WRITTEN EXAMINATION

SGO1910 – Geographical Information Systems

26th November 2015

(3 hours)

No support materials, except for dictionaries that have been submitted to the Faculty of Social Sciences for control, are permitted.

Results will be available in Studentweb on December 17th 2015.

The results are considered official upon publication in Studentweb and students are responsible for checking their result at this time. If you want an explanation for your grade, you must apply **within one week** after the result is published. The deadline for appealing your grade is three weeks after the announcement of examination results, or three weeks after an explanation of the grade has been given. Information on procedures for requesting explanations and appeals is available on the course page.

This examination paper consists of **3 pages**, including this page.

The candidate must submit both the original and the copy of their examination answers.

NB! Make sure the copy is legible. **No draft is permitted!**

Remember to write down your candidate number for later use.

Good luck!

The exam consists of two parts. Part 1 counts for 25% and Part 2 counts for 75% in the grading.

Read the questions carefully.

The exam may be written in English or Norwegian. Please make sure that the copy is legible.

Part 1. Short answers (25% of exam grade)

Describe **all** of the following concepts briefly. You may include illustrations if appropriate.

1. Tobler's First Law.
2. Geocoding.
3. Metadata.
4. Universal Transverse Mercator (UTM).
5. Modifiable Areal Unit Problem (MAUP).

Part 2. Essay (75% of exam grade, each answer is worth 25%)

Answer **three** of the following four questions as completely as possible. You may include illustrations if appropriate.

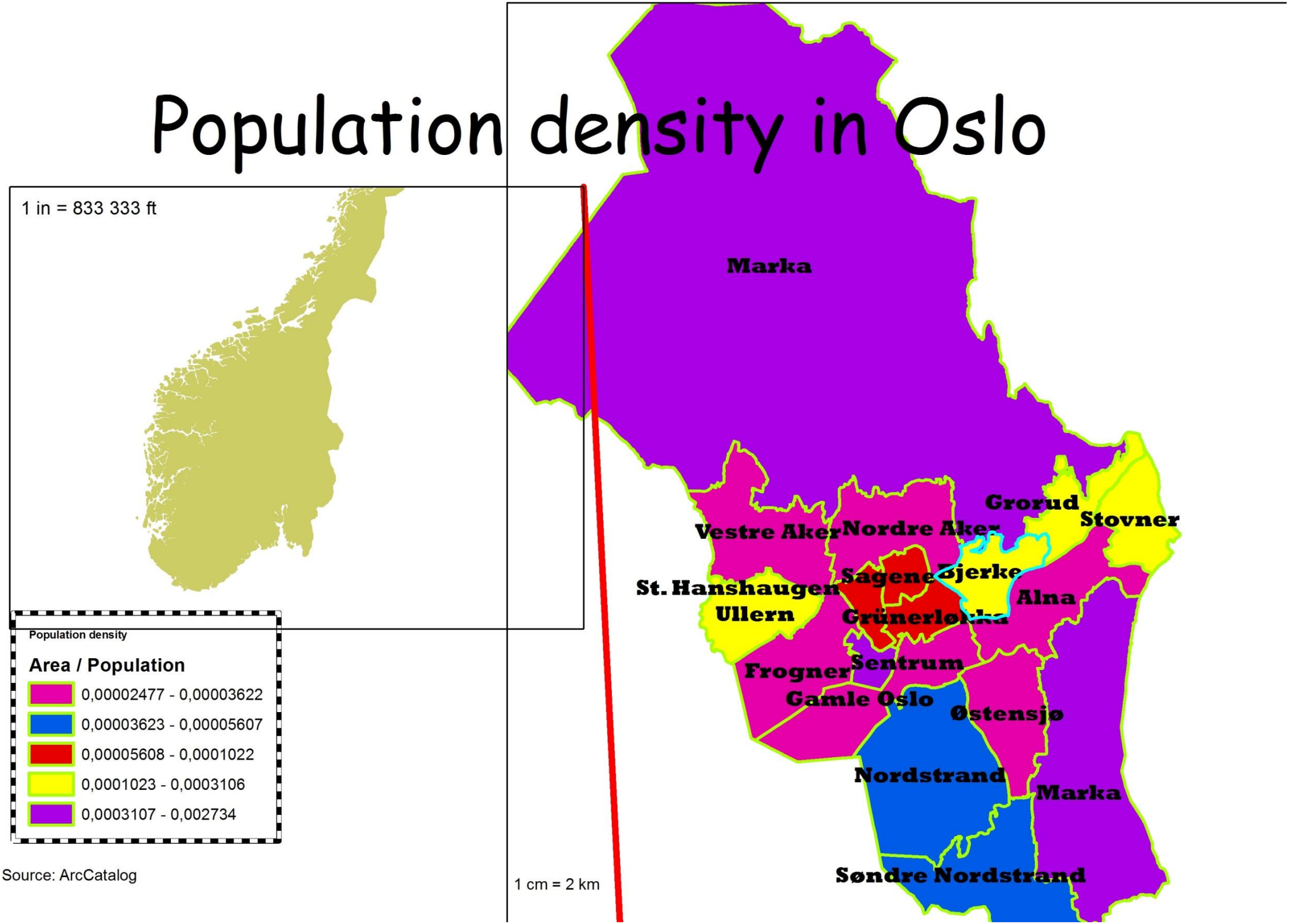
1. The attached map titled 'Population Density in Oslo' has many errors. Critique the map using your knowledge of spatial analysis and good cartographic design. Study it carefully. Some of the errors are obvious but others are more subtle. Find at least five mistakes and explain what could be done to improve the map.

2. What is qualitative GIS? Describe its origins and give some examples of applications and methods.

3. What are the sources of error and uncertainty in spatial data? How and when is uncertainty introduced into the data? What can be done to avoid it?

4. What is the difference between raster and vector data structures? Explain how data is collected and stored in the different structures. Give one example of spatial data especially well-suited for vector data and one for raster data.

Population density in Oslo



Source: ArcCatalog