Contents

Deformation and Metamorphism

Exam 1 Answers

1. b 2. a 3. b 4. c 5. a 6. c 7. a 8. b 9. a 10. a 11. b 12. c 13. a 14. b 15. b 16. b 17. d 18. e 19. d 20. a 21. c 22. c 23. d 24. e 25. c 26. c

27. e 28. c 29. b 30. b 31. d 32. e 33. a 34. d 35. c 36. e 37. d 38. d 39. a 40. e 41. a 42. e 43. b 44. a 45. e 46. d 47. a 48. c 49. b 50. a 51. c 52. b

Making Metamorphic Rocks

Different Kinds of Stress

- **Confining pressure:** same amount of stress from all directions
- **Differential stress:** different amounts of stresses from different directions.

Strength of Rock

- Too much stress = failure
- ↑ heat ↑ ductile
- different material respond differently
- rock is more sturdy than wood, so it can support more force

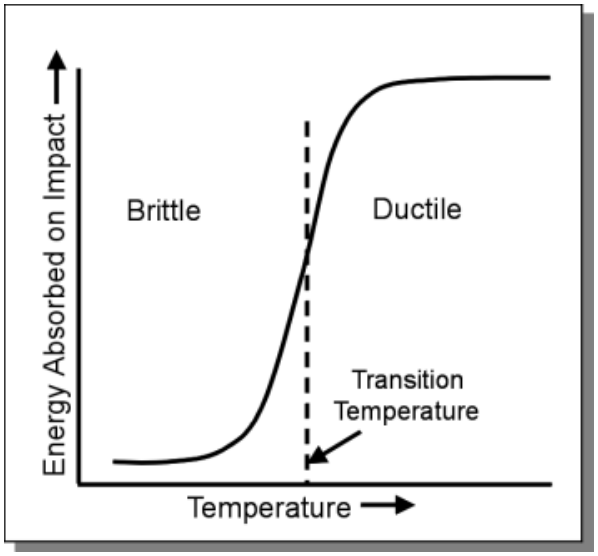

Figure 1: Brittle to Ductile Transition

How rocks responds to force and stress

- small amount of stress → block remains unchanged
- examples of stresses → compression, shear, tension
- shallow levels: rocks fracture
- these rocks are generally weaker
  - earthquakes
- minerals are usually static/unchanged
- deeper levels: rock flows (heat and pressure)
- become more like play-doh
- minerals will recrystallize and may expand

Types of Fractures

Joint: small

- where rocks are pulled apart
- burial
- cooling and contraction
- unloading

Fault: big

- rocks have slipped past one another

left lateral: block on opposite side moves to left

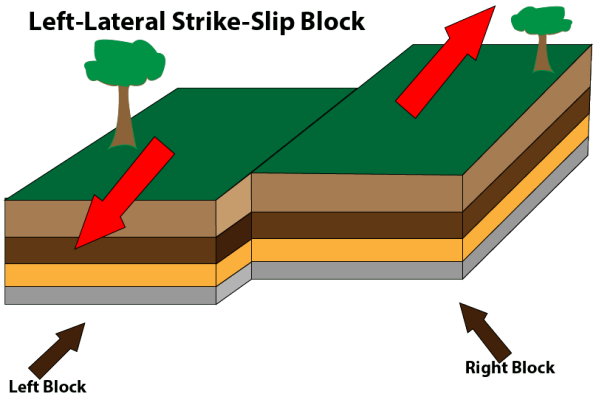

Figure 2: Left lateral

right lateral: block on opposite side moves to right

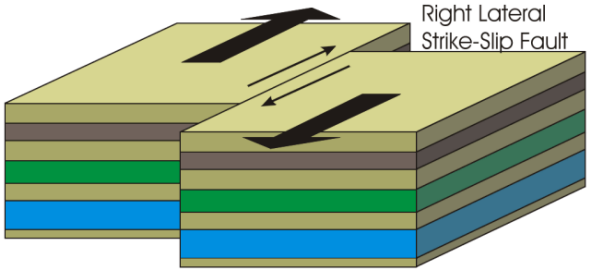

Figure 3: Right lateral

anticline: up

syncline: down

Describing Faults

- Strike-slip: when two plate slide by each other from left to right
- Dip-slip: when two plates slide by each other from top to bottom
- Oblique-slip: when two directions of displacement occur. One side is higher than the other.