Hazards: The nature of seismicity – forms and causes *3.1.5.4* ANSWERS

Q1	*Match the terms with their process description*	
A	When the weight of glaciers is lifted and land subsequently uplifts	**isostatic recoil**
B	When soft sediments behave like a liquid due to ground tremors	**liquefaction**
C	When pressure built up between two plates is released	**earthquake**
D	When a denser tectonic plate is forced under a less dense one	**subduction**
E	The resultant giant waves caused by submarine earthquakes	**tsunami**
F	Slope failure and mass movement due to ground tremors	**landslides**
Select from: **earthquake** **landslides** **subduction** **liquefaction** **isostatic recoil** **tsunami**		

Q2	**Tick whether these are primary or secondary seismic hazards**	**Primary**	**Secondary**
A	The resultant giant waves caused by submarine earthquakes		✓
B	Slope failure and landslides due to ground tremors		✓
C	When pressure built up between two plates is released	✓	
D	When shaking causes loose snow to avalanche downslope		✓
E	When soft sediments behave like a liquid due to ground tremors		✓

Q3	**Tick the 2 factors out of each trio that will be most influential in the following processes**			
A	Avalanches	**Depth of snow**	**Strength of earthquake**	**Rock type**
		✓	✓	
B	Landslides	**Angle of slope**	**Altitude of mountain**	**Strength of earthquake**
		✓		✓
C	Liquefaction	**Water content**	**Distance inland**	**Depth of soft sediments**
		✓		✓
D	Earthquake intensity	**Depth of focus**	**Population density**	**Distance to epicentre**
		✓		✓
E	Tsunami	**Proximity to coast**	**Depth of focus**	**Strength of earthquake**
			✓	✓

Hazards: The nature of seismicity – forms and causes *3.1.5.4* ANSWERS

Q4	***How would seismic processes be different along the Pacific Basin if these variables were changed?***
Strength of earthquakes	***Damage and death toll from earthquakes***
If the plates were moving apart… Earthquakes would have a lower magnitude as the plates would have tensional rather than compressional forces acting on them.	**If all the countries surrounding the Pacific were wealthy…** The people living in the coastal zone would be better prepared and protected in the event of an earthquake. Less people would die.
Height of tsunami waves	***The Pacific Basin landscape***
If the area was on a conservative plate margin… When plates move past each other they are less likely to generate tsunami waves as the earthquake will not occur directly under the ocean.	**If the plates were moving apart…** If the plates were moving apart, magma would be basaltic and compressional forces would not be at work therefore large fold mountains would not form. Volcanoes would be shield-shaped rather than composite cones, so the land height would be much lower.

Q5	***Compare and contrast the following characteristics of seismic processes on constructive and destructive plate margins.***
Magnitude of earthquakes: The magnitude of earthquakes tends to be lower on constructive plate margins due to tensional forces and they tend to be higher on destructive plate margins where the plates experience stronger compressional forces.	
Frequency of seismic events: The frequency of seismic events is primarily related to the speed of plate travel rather than the type of plate margin where they occur. Greater movement is experienced where plates are moving in opposite directions. Constructive plate margins tend to experience more smaller frequency earthquakes than at destructive plate margins where greater pressure builds up to cause less frequent, but stronger earthquakes.	
Probability of tsunamis: Tsunamis are more likely to occur at destructive plate margins where denser oceanic plates are subducted under other plates and powerful earthquakes occur. At constructive plate margins, earthquakes are less powerful and rarely cause the uplift of water required to trigger a tsunami.	