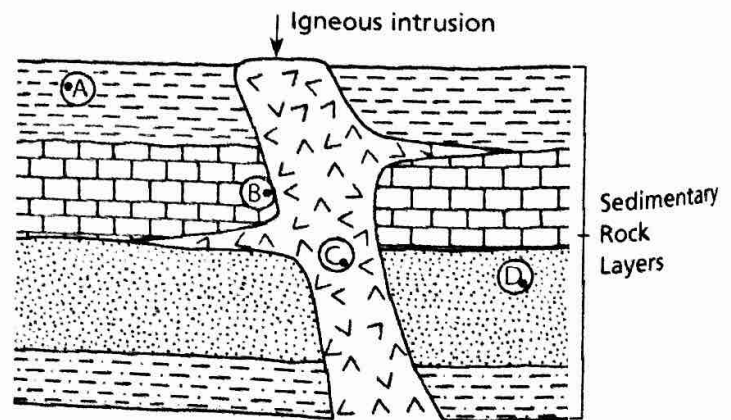
## Directions

Review the Test-Taking Strategies section of this book. Then answer the following questions. Read each question carefully and answer with a correct choice or response.

## Part A

- Which of the following pairs of rocks usually contains only one mineral?
  - rock gypsum and marble
  - sandstone and conglomerate
  - quartzite and schist
  - dunite and gabbro
- Which of the following properties is most useful in mineral identification?
  - hardness
  - color
  - size
  - texture
- Which property of minerals is illustrated by the peeling of biotite mica into thin flat sheets?
  - fracture
  - cleavage
  - a low hardness
  - a weak streak
- The main difference between sedimentary, metamorphic, and igneous rocks is the
  - means by which they are located
  - conditions under which they are formed
  - minerals of which they are composed
  - location in which they are found
- Which rock was formed by the compaction and cementation of particles 0.07 centimeters in diameter?
  - conglomerate
  - sandstone
  - shale
  - siltstone
- Dolostone and rock gypsum are formed by the processes of
  - melting and solidification
  - evaporation and precipitation
  - erosion and deposition of clastic fragments
  - weathering and metamorphism
- Which would most likely cause molten rock material to become glassy igneous rock?
  - cooling over a long period of time
  - cooling under high pressure
  - cooling on Earth's surface
  - cooling at great depth within the crust
- An igneous rock, which has crystallized deep below Earth's surface, has the following approximate composition: 70 percent pyroxene (augite), 15 percent plagioclase feldspar, and 15 percent olivine. What is the name of this igneous rock?
  - granite
  - rhyolite
  - gabbro
  - basalt

Use the following diagram to answer questions 9 and 10. The diagram shows an igneous rock intrusion in sedimentary rock layers.



- At which point would there most likely be contact metamorphic rock?
  - A
  - B
  - C
  - D

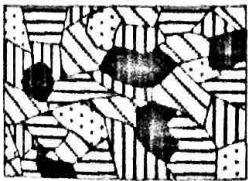
10 Which rock type would most likely be located at the contact between rocks C and D?

- (1) metaconglomerate
- (2) gneiss
- (3) marble
- (4) quartzite

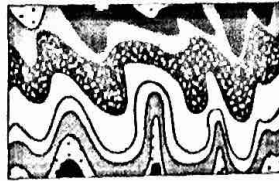
11 In which parts of New York State would you most likely find large amounts of bedrock formed by regional metamorphism?

- (1) Atlantic Coastal Plain and Newark Lowlands
- (2) Hudson Highlands and Adirondack Mountains
- (3) Tug Hill Plateau and Allegheny Plateau
- (4) Erie-Ontario Lowlands and the Catskills

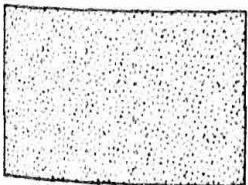
12 Which actual-size diagram best represents a sample of the metamorphic rock gneiss?



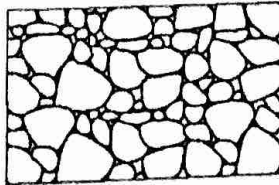
(1)



(3)



(2)



(4)

13 Which type(s) of rock can be the source of deposited sediments?

- (1) igneous and metamorphic rocks, only
- (2) metamorphic and sedimentary rocks, only
- (3) sedimentary rocks, only
- (4) igneous, metamorphic, and sedimentary rocks

14 A certain igneous rock is composed of large mineral grains. This suggests that the rock formed

- (1) on the surface, under high pressure, and at a rapid rate of cooling
- (2) on the surface at high temperature, and at a slow rate of cooling
- (3) deep underground under high pressure, at high temperature, and at a rapid rate of cooling
- (4) deep underground under high pressure, at high temperature, and at a slow rate of cooling

15 Which characteristic would indicate that a rock was formed from sediments deposited in shallow water near shore rather than in deep water?

