

**PART I (70%) – Individual Portion** Multiple choice (20-pts.) and Fill in the Blank (10 pts) – You will have exactly 25 minutes to complete this portion. Read each question carefully. With the Fill in the Blank provide the best answer, which may be more than one word, to address the statement. Record your answer on both the test and the answer sheet. For the multiple choice, there is only one correct answer per question. Choose the best answer and write your answer on the line next to the question **AND** fill in the correct letter on the answer sheet. This is the closed book and non group portion.

**PART II (30%) – Group Portion** Fill in the Blank (10 pts), Multiple choice (20-pts.) and Essay Question (20 – pts) – Once the individual answer sheets have been collected, you may get into groups and use your notes to retake the exam and answer the essay question. NOTE: Please be courteous to your fellow students and try to be as quiet as possible. Although this is a group portion you may disagree with your group. Choose the best answer & record it on the answer sheet. When you leave, turn in your answer sheet and your answer to the essay. Keep this question sheet for your reference. On the last page are the essay question.

**Fill in the blank:**

The two driving forces of mass wasting are 1) \_\_\_\_\_ and 2) \_\_\_\_\_.

Sediment is transformed into a sedimentary rock through lithification, which includes the two processes of 3) \_\_\_\_\_ and 4) \_\_\_\_\_.

A mineral or energy 5) \_\_\_\_\_ is one where the amount of the material is known and the material can be exploited at a profit.

6) \_\_\_\_\_ deformation of rock is when a rock will permanently bend, but does not break in response to a stress; an analogy would be how taffy responds to stress.

Most mountain building is associated with 7) \_\_\_\_\_ stress that occurs along 8) \_\_\_\_\_ boundaries.

For both the formation of oil and coal resources, the organic material avoids 9) \_\_\_\_\_, which would destroy the carbon within the material.

10) \_\_\_\_\_ is required for the formation of all sedimentary rocks.

**Multiple Choice**

\_\_\_\_\_ 11. Which of the following is **not** one of the factors of soil formation:

- A Distance from a plate boundary
- B Parent material
- C Climate
- D Vegetation i.e. Plants and animals
- E Slope

\_\_\_\_\_ 12. The brittle deformation in rock where no displacement (movement) occurs is a

- A dip-slip fault
- B strike-slip fault
- C joint
- D oblique slip fault
- E syncline

- \_\_\_\_ 13. Which of these will encourage mass wasting?
- A increasing the amount of vegetation, anchoring a slope
  - B over steepening of the slope**
  - C removing water from the material
  - D all of the above
- \_\_\_\_ 14. Which of the following does **NOT** describe mechanical (physical) weathering
- A Increases the surface area of rock
  - B Alters the mineralogy (chemical composition) of the rock**
  - C Adds to an increase risk of mass wasting
  - D Enhances the effectiveness of chemical weathering
  - E Affects all types of rocks
- \_\_\_\_ 15. Which of the following is **NOT** a source of sediment/sediment production
- A Mechanical weathering of metamorphic rocks
  - B Dissolved ions in solution
  - C By-products of organisms
  - D Melting of a subducting plate**
- \_\_\_\_ 16. Which sedimentary environment would produce a graded bed (one where there are layers of coarse material overlain by finer material)?
- A Lake
  - B Glaciers
  - C Swamp
  - D Turbidity flow**
  - E Beach
- \_\_\_\_ 17. Oil
- A Is organic (aquatic microorganisms) material that has escaped oxidation (decomposition)**
  - B Is ranked based upon its hydrogen content
  - C Contributes to less than 10% of the energy used in the US
  - D Is a renewable resource
  - E All of the above
- \_\_\_\_ 18. Identify the correct sequence for the rank of coal from lowest to highest
- A Bituminous - anthracite - lignite - peat
  - B Peat - lignite - bituminous - anthracite**
  - C Peat - lignite - anthracite - bituminous
  - D Anthracite - bituminous - lignite - peat
  - E Peat - bituminous - anthracite - lignite
- \_\_\_\_ 19. As tectonic plates move towards each other creating compressional stresses, the anticipated ductile deformation would be
- A Reverse faulting
  - B Thrust faulting
  - C Normal Faulting
  - D Folding**
  - E Jointing

20. \_\_\_\_\_ is the downward movement of a mass of material along a DEFINED SLIPPAGE PLANE.

