



MACHAKOS UNIVERSITY

University Examinations for 2021/2022

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SECOND SEMESTER EXAMINATIONS FOR

BACHELOR OF SCIENCE

SCO 403: NETWORK APPLICATIONS

DATE:

TIME:

INSTRUCTIONS

This paper consists of FIVE questions

*Answer **question one** and other **two** questions in this paper*

QUESTION ONE (30 MARKS)

- (a) (i) Explain THREE differences between connection-oriented versus connectionless communication protocols. (6 marks)
- (ii) Give an example of each of the two types of protocols. (2 marks)
- (b) (i) State what you understand by Search Engine Optimization (SEO). (2 marks)
- (ii) List TWO techniques used in SEO. (2 marks)
- (c) (i) Give the general structure showing how javascript is embedded in a mark-up language such as HTML. Explain the main elements of the structure. (4 marks)
- (ii) With the use of suitable syntax, explain how a variable is declared in PHP. (2 marks)
- (iii) State THREE strengths of PHP as a web programming language. (3 marks)
- (d) A Javascript program is required to capture two numbers then:
 - 1. compute and display their sum. (4 marks)
 - 2. compare and display the largest of the two numbers. (5 marks)

QUESTION TWO (20 MARKS)

- (a) (i) Using the internet as an example, explain the concept of a client/server interaction. Use an appropriate diagram in your explanation. (4 marks)
- (ii) Name TWO software tools used in the programming of each of the two sides of the interaction. (2 marks)
- (b) Distinguish the following:
 - (i) stateless vs stateful servers
 - (ii) thin vs fat client(4 marks)
- (c) (i) In as far as client server interactions are concerned, state what you understand by the term tier. (2 marks)
- (ii) With the use of well-labelled diagrams, differentiate a 2-tier from a 3-tier client/server architecture. (8 marks)

QUESTION THREE (20 MARKS)

- (a) (i) State the importance of control structures in programming. (2 marks)
- (ii) With the use of appropriate flow chart diagrams, describe THREE types of control structures used in JavaScript. (9 marks)
- (b) (i) Differentiate between the frame and the form objects as used in websites. (2 marks)
- (ii) A form is required to capture the number of items sold, in a textfield. The unit cost of each of the items sold is captured in another textfield. The total amount for all the sales is then displayed in a third textfield on the click of a button. Write suitable statements to:
 - 1. Generate the form. (3 marks)
 - 2. Implement the program using an appropriate function. (4 marks)

QUESTION FOUR (20 MARKS)

- (a) (i) State what you understand by a function as used in Javascript. (2 marks)
- (ii) Differentiate between prompt() and writeln() functions. (2 marks)
- (iii) Write suitable Javascript statements to show how each of the above functions is used. (4 marks)
- (b) A Javascript program is required to capture three numbers, calculate their average then display the result to 2 decimal places. Write the program using:
 - (i) dialog boxes (6 marks)
 - (ii) on plain page (6 marks)

QUESTION FIVE (20 MARKS)

- (a) (i) Define the terms web server. (2 marks)
- (ii) Give THREE examples of web servers (3 marks)
- (b) (i) Differentiate between Pre-Processor Hypertext (PHP) and Active Server Pages (ASP) languages as used in web development. (4 marks)
- (ii) Explain the following script in details:
`<html>`
`<body>`
`<?php`

```

$db = mysql_connect("localhost", "root");
mysql_select_db("mydb",$db);
$result = mysql_query("SELECT * FROM employees",$db);
if ($myrow = mysql_fetch_array($result)) {
do {
printf("<a href=\"%s?id=%s\">%s %s</a><br>\n", $PHP_SELF,
$myrow["id"],
$myrow["first"], $myrow["last"]);
} while ($myrow = mysql_fetch_array($result));
} else {
echo "Sorry, no records were found!";
}
?>
</body>
</html>

```

(8 marks)

- (iii) Outline THREE new features that PHP version 7 has added to the older 5.6 version. (3 marks)