Name of the student: Matriculation Number:

Cloud Computing Exam

Spring 2022
Date: N/A
Total duration: 90 Minutes   Total Marks: 30

1. **Compare Document-oriented and Column family, non-relational database models**. **(10 Marks)**
   ○ Discuss what needs to be considered when choosing which model to use when a scalable database needs to be used to store and query very large amounts of data.
   ○ Describe a detailed scenario:
     ■ When it is more beneficial to use the Column family model over the Document-oriented model.
   ○ Discuss and provide supporting argumentation for this scenario, why do you think the selected model is more suitable?
2. **You are being hired by a startup, which aims to design and launch a Software as a Service (SaaS) application for users to upload different types of files for temporary storing and sharing between users. (10 Marks)**
   ○ The startup wants to reduce the initial launch costs while they have no actual users as they have not obtained significant funding, but they still want to be able to easily scale the system once the number of users increases significantly.
   ○ Which cloud computing model would be the most suitable for such a use case: Infrastructure as a Service (IaaS) or Serverless/FaaS model?
   ○ Discuss the benefits and disadvantages of using each of the models for this use case and provide supporting argumentation why you think the selected model is more suitable than the other two models.
3. **Describe a detailed scenario when a system deployed in Cloud needs to be scaled, but horizontal scaling is not sufficient by itself and vertical scaling needs to be applied instead. (10 Marks)**
   ○ Discuss and provide supporting argumentation why horizontal scaling is not sufficient for the described scenario and why vertical scaling suits better.