BINDURA UNIVERSITY OF SCIENCE EDUCATION

FACULTY OF AGRICULTURE AND ENVIRONMENTAL SCIENCES

DEPARTMENT OF ENVIRONMENTAL SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE IN SAFETY, HEALTH AND ENVIRONMENTAL MANAGEMENT

ES209: GEOGRAPHIC INFORMATION SYSTEMS AND REMOTE SENSING

DURATION: 2 HRS TOTAL MARKS: 70

INSTRUCTIONS TO CANDIDATES

Answer question 1 and any other two.

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1. (a) Define the following:
   (i) Kappa coefficient [4 Marks]
   (ii) Spectral signature [2 Marks]
   (iii) Active remote sensing [2 Marks]
   (iv) Digitizing process [2 Marks]

   (b) Explain the remote sensing process. [5 Marks]

   (c) Discuss the sources of error in Geographic Information Systems (GIS) and remote sensing projects. [15 Marks]

2. (a) Distinguish between the following:
   (i) Ellipsoid and datum [2 Marks]
   (ii) Discrete features and continuous features [2 Marks]
   (iii) Hyper-spectral and multi-spectral remote sensing [4 Marks]
   (iv) Vector data structure and raster data structure [6 Marks]

   (b) Explain the different sources of data for Geographic Information Systems (GIS) projects. [6 Marks]

3. (a) Explain how accuracy of a classified image can be assessed. [4 Marks]

   (b) Explain any three types of resolution that determine the quality of an image. [6 Marks]

   (c) With reference to an example, describe the plane coordinate

system. [10 Marks]

4. Discuss the application of Geographic Information Systems (GIS) and remote sensing in your field of study. [20 Marks]

5. (a) Define the term buffer zone. [4 Marks]

(b) Describe the methods of data capture used for Geographic Information Systems (GIS) projects. [6 Marks]

(c) Explain the major components for a geographic information system. [10 Marks]

END OF PAPER