- (1) hardness
- (2) dark color
- (3) a large grain size
- (4) a large amount of cement

**Part B**

Base your answers to questions 16 and 17 on the diagram below and the *Earth Science Reference Tables*. The diagram shows the elements found in four minerals.

	O	Si	Al	Fe	Ca	Na	C
Quartz							
Feldspar							
Olivine							
Diamond							

= element present

16 Which of the minerals in the diagram has the greatest variety of elements in it? [1]

17 Which of the elements listed in the diagram is second in abundance, by mass, in Earth's crust? [1]

Follow these directions for questions 18 through 23. The following numbered diagrams represent mineral specimens. Using these diagrams, write the name of the mineral which is best described by each of the statements. (If a mineral has cleavage, the diagram illustrates it.)



1 Colorless



2 Colorless



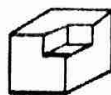
3 Colorless to white



4 Red



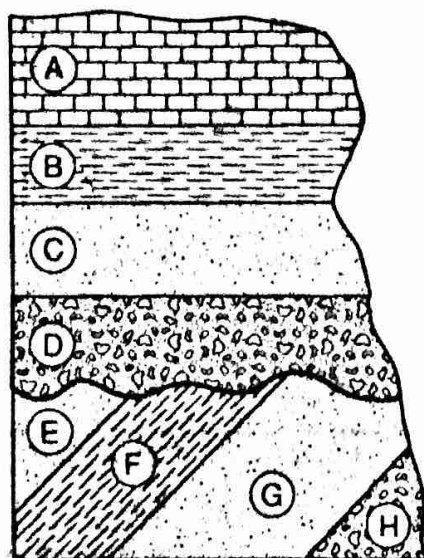
5 Black



6 Gray

- 18 Diagram 1 is a mineral that easily bubbles when exposed to dilute acids. [1]  
 19 Diagram 2 is a very hard mineral that has a curved fracture. [1]  
 20 Diagram 3 shows intergrown crystals of this salty tasting mineral. [1]  
 21 Diagram 4 is an ore of iron with a red streak. [1]  
 22 Diagram 5 is a soft mineral with cleavage that forms thin flexible sheets. [1]  
 23 Diagram 6 is an ore of lead that is soft and has a metallic luster. [1]

Base your answers to questions 24 through 28 on the following diagram. The diagram represents a profile view of exposed rock layers. The layers are labeled A through H.



Key



Limestone



Shale



Sandstone



Conglomerate

- 24 State the range of particle sizes of the sediments that formed rock layer C. [1]  
 25 State two ways in which the composition of rock layer A differs from the composition of rock layer B. [2]  
 26 State a method by which rock layer A could have formed. [1]  
 27 Based on information in the diagram, state a reason why you would choose to use rock from layer A instead of rock from layers C or D for a tombstone or statue. [1]  
 28 State the name of the sediment that was compacted to form rock unit B. [1]  
 29 Describe two conditions that can result in the metamorphosis of a rock. [2]  
 30 If an igneous rock layer is composed of vesicular andesite, identify three types of minerals that could be found in sand weathered from the rock layer. [1]

## Part C

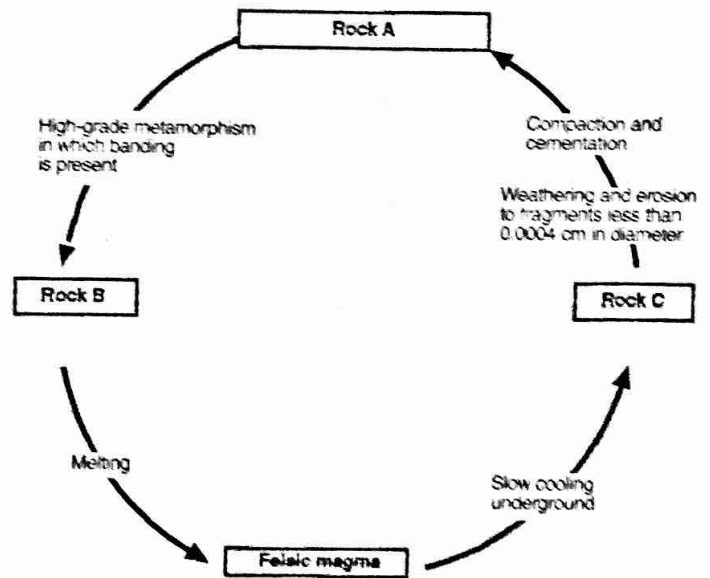
The following paragraph provides information about a meteorite impact in New York State. Use data from the paragraph and your knowledge of earth science to answer questions 31 through 34.

