1. Which rock would be the best source of the mineral garnet?
   A) basalt  B) limestone  C) schist  D) slate

2. Which mineral is mined for its iron content?
   A) hematite  B) fluorite  C) galena  D) talc

3. Which element, found in both biotite mica and muscovite mica, makes up the greatest percent by volume of Earth's crust?
   A) nitrogen  B) oxygen  C) potassium  D) silicon

4. Silicate minerals contain the elements silicon and oxygen. Which list contains only silicate materials?
   A) graphite, talc, and selenite gypsum  B) potassium feldspar, quartz, and amphibole  C) calcite, dolomite, and pyroxene  D) biotite mica, fluorite, and garnet

5. The relative hardness of a mineral can best be tested by
   A) scratching the mineral across a glass plate  B) squeezing the mineral with calibrated pliers  C) determining the density of the mineral  D) breaking the mineral with a hammer

6. Minerals are identified on the basis of
   A) the method by which they were formed  B) the type of rock in which they are found  C) the size of their crystals  D) their physical and chemical properties

7. The diagram below shows the results of one test for mineral identification.
   Which mineral property is being tested?
   A) density  B) fracture  C) streak  D) luster
8. Halite has three cleavage directions at 90° to each other. Which model best represents the shape of a broken sample of halite?

A) ![Diagram A]
B) ![Diagram B]
C) ![Diagram C]
D) ![Diagram D]

9. What is the hardness of Sulfur?

A) 6.5  B) 2  C) 3  D) 2.5

10. Which mineral is an ore of iron and has a characteristic reddish brown streak?

A) magnetite  B) pyrite  
C) **hematite**  D) olivine
11. Base your answer to the following question on the graph below, which shows the crustal temperature and pressure conditions under which three different minerals with the same chemical composition (Al₂SiO₅) crystallize.

![Graph showing temperatures and pressures for crystallization of three minerals]

Which mineral has a chemical composition most similar to andalusite, sillimanite, and kyanite?

A) pyrite  
B) gypsum  
C) dolomite  
D) potassium feldspar

12. The diagrams below illustrate a specific property of certain minerals.

![Diagram 1]  
A) arrangement of atoms in the mineral  
B) impurities found in the mineral  
C) softness of the mineral  
D) density of the mineral

13. Which sedimentary rock would be composed of particles ranging in size from 0.0004 centimeter to 0.006 centimeter?

A) conglomerate  
B) dolostone  
C) siltstone  
D) shale
14. Base your answer to the following question on the diagram below.

Which two processes formed this rock?
A) folding and faulting  
B) melting and solidification  
C) compaction and cementation  
D) heating and application of pressure

15. Base your answer to the following question on the diagrams below of five rock samples.

Which sample would most likely contain fossils?
A) gneiss  
B) granite  
C) sandstone  
D) basalt

16. Which sequence of events occurs in the formation of a sedimentary rock?

A) Source material eroded → Sediments deposited → Sediments compacted and cemented  
B) Sediments deposited → Source material eroded → Sediments compacted and cemented  
C) Sediments deposited → Sediments compacted and cemented → Source material eroded  
D) Source material eroded → Sediments deposited → Sediments compacted and cemented

17. The diagram below represents a conglomerate rock. Some of the rock particles are labeled.

Which conclusion is best made about the rock particles?
A) They are the same age.  
B) They originated from a larger mass of igneous rock.  
C) They all contain the same minerals.  
D) They have different origins.

18. Base your answer to the following question on the diagram below, which is a geologic cross section of an area where a river has exposed a 300-meter cliff of sedimentary rock layers. The rock layers are labeled A through I. Line XY represents a gap in the geologic record (an unconformity).

Rock layer $H$ was most likely formed as a result of
A) cooling of melted rock material  
B) compaction and cementation of sediments  
C) heat and pressure from overlying rock layers  
D) recrystallization of minerals due to crustal uplift
19. Base your answer to the following question on the block diagram below which shows a cross section of Earth's crust. Letter A identifies a lake, and letters B through G represent different types of bedrock.

