RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Applied Sciences

Third Year - Semester II Examination – July 2020

PHY 3105 – PHYSICAL GEOLOGY

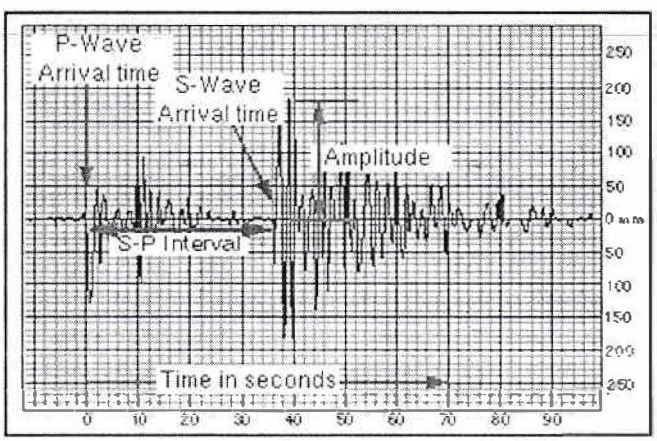
Time: One (01) hour

Answer TWO questions only.

1. Earthquakes are caused by the release of built-up elastic energy at tectonic plate boundaries. They can destroy almost all on earth, with devastating and deadly effects.

   a) Distinguish between *body waves* and *surface waves* in the following highly simplified simulated recording of earthquake waves (a seismogram).

   (10 marks)



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b) Discuss the importance of determining the epicenter of an earthquake.

(10 marks)

c) Sketch the Travel – Time curve used in the determination of the epicenter of an earthquake. **(10 marks)**

d) Explain in detail the *distance correction factor* involved in *Richter scale* used to measure the magnitude of an earthquake. Use diagrams where appropriate. **(10 marks)**

e) "The San Andreas Fault in the San Francisco bay area is a transforming tectonic plate boundary and hence earthquakes are more prone to occur"

Substantiate the above statement. **(10 marks)**

2. Mass wasting is a geomorphic process by which soil, regolith and rock move down slope under the force of gravity.

a) Distinguish between slope failures and sediment flows which are two mass wasting processes. **(15 marks)**

b) List the factors contributing to the mass wasting and discuss each of them in detail. **(15 marks)**

c) What are the common features of a slope where creep (kind of a granular flow) exists? **(10 marks)**

d) What is a debris avalanche? Discuss the devastating features associated with it. **(10 marks)**

3. Write **short notes** on the following;

a) Relative age principles. **(12 marks)**

b) Zero – magnitude earthquakes. **(12 marks)**

c) Streak of a mineral. **(12 marks)**

d) Rayleigh waves and Love waves. **(14 marks)**

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