Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Science and Technology
300 Level 1st Semester Examination – June/July 2017

Uva Wellassa University

MRT 331-3 Applied Geophysics and Engineering Geology

Instructions to candidates
Duration: Three (03) hours
Number of questions: Five (05)
Answer all questions
Mark allocation: 150
Illustrate your answers with sketches/diagrams where necessary

1.

a) Discuss how Geophysics evolved into its current state from the early stages through various developments.

(05 marks)

b) Provide an overview of two geophysical methods used in engineering site investigations.

(15 marks)

2.

a) Explain each step in designing and conducting a ground magnetic survey.

(10 marks)

b) Discuss the corrections that should be applied in magnetic data processing.

(10 marks)

3.

a) Give an overview of the electrical resistivity of rocks.

(05 marks)

b) Describe three electrode configurations used in geoelectrical resistivity surveys.

(15 marks)

4.

Draw the graph between **cumulative percentage finer** and the **particle size** using the following data on the provided-semi log graph sheet.

Weight of container = 198.5 g
Weight of container+ dry soil = 368.7 g

(39) (60)

Sieve Number	Diameter (mm)	Mass of empty sieve (g)	Mass of Sieve + soil retained (g)
4	4.75	116.23	120.23
10	2.0	99.27	112.27
20	0.84	97.58	167.58
40	0.425	98.96	158.96
60	0.25	91.46	98.46
140	0.106	93.15	99.15
200	0.075	90.92	93.12
Pan	-	70.19	78.19

a) Calculate the Coefficient of Uniformity (C_u) and Coefficient of Curvature (C_c)

b) Comment on the uniformity of the soil.

(20 marks)

5.

a) Briefly discuss the Varnes landslide classification. (05 marks)

b) What are Atterburg Limits? Briefly describe. (7.5 marks)

c) Briefly describe how you would conduct a CPT test in the field. (7.5 marks)

-END-