Recently a New York State Geological Survey geologist has produced much evidence indicating a large meteorite impact crater in the Catskills of New York State. This supposed crater that formed approximately 375,000,000 years ago is now buried by hundreds of feet of horizontal sedimentary rock. By drilling beneath the surface sedimentary rock, samples of various rock types have been brought up from in and around the crater.

- 31 Suppose that the meteorite impact produced enough heat to melt much of the meteorite and parts of Earth's surface at the impact site. Describe the type of rock and its texture that would form from the melted meteorite and Earth rocks. [2]
  - 32 Further out from the center of the crater, the meteorite impact caused high temperatures and very high pressure, but the temperatures were not high enough to melt the rocks. What type of rock would form in this environment? [1]
  - 33 At the time of the impact, solid angular rock fragments, mostly larger than sand grains, were hurled far out from the crater. Describe how these fragments could form a sedimentary rock and suggest the most likely name of this sedimentary rock. [2]
  - 34 State the geologic eon, era, and period when this supposed impact crater was formed. [2]
- 
- 35 You observe that a sample of mineral has many smooth sides or surfaces. The sample has not been cut, sanded, or otherwise smoothed by people. Describe two ways in which the parallel smooth sides of the mineral specimen were most likely formed. Then describe an experiment that could help you determine which of the two ways formed the smooth sides on this mineral specimen. [3]

- 36 Two students were given nearly identical samples of the same mineral and were asked to identify the mineral. Student A said the mineral was graphite because it had a silver color and had a low hardness. Student B said the mineral was hematite because of its silver color and low hardness. Describe two mineral tests that could be used to determine the correct identification of the mineral. [2]

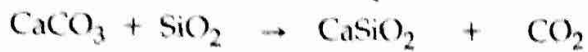
Base your answers to questions 37 and 38 on the rock cycle diagram below.



- 37 State the specific names of rocks A, B, and C in the diagram. Do *not* write the terms "sedimentary," "igneous," and "metamorphic." [3]
  - 38 State *one* condition or process that would cause the high-grade metamorphism of rock A. [1]
- 
- 39 A family wants to use rock materials as flooring in the entrance of their new house. They have narrowed their choice to granite or marble. Which of these rocks is more resistant to the physical wear of foot traffic and explain why this rock is more resistant. [2]

- 40 The mineral wollastonite forms during the intense metamorphism of a sandy limestone. The expression below shows part of the process that results in the formation of wollastonite.

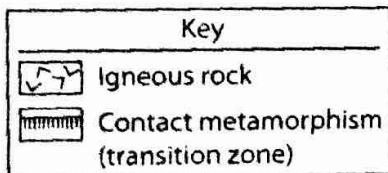
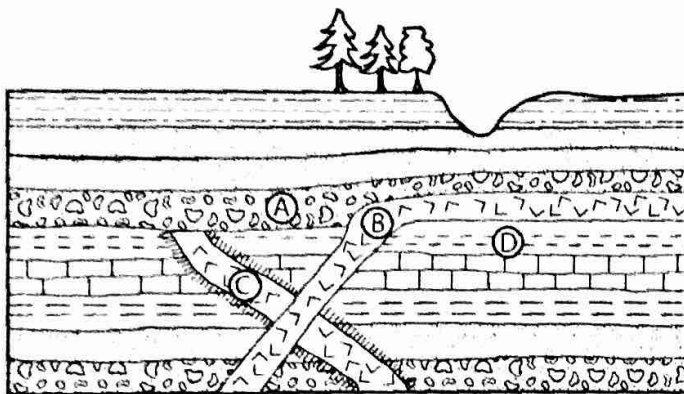
Metamorphism



Mineral 1   Mineral 2   Wollastonite   Carbon dioxide

- a Name the *two* minerals involved in the formation of wollastonite. [1]
- b What *two* conditions normally cause intense metamorphism? [1]

Base your answers to questions 41 through 43 on the cross-section below which represents a portion of the Earth's crust. Letters A, B, C, and D are rock units.



- 41 Igneous rock B was formed after rock layer D was deposited but before rock layer A was deposited. Using the contact metamorphism symbol shown in the key, draw that symbol in the proper locations on the cross section above to indicate those rocks that underwent contact metamorphism when igneous rock B was molten. [1]
- 42 In relation to rock units A and B in the cross section, when was igneous rock C formed? [1]
- 43 Describe one observable characteristic of rock A that indicates that rock A is sedimentary. [1]