

# T-110.5121 Mobile Cloud Computing

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**12/2015 Examination** The use of a calculator is ok. All other material is forbidden.

Remember to include the following information in your paper: the course name, date, student ID, name, and signature. Please use English in your answers.

**Choose 3 of the 4 topics below** and write essays on them. Each topic has additional questions as hints on what kind of material you should include. Discuss other relevant issues as well. Remember to consider what is important and what is not when writing your essay.

In some questions you are required to state your own views. Pay attention that you also justify your opinions.

- 1) What is OpenStack? What are the major services provided by OpenStack? When a user makes a HTTP request for launching a new instance, how is the request handled by OpenStack? (Hints: you can choose to use only OpenStack Compute (Nova). In that case, you can explain the architecture of Nova and how the request is handled by different components of Nova.)
- 2) What is dynamic website? Please use an example to describe how to deploy a scalable dynamic website using Amazon Web Services or Google Cloud Platform. (Hints: you can utilize the provided services, such as load balancing, auto scaling, in-memory cache, databases, and content distribution network. You can choose to draw a figure to illustrate the architecture.)
- 3) What is virtualization? Why is it important for cloud computing? What kinds of virtualization mechanisms are available and how do the main mechanisms differ from each other?
- 4) What is Spark? Why is it needed? Compare doing the same task with Spark and with alternative ways.