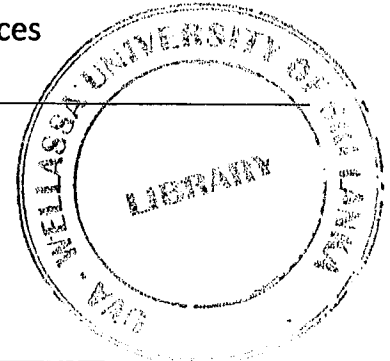


MRT 432-2 Geophysical Methods for Water Resources



Instructions to candidates

Duration: 02 hours

Number of questions: 04 Essay

Answer all questions

Mark allocation: 100

Illustrate your answers with sketches/diagrams where necessary

1.
 - a) Distinguish between active and passive geophysical methods. Give two examples for each method. (05 mark)
 - b) "Geophysical techniques measure discontinuities of physical properties of rocks". Illustrate this statement with two examples. (10 mark)
 - c) Explain why only a few geophysical techniques, among the variety available, are more suitable for groundwater exploration. (**Note:** Avoid detailed description of the methods. Provide only facts to support your arguments.) (10 mark)
2.
 - a) Describe the principles and operational procedures of very low frequency (VLF) electromagnetic method used in groundwater exploration. (20 mark)
 - b) Discuss its advantages and limitations as a subsurface exploration tool. (05 mark)
3.
 - a) Describe the steps of a groundwater resource development programme in detail. (15 mark)
 - b) Explain why geophysical techniques are vital in such a project. (05 mark)
 - c) Briefly describe different types of groundwater occurrences in Sri Lanka. (05 mark)
4. Write short notes on the following.
 - a) Electrical properties of rocks
 - b) Geoelectrical methods of groundwater exploration
 - c) Application of remote sensing and GIS techniques in groundwater exploration
 - d) Well logging
 - e) Aquifer contamination by saline water intrusion(25 mark)