**Chapter 3 Study Sheet - Minerals (Marshak 6e)** **Name** _____

**Introduction**

1. There are over _____ minerals, about _____ form most rocks, and most rocks you will touch contain only _____ minerals.

*Make sure you know the terms in Box 3.1. If not, learn them.*

2. List 5 things around you that were made from minerals. a. b.

c. d. e.

3. How is the geologic definition of a mineral different from the everyday usage of the word?

**What is a Mineral?**

4. What are the 5 characteristics of a mineral? a. b.

c. d. e.

5. In figure 3.2, why is the top illustration considered a mineral but the bottom one not?

6. Is styrofoam a mineral? Why?

**What is a Crystal?**

7. What is unusual about all quartz crystals?

8. True/False - Crystals can heal you if you hold them.

9. What do crystals of galena and halite have in common?

10. List 4 ways minerals can form. a

b c

d e

11. Why is the amethyst in figure 3.6 euhedral?

12. What are 3 ways minerals may be destroyed in nature?

a b c

**How Can You Tell One Mineral from Another?**

13. What is a problem with using only color to identify a mineral? (See figure 3-7a.)

14. Iron turns quartz the color _____

15. As in Fig 3-7B, how is a mineral's streak obtained?

16. Pyrite has a _____ luster while _____ has a nonmetallic luster.

17. 4 types of nonmetallic luster: _____, _____, _____ & _____

18. The minerals from softest to hardest are _____ (1), _____ (2),

_____ (3), _____ (4), _____ (5), _____ (6),

_____ (7), _____ (8), _____ (9), _____ (10).

19. List the hardness of each of the following… fingernail _____ ¢ _____

steel knife _____ glass _____ steel file _____

20. The mineral a high specific gravity is _____

21. Explain the acid test. What is produced? What two materials are used?

22. A mineral with one cleavage is _____. Two cleavages at 90° is _____

Two cleavages at 60° is _____ Three cleavages at 90° is _____

23. Does quartz cleave or fracture?

**Mineral Classification**

24. All silicates contain _____ and _____. Quartz's formula is _____

25. Galena and pyrite both contain _____

26. What's do hematite and magnetite have in common? How are they different?

27. Fe is heavy. Looking at the formulas for hematite and magnetite, which would you expect to have a higher specific gravity? Why?

28. What do all halides have in common? (See this periodic table for hints.)

29. To what element do native metals bond? (Trick question!)

30. List the formulas for each of the following and the mineral class or family they belong to.

| | FORMULA | MINERAL CLASS |
|---|---|---|
| QUARTZ | _____ | _____ |
| GALENA | _____ | _____ |
| PYRITE | _____ | _____ |
| HEMATITE | _____ | _____ |
| MAGNETITE | _____ | _____ |
| CALCITE | _____ | _____ |
| DOLOMITE | _____ | _____ |
| GYPSUM | _____ | _____ |

31. About _____ % of Earth's crust is made of silicates.

32. How are the silicate minerals broken into groups?

33. All forms of asbestos have a _____ crystal habit.

34. Why asbestos helpful? / Why is asbestos harmful?

35. What is weird about the way diamonds form?

36. You find two small milky white crystals. Each is 2 cm across. One is plagioclase feldspar and the other is quartz. How could you determine which is which?

37. Can calcite be used to grind down a diamond? Why?

38. Can a diamond form by precipitation out of a a salt lake?

39. What's strange about diamond and graphite?

In the following 3 questions, tell the location and what minerals are being extracted at each site.

40. Location 1

41. Location 2

42. Location 3