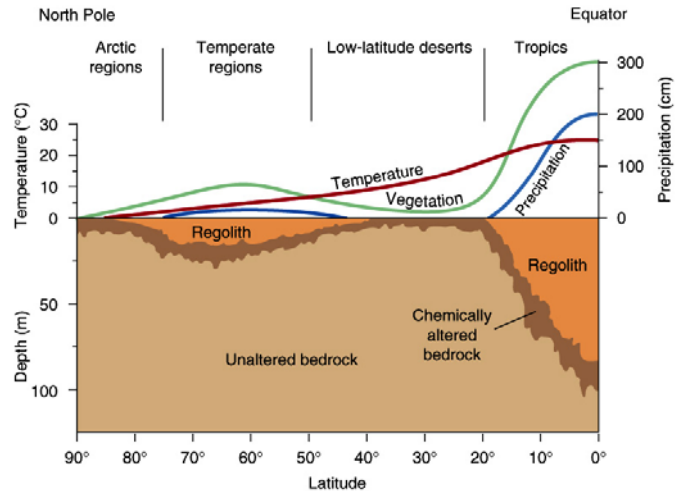
- A Creep
- B A flow
- C A slump
- D A slide
- E None of the above

21. Based upon the figure to the right, which factor would play the greatest role in chemical weathering?

- A Temperature
- B Precipitation
- C Vegetation
- D They are all equal

22. Clastic sedimentary rocks are classified based on the

- A Grain size of the material
- B Roundness of the grains
- C Distance the sediment has traveled
- D All of the above
- E Only A and B



23. Which of the following is NOT an agent of metamorphism

- A Rock Type
- B Fluid
- C Time
- D Heat-Temperature
- E Pressure

24. The type of mountains produced at a divergent boundary (i.e. continental rifting) would be associated with

- A Reverse faulting (Upwarped Mountains)
- B Normal faulting (Fault Block Mountains)
- C Folded Mountain Belts
- D Volcanic Mountain Chains
- E None of the above

25. Which of the following is NOT a process involved in the formation of mineral deposits?

- A Secondary enrichment associated with ground water movement
- B Crystal settling of higher density minerals containing metals in a magma
- C Movement of enriched fluids into fractures creating vein deposits
- D Hydrothermal deposits associated with regions where there are significant changes in pressure/temperature causing minerals to precipitate out of water
- E Shear stresses along a transform boundary.

26. A renewable resources

- A can never be replenished
- B requires adequate technology to extract from the Earth
- C can be replenished over a human's life span
- D includes natural gas

27. What grade of metamorphism is associated with the Zeolite metamorphic facie? (Figures 1 and 2)

- A High-Grade
- B Low-Grade
- C Intermediate-Grade
- D Rock melts (Magma)
- E None of the Above

28. Which of the following does not correctly define oil formation?

- A oil forms within a narrow temperature range—50°C to 160°C
- B oil forms from the remains of plankton
- C oil forms deep within the Earth's crust
- D oil forms in relatively young rocks near active plate boundaries
- E oil migrates from a source rock to a reservoir rock where it is trapped by a cap rock

29. \_\_\_\_\_ mountains would form near convergent plate boundaries **and** are associated with the partial melting of the subducting plate

- A Upwarped mountains
- B Volcanic chains
- C Fault Block Mountains
- D Folded Mountain belts
- E None of the above

30. Large-scale metamorphism associated with increases in both temperature and pressure best defines

- A Contact metamorphism
- B Burial Metamorphism
- C Lithification
- D Regional Metamorphism
- E Partial Melting

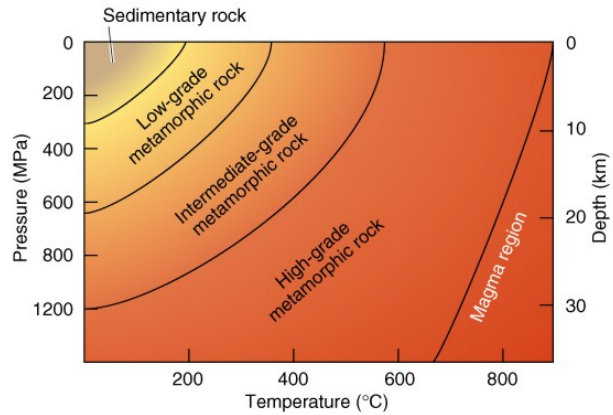


Figure 2: Metamorphic grades

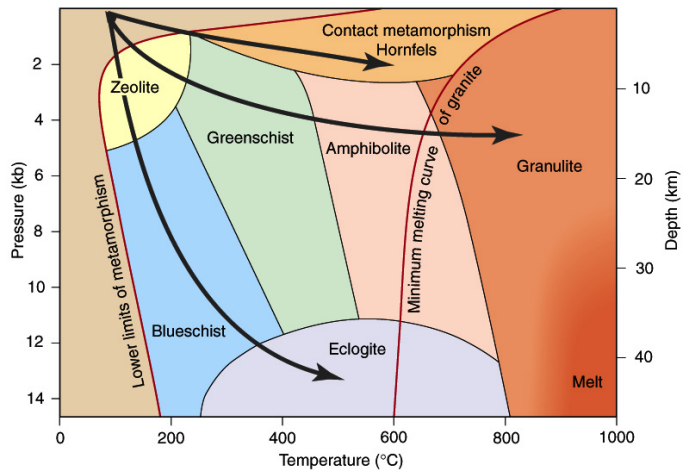


Figure 2: Metamorphic Facies

If you have finished the individual portion of the test, you may start outlining your response to the essay questions, but do not begin using your notes or book...

