Landslides

1.

Which is TRUE about translational slides?

Student Response	Correct Answer
A. They are also called debris flows.	
B. They commonly form a series of topographic benches.	
C. Failure occurs along well-defined, planar, and inclined surfaces.	✓
D. Blocks of material incorporated in the landslide are commonly rotated and tilted in the upslope direction.	
E. They can be readily identified by crescent-shaped scarps on hill slopes.	

Score: 1/1

2.

Shear strength directly depends on which of the following?

Student Response	Correct Answer
A. slope composition	✓
B. slope gradient	
C. shear stress	
D. earthquake frequencies	
E. gravity	

Score: 1/1

3.

Which statement about causes and triggers of landslides is TRUE?

Student Response	Correct Answer
A. Triggers develop instability in a slope.	
B. There can be many triggers for one event.	
C. There is usually one cause for a landslide event.	
D. Causes can trigger landslides in some situations.	✓
E. Causes are always short-lived events.	

Score: 1/1

4.

According to the landslide classification table, the term ‘debris’ is defined as _____.

Student Response	Correct Answer
A. earth	
B. sorted soil	
C. unsorted soil	✓
D. a combination of broken trees and earth	
E. a mixture of sand and clay	

Score: 1/1

5.

Which statement is FALSE?

Student Response	Correct Answer
A. Quick clays can liquefy only after significant shaking such as during an earthquake.	✓
B. The shear strength of sediments is lower than that of rocks.	
C. The area within and near UBC is in danger of landslides.	

D. Landslide velocities can range from a few millimeters/year to a few meters/second.

E. Gravity is the ultimate cause of all landslides.

Score: 1/1

6.

Which of the following climate-related factors is MOST likely to increase landslide hazards in a particular area?

	Student Response	Correct Answer
A. lower precipitation		
B. higher sea levels		
C. higher precipitation	☑	☑
D. warmer temperatures		
E. cooler temperatures		

Score: 1/1

7.

Suppose you are a geological engineer hired to deal with rockfall problems along new sections of the Sea-to-Sky Highway (Highway 99). You are asked to deal with large rockslides that may initiate along newly cut rock slopes blasted to widen the Sea-to-Sky Highway (Highway 99). To prevent massive blocks (>1000 m^3) from sliding onto the road, which approach to mitigation would you take?

	Student Response	Correct Answer
A. Prevention through rock bolts, anchors and drainage.	☑	☑
B. Avoidance by selecting an alternative route for the highway.		
C. Protection by installing netting.		
D. Prevention by planting trees.		
E. Protection by building a containment channel.		

Score: 1/1

8.

Which of the following does NOT increase the likelihood of a landslide in British Columbia?

Student Response	Correct Answer
A. frequent earthquakes	
B. wave action	
C. highway construction through mountainous areas	
D. heavy winter rains	
E. abundant vegetation	☑

Score: 1/1

9.

A _____ makes a slope susceptible to movement without actually initiating it while a _____ initiates movement.

Student Response	Correct Answer
A. trigger… cause	
B. driver… trigger	
C. cause… trigger	☑
D. cause… driver	
E. driver… cause	

Score: 1/1

10.

Which of the following statements is FALSE?

Student Response	Correct Answer
A. Increased pore pressures weaken slopes.	
B. Small amounts of water make slopes more stable.	
C. Extra water favors rotational slides over translational slides.	✓
D. Large amounts of precipitation weaken slopes.	
E. The weight of water contributes to the likelihood of a landslide.	

Score: 1/1

11.

Increased vulnerability to landslide hazards may result from all the following EXCEPT for _____.

Student Response	Correct Answer
A. rapid land-use change	
B. use of marginal land	
C. slope stabilization	✓
D. global warming	
E. increasing population density	

Score: 1/1

12.

Shear stress _____.

Student Response	Correct Answer
A. results from the force of gravity on a slope	✓
B. has 3 primary components	
C. is the internal resistance of a body to stress	

D. moves parallel and down the slope

E. decrease as slope steepness increases

Score: 0/1

13.

Which factor of safety represents the most stable slope?

Student Response	Correct Answer
A. 0.5	
B. 1	
C. 1.5	
D. 2	
E. 2.5	✅

Score: 1/1

14.

QUICK CLAY problems are common in what part of Canada?

