



University College Dublin
An Coláiste Ollscoile, Baile Átha Cliath

SEMESTER I EXAMINATION – 2017/2018

COMP 41530

Web Services and Service Oriented Architecture in Cloud Computing

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Time Allowed: 2 Hours

Instructions for Candidates

Answer Question 1 from *Section A* and three questions from *Section B*
All questions carry equal marks

SECTION A

Question 1

Write short technical notes on each of the following topics (each part carries 2.5 marks):

- a) Tight Coupling
- b) Public UDDI Service Registries
- c) Stateless Services
- d) Static Service Discovery
- e) The Client/Server Computing Model
- f) Spiral Model of Software Development
- g) Intrusion Detection Systems
- h) Internal Security Threats
- i) Synchronous Service Calls
- j) JSON

(25 marks)

SECTION B

(Answer any three questions – each question carries 25 marks)

Question 2:

- a. Give 5 reasons why Middleware often used when implementing WebServices?

(10 marks)

- b. List and describe 4 of the services that Middleware can provide in the context of WebServices.

(8 marks)

- c. How does Message oriented Middleware differ from General Purpose Middleware? Describe four of the additional capabilities that distinguish Message Oriented Middleware from more general purpose Middleware.

(7 marks)

Question 3:

- a. What features of SOA environments make Security particularly important?

(7 marks)

- b. Describe 3 of the major tasks to be performed during a Vulnerability Assessment process. List 2 events or times when a Vulnerability Assessment should be performed, and explain why it should be done at that time.

(10 marks)

- c. Name and describe the 4 Security Requirements when a message is being transmitted?

(8 marks)

Question 4:

- a. List and describe 3 of the key features of Web Services.

(8 marks)

- b. List and describe 3 reasons why Web Services have become one of the more commonly used set of technologies when building a Service Oriented Architecture?

(9 marks)

- c. List and describe 4 reasons why Web Services can be readily integrated into the existing IT infrastructure of many organizations.

(8 marks)

Question 5

a) What is SOAP?

(8 marks)

b) Give 3 reasons why SOAP is frequently used when implementing WebServices.

(9 marks)

c) Draw a diagram showing the structure of the SOAP envelope. Describe and give an example of the kind of information that is typically carried in each part of the SOAP Envelope.

(8 marks)