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UNIVERSITY REGULARY EXAMINATIONS

2ND SEMESTER 2012 /2013 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF

SCIENCE IN COMPUTER SCIENCE

COURSE CODE: CSC226

COURSE TITLE: CLIENT SERVER COMPUTING

DATE: 23rd August, 2013

TIME: 9.00a.m – Noon

INSTRUCTIONS

Answer question **One** and any other **two** questions

Question One

[30 Marks]

(a) Define the following terminologies

(6 marks)

- i. JavaScript
- ii. Remote procedure call
- iii. HTTP
- iv. Communication Software
- v. CORBA
- vi. HTML

(b) (i) Explain the concept of servlets, especially the HTTP GET request and show a Basic Servlet structure sample. (6 marks)

(ii) Suggest the expected behaviour of a web server running either IIS 5.0 (for Windows 2000 Server) or IIS 5.1 (for Windows XP) and assuming it is behind a firewall that allows traffic only on HTTP Port 80 and HTTPS Port 443. (4 marks)

(iii) Show the parts of a finite state machine that can used to specify the process of a protocol like, sender and receiver. (4 marks)

(iv) Differentiate between CGI, PERL (4 marks)

(c) (i) Show the difference between client-side and server side programming (4 marks)

Question two

[20 marks]

(a) One of the technologies used to power the web is the markup language. Give a brief explanation of what the language is used for and provide at least four markup languages known to you. (4 marks)

(b)(i) Apart from the mark up languages, programming languages provide another web technology. Suggest what a web technologist can a chieve by applying this technology in addition to the former one.

(2 marks)

(ii) Programming languages used to develop the web maybe classified as either interpreted or compiled. Generate a list showing the languages that belong to either side. (3 marks)

Interpreted web languages	Compiled web languages

(c) (i) Apart from mark up and programming languages, web servers constitute web technology that makes it possible for web pages to be hosted on a server. Differentiate between the two main web servers IIS and Apache. (4 marks)

(ii) Access is a database that is easy to work with and readily available with Microsoft office products. Why is its use on the web limited especially for large organizations?(2 marks)

(d) (i) E-commerce is the most dominant application of web technologies. Briefly explain what you understand by e-commerce. (2 marks)

(ii) In order for the Internet to be a viable form of communication and information, standards are required for the related technologies and languages. Three Internet standards organizations exist to define technologies, specifications, and languages and to develop standards for global communication networks, including Internet and networking protocols. Identify and give a brief explanation of each of the three organizations.

(3 marks)

Question Three

[20 marks]

(a) (i) Give a brief description of middleware

(5 marks)

(ii) State and explain any five middleware services

(5 marks)

(b) Summarize middleware into only two categories and explain each of the categories. (5 marks)

(c) Suggest any ten steps in which a remote procedure occurs

(5 marks)

Question Four

[20 marks]

(a) Dry run the following client side script and record its expected output

(5 marks)

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<p>
```

JavaScript can write directly into the HTML output stream:

```
</p>
```

```
<script>
```

```
document.write("<h1>This is a heading</h1>");
```

```
document.write("<p>This is a paragraph.</p>");
```

```
</script>
```

```
<p>
```

You can only use `document.write` in the HTML output.

If you use it after the document has loaded (e.g. in a function), the whole document will be overwritten.

```
</p>
```

</body>
</html>

(b)(i) It is advisable that a PHP script must have owner execute permission. Give a recommendation for best security and suggest an appropriate command for achieving the security level desired script.php is the file containing the php script. (3 marks)

(ii) How does php handle sessions? And what challenges do you consider may arise if php is left to handle sessions through its default approach. Use load balancers in your explanation? (2 marks)

(c) (i) Mumo Stanley, while running his scripts, received a 500 Internal Server Error message, advise him on how he could go about solving this problem. (5 marks)

(ii) Tunigh placed a file containing the code below inside the www directory of her webserver account and saved it as *info.php*

```
<?php  
phpinfo();  
?>
```

What do you consider to be view the file, when this file is run under an appropriate browser?

(2 marks)

Question five

[20 marks]

(a) Define communication and explain the electronic communication subsystems (7 marks)

(b) It is said that in a client server communication system there are several components that must be taken into account. Give an account of only the key components you consider necessary in a communication system. (6 marks)

(c) (i) One of the essential commodities that facilitate a client server is protocol. In your own view, explain the term protocol and show its key elements. (4 marks)

(ii) What do you suggest to be the expected functions of the following protocol engineering phases. Service specification, synthesis, and protocol specification. (3 marks)