Student Response	Correct Answer
A. British Columbia	
B. Saskatchewan	
C. Manitoba	
D. Quebec	✅
E. New Brunswick	

Score: 1/1

15.

The 1963 Vaiont landslide disaster _____.

Student Response	Correct Answer
A. represents a series of lessons that must be learned and taken very seriously by future dam builders	✓
B. represents a strong case against the use of hydroelectric power	
C. occurred with very little warning	
D. occurred despite a detailed investigation and analysis of the slope and its stability state	
E. balanced public safety with the economics of constructing the dam	

Score: 1/1

16.

Specifically relating to landslides, a _____ makes a slope susceptible to movement without actually initiating it.

Student Response	Correct Answer
A. cause	✓
B. source	
C. factor	
D. sturzstrom	
E. trigger	

Score: 1/1

17.

Based on how an avalanche starts and moves, which category of mass movement would this type of landslide BEST fit into?

Student Response	Correct Answer
A. complex movements	✅
B. flows	
C. falls	
D. debris flows	
E. rotational slides	

Score: 0/1

18.

Which of the following did NOT contribute to the Frank slide in the Eastern Rocky Mountains?

Student Response	Correct Answer
A. dissolution cavities in bedrock	
B. weak, fractured, and faulted bedrock	
C. bedding planes of sedimentary bedrock parallel to the slope	
D. wet weather in years preceding the slide	
E. removal of vegetation above the slide	✅

Score: 1/1

19.

Sturzstroms are a combination of which two landslide types?

Student Response	Correct Answer
A. falls and slumps	
B. topples and slumps	
C. topples and falls	
D. falls and translational slides	✅
E. translational slides and topples	

Score: 0/1

20.

The enormous 1980 Mount St. Helens rockslide _____.

Student Response	Correct Answer
A. triggered the massive eruption of the volcano	✓
B. was triggered by lahars that were flowing down the slope following the eruption	
C. was triggered independently of the volcanic activity	
D. triggered an earthquake which in turn triggered the volcanic eruption	
E. was triggered following the massive eruption of the volcano	

Score: 1/1

1.

By definition, a landslide trigger is an external stimulus that _____.

Student Response	Value
A. causes a near-immediate response by rapidly decreasing stresses	
B. causes a near-immediate response through the formation of a plane of weakness that allows sliding	
C. gradually brings a slope to failure over a long period of time by weakening the slope	
D. only takes the form of water	
E. causes a near-immediate response by rapidly decreasing strength	100%

Score: 1/1

2.

Which of the following causes of landslides is LEAST important in British Columbia?

	Student Response	Value
A.	climate	
B.	slope angle	
C.	quick clays	100%
D.	removal of vegetation	
E.	overloading	

Score: 1/1

3.

Which statement is FALSE?

	Student Response	Value
A.	Erosion will affect both shear stress and shear strength.	
B.	The likelihood of a landslide is increased when material is added to the resisting mass.	100%
C.	The composition of a slope determines its internal shearing resistance.	
D.	The presence of water in varying amounts can either increase OR decrease shear strength.	
E.	Vegetation on a slope can increase shear strength.	

Score: 1/1

4.

A long-runout debris flow _____.

	Student Response	Value
A.	is also called a sturzstrom	100%
B.	only moves horizontally for distances < 2 times their vertical fall distance	
C.	occurred in Gansu Province, China in 1920	

D. involves relatively small volumes of material moving downslope

E. generally moves at maximum speeds of a few kilometres per hour

Score: 1/1

5.

Which of the following does NOT cause particle cohesion to increase or decrease?

Student Response	Value
A. water's surface tension	
B. electrostatic forces	
C. cementation	
D. failure surfaces	100%
E. particle composition (clay)	

Score: 1/1

1.

Which of the following statements is FALSE?

Student Response	Value
A. Increased pore pressures weaken slopes.	
B. Small amounts of water make slopes more stable.	
C. Extra water favors rotational slides over translational slides.	100%
D. Large amounts of precipitation weaken slopes.	
E. The weight of water contributes to the likelihood of a landslide.	

Score: 1/1

2.

Mass movements can be triggered by all of the following EXCEPT _____.

Student Response	Value
A. hurricanes	
B. meteor impacts	
C. volcanic eruptions	
D. earthquakes	
E. radioactive disaster	100%

Score: 1/1

3.

