IoT sample exam

6 question multiple choice (1 point correct, 0 not given -0.5 wrong), 1 open question (max 2 points), 1 programming question (max 4 points). In order to pass you need to reach 4 point in the theory part and 3 in the programming exercise.

MULTIPLE CHOICE

1 Choose the correct definition of addressability?

1. An application is addressable if it exposes resources through URIs
2. An application is addressable if it reachable through an IP address
3. An application is addressable if it has a URI
4. An application is addressable if it exposes a web service

2 What is a lock?

1. A mechanism to encrypt a program
2. A mechanism to synchronize threads
3. A mechanism to avoid the update of a variable

3. What is JSON?

1. It is a data exchange format
2. It is a scripting language
3. It is a markup language
4. It is a communication protocol

4 ThingSpeak is:

1. Platform as a Service (PaaS)
2. Infrastructure as a Service (IaaS)
3. Software as a Service (SaaS)

5 What is the main difference between GET and POST methods?

1. Both can submit data but GET allows larger quantities of data
2. GET requests data from a specified resource while POST submits data to be processed to a specified resource
3. POST requests data from a specified resource while GET submits data to be processed to a specified resource
4. Both can submit data but POST allows larger quantities of data

6 What is the relationship between microservices and containers?

1. Containers are used to deploy microservices
2. Containers are a collection of microservices
3. Containers are used to develop microservices

OPEN QUESTION

Briefly list the main entities that are involved in an MQTT communication and describe the operation that MQTT clients must follow in order to send and receive a messages, respectively.

CODING QUESTION

Develop a RESTful-style program in cherrypy to sort a list of books based on the year of publication. The program receives the following inputs:

- The list of items, where each item is a couple representing a book and its publication year. The length of the list is not known a priori.
- A second optional parameter to specify if sorting should be ascending or descending. By default assume ascending.

Choose the most suitable HTTP methods among GET/POST/PUT/DELETE and the data-format. The solution must use the Object Oriented Programming.

HINT: In python, a list can be sorted with the method sort(*key=None, reverse=False*)