Group Essay Questions:

NAME: \_\_\_\_\_

Persons in your Group (must be identified): \_\_\_\_\_

Answer the question to the best of your abilities. Please be concise but provide detail. This is a group discussion, but you can deviate from your group's response. I would encourage you to add illustrations to your answers. Number in parentheses indicates points for each question.

1. What is a syncline? (2)

2. What is a normal fault (2)?

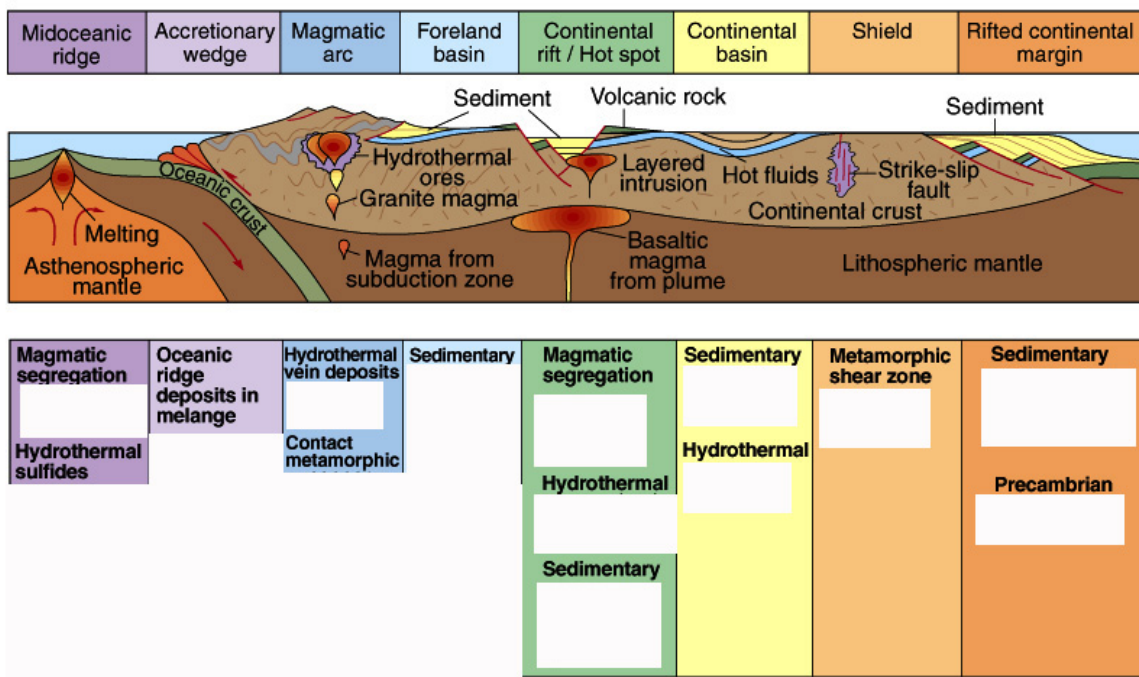
3. Compare and contrast the differences between contact metamorphism and regional metamorphism (3)

4. How does the addition of water to sediment or rock increase the risk of mass wasting (3)

5 You and a friend are out hiking along a trail. Your friend finds a breccia and tries to tell you that it was formed in a beach environment. How would you refute your friend's position? (Hint: I am looking for information about the texture of the rock. Think about what a breccia represents and think about what you would expect to find at a beach) (4)

6. Using plate tectonics, geologic structures, and the rock cycle (at a minimum, other topics can be incorporated) discuss the reasoning behind the statement: "Mountain Chains developing along a collision zone are generally some of the largest and most complex mountains produced." (6)

7. At some point in your activities today you have used something derived from a geologic process. Identify one item. Is the material renewable or nonrenewable? Describe the processes that would have concentrated the material. On the figure below identify where you think the material would be found. (5)



ANSWER KEY EXAM 2

NAME: \_\_\_\_\_

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_
29. \_\_\_\_\_
30. \_\_\_\_\_

ANSWER KEY EXAM 2  
GROUP

NAME: \_\_\_\_\_

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_
11. \_\_\_\_\_
12. \_\_\_\_\_
13. \_\_\_\_\_
14. \_\_\_\_\_
15. \_\_\_\_\_
16. \_\_\_\_\_
17. \_\_\_\_\_
18. \_\_\_\_\_
19. \_\_\_\_\_
20. \_\_\_\_\_
21. \_\_\_\_\_
22. \_\_\_\_\_
23. \_\_\_\_\_
24. \_\_\_\_\_
25. \_\_\_\_\_
26. \_\_\_\_\_
27. \_\_\_\_\_
28. \_\_\_\_\_
29. \_\_\_\_\_
30. \_\_\_\_\_

If you need additional room to answer the essay please use the back of this sheet.