Which statement is FALSE?

Student Response	Value
A. Erosion will affect both shear stress and shear strength.	
B. The likelihood of a landslide is increased when material is added to the resisting mass.	100%
C. The composition of a slope determines its internal shearing resistance.	
D. The presence of water in varying amounts can either increase OR decrease shear strength.	
E. Vegetation on a slope can increase shear strength.	

Score: 1/1

4.

ALL landslides are BROADLY classified according to _____ and _____.

Student Response	Value
A. type of movement… amount of water present	
B. type of movement… steepness of the slope	
C. geologic material… amount of water present	
D. geologic material… steepness of the slope	
E. geologic material… type of movement	100%

Score: 1/1

5.

Which of the following is the BEST example of rapid erosion?

Student Response	Value
A. debris flows occurring on steep slopes due to deforestation and removal of the protective vegetation cover	
B. liquefaction of a sensitive clay layer in a slope leading to its rapid failure	
C. undercutting of a slope through water action leading to a series of retrogressing landslides	100%
D. a series of rockfalls that occur due to changes in weather in winter and spring	
E. wave action on highly resistant rock	

Score: 1/1

1.

Rockfalls refer to _____.

Student Response	Value
A. a flow of weathered rock	
B. a cement like mixture of rock, soil and water that travels rapidly down a stream channel	
C. fragmented rock that flows at very high velocities for long distances	
D. individual rocks that free fall from the face of a cliff	100%
E. large blocks of bedrock sliding on an inclined surface	

Score: 1/1

2.

If the driving forces acting on a landslide are two times greater than the resisting

forces opposing such movement, its factor of safety is _____.

Student Response	Value
A. 20	
B. 1.5	
C. 2	
D. 0.5	100%
E. 0.2	

Score: 1/1

3.

Which of the following factors does NOT play a role in landslide activity?

Student Response	Value
A. water	
B. tree roots	
C. wind	100%
D. weathering	
E. geology	

Score: 1/1

4.

British Columbia has the highest landslide frequency in Canada because of all the following characteristics EXCEPT _____.

Student Response	Value
A. poorly engineered forestry roads	
B. mountains with steep slopes	
C. frequent temperature fluctuation above and below water's freezing point	
D. Leda clay accumulation in river deltas	100%
E. high precipitation, including winter, rain, and snow	

Score: 1/1

5.

Which of the following factors is expected to lead to INCREASED landslide activity and fatalities with time?

Student Response	Value
A. deforestation in landslide-prone areas	
B. changing global climate patterns	
C. increasing population density in mountainous areas	
D. expanding development onto undeveloped slopes	
E. all of the above	100%

Score: 1/1

6.

An unstable slope may be stabilized by _____.

Student Response	Value
A. removing material from the toe of the slope	
B. steepening the slope	
C. applying a load to the top of the slope	
D. draining the slope	100%
E. preparing a landslide risk map	

Score: 1/1

7.

Quick clay problems are common in what part of Canada?

Student Response	Value

A. Manitoba
B. British Columbia
C. Alberta
D. Nova Scotia
E. Quebec 100%

Score: 1/1

8.

Based on the case history of the Portuguese Bend landslide near Los Angeles, California, indicate whether the following statement is TRUE or FALSE:

"There were no indications of a potential landslide problem at Portuguese Bend before construction began."

Student Response	Value
False	100%

Score: 1/1

9.

Based on the case history of the Portuguese Bend landslide near Los Angeles, California, indicate whether the following statement is TRUE or FALSE:

"Removal of water from a landslide through drainage helps to stabilize slopes."

Student Response	Value
True	100%

Score: 1/1

10.

Which of the following triggered the Hope Slide?

Student Response	Value
A. human activity	
B. unknown at this time	100%
C. weather	
D. joints (fractures) in the rock	
E. earthquake	

Score: 1/1

11.

Which of the following was NOT a contributing factor for the La Conchita landslides in Southern California?

Student Response	Value
A. weak rocks	
B. quick clays	100%
C. steep, high slopes	
D. prolonged and intense rainfall	
E. a history of slides	

Score: 1/1

12.

Which of the following is the fastest type of mass movement?

Student Response	Value
A. rock slide	
B. earthflow	
C. slump	
D. creep	
E. rock fall	100%

Score: 1/1