

Athlone Institute of Technology

School of Engineering

Semester 1 Examinations 2015

December Session



BACHELOUR OF ENGINEERING IN SOFTWARE ENGINEERING

1 YEAR ADD-ON

BACHELOUR OF SCIENCE IN SOFTWARE DESIGN

(WEB DEVELOPMENT) - YEAR 3

SERVER-SIDE WEB DEVELOPMENT

**External Examiner(s): Dr. Norah Power, Mr. Pádraig Brennon
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Internal Examiner(s): Dr. Paul Jacob

Instructions to candidates:

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: 3

Q1.

(a) How is a FORM is created in HTML. In particular mention FORM attributes and the effect they have. Also explain the relevance of both name and value attributes of FORM controls. Outline a form to read in a name, address, checkbox for “add to mailing list” and a submit button.

(6 marks)

(b) Briefly outline the format of an HTTP request.

(5 marks)

(c) What happens when the submit button in a form is pressed? In particular how is data passed from the client to the server?

(4 marks)

(d) Outline the structure of a Web application developed using Servlets.

(5 marks)
[20 marks]

Q2.

(a) Outline how the structure of a Servlet class. In particular explain how the URL mapping for the Servlet is defined. What methods should be defined in the Servlet class? What parameters do they take and when are they invoked?

(6 marks)

(b) Explain how Servlets can be used to access HTTP request parameters. Mention relevant classes and methods in the javax.servlet package. Write Java code to obtain the values of HTTP request parameters name and password.

(4 marks)

(c) What is a Java Server Page? When should a JSP be used instead of a Servlet?

(4 marks)

(d) What are the four scopes of variables in JSP? Explain the relevance of each.

(6 marks)
[20 marks]

Q3.

- (a) Give an overview of the Model View Controller pattern as applied to Web applications.

(8 marks)
- (b) Briefly outline how a Servlet can pass values to a JSP view. Write Java servlet code to pass a reference to a Product object to a view. Write JSP/JSTL to access a property "name" of the Product.

(4 marks)
- (c) What is a Data Access Object (DAO) used for? Outline a pattern for implementing a DAO as a singleton object in Java using an enum. Outline a UserDAO class in Java. What methods would you expect to see in the class? Give pseudo-code for two of these methods.

(8 marks)
[20 marks]

Q4.

- (a) What are hidden data fields? Explain with reference to a FORM that allows a user to add a product to a shopping cart. Write the HTML/JSP for the FORM.

(5 marks)
- (b) What is a HttpSession object and how is it used? What is a cookie? Explain how the HttpSession object could be implemented internally in J2EE using cookies.

(7 marks)
- (c) Briefly outline how registration of users and user login can be implemented using Servlets, JSP and the HttpSession object. What methods are required in the UserDAO class? Given the existence of these methods write a Java Servlet to check a users login.

(8 marks)
[20 marks]