

Disaster Readiness and Risk Reduction Midterm Reviewer

Disaster Readiness And Risk Reduction · Answer Key · 29 Questions

1. What theory explains how earthquakes occur by the gradual buildup and sudden release of elastic strain energy along a fault?

- A) Plate Tectonic Theory
- B) Elastic Rebound Theory**
- C) Continental Drift Theory
- D) Seafloor Spreading Theory

2. Which type of seismic wave travels fastest and arrives first at seismic recording stations?

- A) Secondary (S) Waves
- B) Surface Waves
- C) Primary (P) Waves**
- D) Love Waves

3. S-waves are characterized by moving ground material perpendicular to the wave direction. What type of waves are they?

- A) Compressional body waves
- B) Shear body waves**
- C) Surface waves
- D) Love waves

4. Which seismic waves cause the most severe ground shaking and structural damage?

- A) Primary (P) Waves
- B) Secondary (S) Waves
- C) Surface Waves**
- D) Body Waves

5. During strong ground shaking, what is the immediate safety protocol inside a building?

- A) Run outside immediately
- B) Stand near windows
- C) Take cover under sturdy furniture**
- D) Open all doors and windows

6. What are fractures that move under current tectonic stress and have produced historical earthquakes called?

- A) Inactive Faults
- B) Blind Faults
- C) Active Faults**
- D) Healed Faults

7. Which type of fault structure does not reach or fracture the Earth's surface?

- A) Active Faults
- B) Inactive Faults
- C) Blind Faults**
- D) Surface Faults

8. Ground rupture along an active fault trace produces what kind of surface offsets?

- A) Only vertical offsets
- B) Only horizontal offsets
- C) Both vertical and horizontal offsets**
- D) No surface offsets

9. Strike-slip fault movement is characterized by dominant displacement parallel to the fault trace. What type of displacement is this?

- A) Vertical displacement
- B) Horizontal displacement**
- C) Rotational displacement
- D) Oblique displacement

10. Dip-slip fault movements involve what type of movement?

- A) Horizontal movement
- B) Vertical movement**
- C) Lateral movement
- D) Shear movement

11. Poor structural design, improper construction standards, or inadequate foundations are common drivers of what during earthquakes?

- A) Ground liquefaction
- B) Tsunami generation
- C) Building collapse**
- D) Soil erosion

12. What phenomenon occurs when loose, water-saturated sand with a shallow groundwater table loses shear strength and behaves like a liquid during strong ground shaking?

- A) Landslide
- B) Ground rupture
- C) Soil liquefaction**
- D) Tsunami inundation

13. Which liquefaction feature is described as cone-shaped surface deposits formed when pressurized sand and water are ejected upward?

- A) Lateral Spread
- B) Sand Blow / Sand Boil**
- C) Subsidence
- D) Flow Failure

14. What liquefaction feature involves the lateral displacement of surface soil blocks sliding over a liquefied layer?

- A) Subsidence
- B) Ground Oscillation
- C) Lateral Spread**
- D) Loss of Bearing Capacity

15. Broad-scale sinking or vertical settlement of the ground surface caused by soil consolidation following liquefaction is known as:

- A) Sand Blow
- B) Flow Failure
- C) Ground Oscillation
- D) Subsidence**

16. What liquefaction feature is characterized by the back-and-forth movement of surface soil blocks overlying a liquefied sub-layer without permanent lateral displacement?

- A) Flow Failure
- B) Ground Oscillation**
- C) Lateral Spread
- D) Subsidence

17. Which liquefaction feature refers to the reduction in soil strength beneath heavy structures, leading to tilting or sinking?

- A) Sand Blow
- B) Flow Failure
- C) Loss of Bearing Capacity**
- D) Ground Oscillation

18. Liquefaction hazard maps are used by government agencies for what purpose?

- A) Predicting earthquake magnitudes
- B) Identifying high-risk zones for construction**
- C) Mapping active fault lines
- D) Forecasting tsunami arrival times

19. Methods like soil replacement, deep dynamic compaction, or grouting performed before construction to stabilize susceptible loose sand are examples of:

- A) Structural Ductility
- B) Site Improvements**
- C) Liquefaction Hazard Mapping
- D) Ground Oscillation mitigation

20. Designing foundation elements with high ductility allows structures to:

- A) Resist all ground motion
- B) Absorb energy and accommodate large ground deformations**
- C) Prevent soil liquefaction
- D) Increase fault slip speed

21. Which factor significantly lowers slope resistance and escalates earthquake-induced failure?

- A) Gentle terrain
- B) Strong bedrock
- C) Increased pore water pressure**
- D) Deforestation

22. A landslide involving failure extending deep below the ground surface, involving massive rock blocks moving along deep slip surfaces is called:

- A) Shallow Landslide
- B) Complex Landslide
- C) Rock Fall
- D) Deep-Seated Landslide**

23. What type of earthquake-induced landslide involves the free-fall detachment of individual rocks or boulders from steep cliffs?

- A) Rock Slide
- B) Soil / Mud Flow
- C) Rock Fall**
- D) Shallow Landslide

24. A highly fluid downslope movement of water-saturated earth materials following ground shaking is known as:

- A) Rock Slide
- B) Rock Fall
- C) Soil / Mud Flow**
- D) Deep-Seated Landslide

25. What is a series of powerful ocean waves generated by sudden, large-scale displacements of water called?

- A) Tidal waves
- B) Storm surges
- C) Tsunamis**
- D) Rogue waves

26. In deep ocean waters, tsunamis travel at high speeds with exceptionally long wavelengths and what kind of surface amplitudes?

- A) Large
- B) Small**
- C) Moderate
- D) Variable

27. Which of the following is a common cause of tsunamis?

- A) High tide
- B) Strong winds
- C) Large submarine earthquakes**
- D) Volcanic ash clouds

28. As a tsunami approaches shallow coastal waters, friction slows the wave speed, causing its wavelength to decrease and its wave height to dramatically increase. This process is called:

- A) Inundation
- B) Shoaling**
- C) Refraction
- D) Diffraction

29. What is the horizontal inland extent of flooding caused by incoming tsunami wave series over low-lying coastal land called?

- A) Shoaling
- B) Wave amplitude
- C) Tsunami velocity
- D) Inundation**