DURATION: THREE HOURS   **TOTAL MARKS: 300**

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NOTE: THIS PAPER CONSISTS ONE PAGE.

INSTRUCTIONS: Answer **THREE** questions. Choose at least **ONE** question from **EACH** SECTION, and a **THIRD** one from either **SECTION**.

SECTION A

1. Describe a typical application of GIS in an area of your choice. In your description, include a statement of the problem, how the data would be collected, spatially modelled, analysed, and how the results are best presented.   **[100]**

2. There are two extremes in the conceptual model of space or geographic phenomena: objects or entities and continuous fields. Explain them in detail. **[100]**

3. Assume that the manager of a Municipality where you are employed just returned from a conference where he/she frequently heard the term Spatial Decision Supporting System (SDSS). They know you studied GIS at UKZN and ask you to explain a SDSS to them and gave you an assignment to implement the system. What is your answer and how would you go about implementing the system? **[100]**

SECTION B

1. Image rectification, restoration and resampling are methods of geometric image correction. Provide a detailed discussion of these methods including the advantages and disadvantage of each resampling method.   **[100]**

2. In the electromagnetic spectrum, atmospheric windows play a great role in Earth Observation (terrestrial Remote Sensing). Give an overview of the electromagnetic spectrum in which you describe and discuss the various wavelengths used in Earth Observation and their capabilities.   **[100]**

3. Compare the different ways in which incident radiation will interact with features on the earth's surface and explain the spectral reflectance characteristics of water, green vegetation and soil.   **[100]**