

Athlone Institute of Technology
Faculty of Engineering & Informatics
Semester 1 Examinations 2018
December Session



Bachelor of Science (Hons) in Software Design (Cloud Computing)

Year 3

SERVER-SIDE WEB DEVELOPMENT

External Examiner(s): Dr. Steven Davy, Mr. Jerh O'Connor

Internal Examiner(s): Dr. Paul Jacob

Instructions to candidates: (*make sure you have received the correct paper*)

Read **all** questions carefully.

All questions carry equal marks.

Answer **Three** out of **Four** questions.

Time Allowed: 2 hours

No. of pages including cover sheet: 4

Q1

- (a) What are the three parts of a HTTP message? Give an example of both a HTTP request and a HTTP response.
(6 marks)
- (b) For a HTML form, when the submit button in a form is pressed, how is form data passed from the client to the server for both a HTTP GET and HTTP POST request.
(2 marks)
- (c) Outline the structure of a Web Application, including Web browser, Web server, Form Processing Agent and Database. Draw a diagram. Briefly outline what happens during a user registration.
(6 marks)
- (d) Briefly outline the functionality of Controllers, Model and Views when a Web Application is structured using the MVC architecture. Draw a diagram.
(6 marks)

[20/60 marks]

Q2

- (a) It is required for a Servlet to read a name and address from a form and to create a suitable User object. The user object should be passed to a JSP view page which should display the name and address of the User. Write the following
- | | |
|---------------------|-----------|
| ⑩ HTML form | (4 marks) |
| ⑩ Servlet class | (6 marks) |
| ⑩ Domain class User | (4 marks) |
| ⑩ JSP view | (6 marks) |

[20/60 marks]

Q3

- (a) What is a Data Access Object (DAO) used for? Typically what methods will be defined in a DAO class? Outline a pattern for implementing a DAO as a singleton object in Java using an enum.
- (6 marks)
- (b) Outline a list() method for a UserDao class in Java, that returns a list of all Users. Assume that you have access to a JDBC Connection object for the Database being used.
- (6 marks)
- (c) Write Java (Controller) code to obtain a list of User objects and forward this list to a JSP page.
- (3 marks)
- (d) Assuming a JSP page has access to a list of user objects through the variable “userList”, write JSP code to iterate over the list and print out the name and address of each User.
- (5 marks)
- [20/60 marks]**

Q4

- (a) What are hidden data fields? Outline how hidden data fields can be used to maintain session state.
- (4 marks)
- (b) Briefly what is a Cookie? Outline code to show how a Cookie is set and accessed in a Java Servlet?
- (6 marks)
- (c) What is a HttpSession object and how is it used in a Java Servlet? Explain how the HttpSession object could be implemented internally in J2EE using cookies.
- (7 marks)
- (d) Write JSP to conditionally print out the name of the currently logged in user. If a user is not logged in, nothing should be printed out.
- (3 marks)
- [20/60 marks]**