

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF APPLIED SCIENCE**  
**COMPUTER SCIENCE DEPARTMENT**  
**JULY SUPPLEMENTARY EXAMINATIONS 2005**

**SUBJECT: OBJECT ORIENTED PROGRAMMING AND APPLICATIONS**  
**CODE: SCS6101**

**INSTRUCTION TO CANDIDATES**

**Time: 3 hours**

**QUESTION ONE**

- (a) Define the term Web Server. [5]
- (b) Compare and contrast server-side and client-side scripting. What is the purpose and role of each type of script in the creation of web-applications? [10]
- (c) What factors should be considered when choosing a client-side language? [5]

**QUESTION TWO**

Write a server-side script to retrieve data from a database table called Employee , and populate an HTML table which is properly formatted for viewing on a client browser. The output table should have the following appearance:

Employee ID	Name	Programme	Part
N0001234X	Kofi Annan	Computer Science	3
N0034837J	Hans Blix	Chemical Engineering	4

[20]

**QUESTION THREE**

Provide detailed descriptions of the principal objects provided by Microsoft's Active Server Pages server-side scripting model.

[20]

**QUESTION FOUR**

- (a) Define and distinguish between the terms class and object as used in object oriented programming languages. [10]
- (b) Explain the term polymorphism and explain why this is a useful concept. [5]
- (c) What is the meaning of an object's exposed interface? [5]

**QUESTION FIVE**

- (a) What is a client/server architecture? [5]
- (b) What is a 3-tier architecture [5]
- (c) What are the advantages, if any, of using multi-tier architectures for applications as opposed to using monolithic structures? [10]

**QUESTION SIX**

Explain the details of how a web application connects to a database. What high level protocols are used to achieve the connection and how is data then channeled between the application and the database. Use code excerpts whenever these are appropriate to illustrate your explanation. [20]

**QUESTION SEVEN**

Show the HTML code you would use to structure the following form within a client browser.

First Number	<input type="text"/>
Second Number	<input type="text"/>
Sum	<input type="text"/>
<input type="button" value="Add"/>	<input type="button" value="Clear"/>

[20]

**END OF QUESTION PAPER**