![Block Diagram of Earth's Crust]

Key:
- Limestone C
- Shale D
- Fine-grain sandstone E
- Intrusive igneous rock F
- Intrusive igneous rock G
- Contact metamorphism
- Lava flow B

Rock C most likely resulted from the
A) rapid cooling of lava from volcanic eruptions
B) regional metamorphism of a previously existing rock
C) compaction and cementation of angular quartz fragments
D) precipitation of minerals from evaporating water

20. Large rock salt deposits in the Syracuse area indicate that the area once had
A) large forests
B) a range of volcanic mountains
C) many terrestrial animals
D) a warm, shallow sea

21. The diagram below shows some features in a cave.

![Cave Features]

Which type of rock was chemically weathered by acidic groundwater to produce the cave and its features?
A) siltstone
B) basalt
C) quartzite
D) limestone
22. Which two mineral grains would most likely be found in soil formed from granite?
A) olivine and pyroxene  
B) potassium feldspar and quartz  
C) plagioclase and pyroxene  
D) olivine and nepheline

23. The diagrams below represent magnifications of rocks. Which is most likely a diagram of a non-sedimentary rock?

![KEY]

Quartz  | Hornblende  | Feldspar
--- | --- | ---

A) ![A]  | B) ![B]  | C) ![C]  | D) ![D]

24. Gabbro is composed mainly of
A) plagioclase feldspars and pyroxene  
B) hornblende and quartz  
C) biotite and olivine  
D) potassium feldspar and quartz

25. Which is usually a characteristic of igneous rocks with a high density?
A) They are light in color.  
B) They are felsic.  
C) They have a high aluminum content.  
D) They contain iron.

26. Base your answer to the following question on the diagram below which shows a top view of the bedrock geology of a portion of the Earth's surface. Two faults (F1 and F2) and three periods of igneous activity have occurred in this area.

![Diagram]

Based on the diagram of a sample of igneous rock Y, its mineral composition and crystal size, what is igneous rock Y?
A) rhyolite  
B) basalt  
C) conglomerate  
D) granite

27. Which graph best represents the relationship between the length of time molten magma takes to cool and the size of the crystals in the rock formed by the magma?

A) ![A]  
B) ![B]  
C) ![C]  
D) ![D]
28. The diagram below indicates physical changes that accompany the conversion of shale to gneiss.

Which geologic process is occurring to cause this conversion?

A) sedimentary layering  
B) intrusion of magma  
C) **metamorphism**  
D) weathering

29. Which characteristic of rocks tends to increase as the rocks are metamorphosed?

A) density  
B) porosity  
C) permeability  
D) number of fossils present

30. The recrystallization of unmelted material under high temperature and pressure results in

A) **metamorphic rock**  
B) sedimentary rock  
C) igneous rock  
D) volcanic rock

31. Most metamorphic rocks are formed when

A) sediments are cemented and compacted  
B) magma cools slowly, deep underground  
C) flows of lava cool rapidly  
D) **rocks are subjected to heat and pressure**

32. The diagram below represents a rock with a distorted layer structure.

The distorted structure of this rock is most likely the result of

A) a long period of weathering  
B) glacial activity  
C) wind erosion  
D) **extreme pressure**
33. The diagram below represents a sedimentary rock composed of pebbles and sand.

Which statement most accurately compares the ages of the cracks and pebbles to the age of the sedimentary rock in which they are found?

A) The cracks and pebbles are both younger than the sedimentary rock.
B) The cracks and pebbles are both older than the sedimentary rock.
C) The cracks are younger and the pebbles are older than the sedimentary rock.
D) The cracks are older and the pebbles are younger than the sedimentary rock.

34. A sedimentary rock consists of grains of sand cemented together. What is the relative age of the sand grains?

A) younger than the rock
B) older than the rock
C) the same age as the rock
Answer Key
Practice Test Rocks and Minerals

1. C
2. A
3. B
4. B
5. A
6. D
7. C
8. B
9. B
10. C
11. D
12. A
13. C
14. C
15. C
16. A
17. D
18. B
19. D
20. D
21. D
22. B
23. B
24. A
25. D
26. D
27. C
28. C
29. A
30. A
31. D
32. D
33. C
34. B