

***** EXAMINATION *****

ROCK FOUNDATIONS

1. The degrees of weathering are:

- a) unweathered, slightly, moderately, highly, or decomposed
- b) none, some, or total
- c) first, second, or third
- d) one through nine.

2. Hardness is described as:

- a) one through nine
- b) very soft, soft, moderately hard, hard, or very hard
- c) one psi or greater
- d) None of the above

3. The textures of metamorphic rocks are:

- a) coarse, medium, fine, or very fine
- b) coarse, medium, fine, or aphanite
- c) shaly, sandy, silty, or calcareous
- d) None of the above

4. The textures of igneous rocks are:

- a) coarse, medium, fine, or very fine
- b) coarse, medium, fine, or aphanite
- c) shaly, sandy, silty, or calcareous
- d) None of the above

5. The textures of sedimentary rocks are:

- a) coarse, medium, fine, or very fine
- b) coarse, medium, fine, or aphanite
- c) shaly, sandy, silty, or calcareous
- d) None of the above

6. Slightly fractured spacing is:

- a) 2 inches or less
- b) 2 inches to 8 inches
- c) 8 inches to 2 feet
- d) 2 feet to 6 feet

7. **Moderately fractured spacing is:**
- a) 2 inches or less
 - b) 2 inches to 8 inches
 - c) 8 inches to 2 feet
 - d) 2 feet to 6 feet
8. **A 5 degree dip of bed is classified as:**
- a) flat
 - b) dipping
 - c) steeply dipping
 - d) None of the above
9. **The Rock Mass Rating system was initially developed for:**
- a) bridges
 - b) high rise buildings
 - c) tunnels
 - d) highways
10. **The Q-system was developed for the design of:**
- a) bridges
 - b) high rise buildings
 - c) tunnel support systems
 - d) highways
11. **A pressure meter test:**
- a) expands a fluid filled flexible membrane in a bore hole
 - b) causes the surrounding wall of rock to deform
 - c) both a and b
 - d) None of the above
12. **A method of estimating modulus is:**
- a) seismic
 - b) empirical
 - c) Q correlations
 - d) All of the above
13. **Time-dependent deformations include:**
- a) consolidation, slip, and creep
 - b) consolidation, swelling, and creep
 - c) fracture, slip, and creep
 - d) fracture, swelling, and creep
14. **The abacus finite element program tests for:**
- a) plasticity, crack elements, and boundary elements
 - b) 2D / 3D solid elements, plasticity, and creep
 - c) boundary elements, plasticity, and creep
 - d) crack elements, plasticity, and creep

15. **The ANSYS finite element program tests for:**
- a) plasticity, crack elements, and boundary elements
 - b) 2D / 3D solid elements, boundary elements, and creep
 - c) boundary elements, plasticity, and creep
 - d) crack elements, plasticity, and creep
16. **Bearing capacity of rock foundations may be estimated by:**
- a) field load tests
 - b) traditional bearing capacity equations
 - c) analytical methods
 - d) All of the above
17. **Examples of structures needed sliding stability assessed are:**
- a) flood walls
 - b) spillways
 - c) canals
 - d) high-rise buildings
18. **Special considerations for using the wedge equations are:**
- a) vertical wedges
 - b) horizontal wedges
 - c) active wedges
 - d) aperture wedges
19. **Toppling failure of rock surfaces involves:**
- a) vertical saturation
 - b) overturning or rotation of rock layers
 - c) splining
 - d) seismic failure
20. **Slope stability may be affected by:**
- a) erosion
 - b) temperature
 - c) ground water
 - d) All of the above

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