

THE OPEN UNIVERSITY OF SRI LANKA
 DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING
 BACHELOR OF SOFTWARE ENGINEERING
 ECI4164 – NETWORKING AND WEB TECHNOLOGY
 ACADEMIC YEAR 2015/2016
 FINAL EXAMINATION



(CLOSED BOOK TYPE)

Date: 26th NOVEMBER 2016

Time: 0930 – 1230 hrs.

INSTRUCTIONS TO CANDIDATE

1. This question paper contains **SIX** questions.
2. Answer any **FOUR** questions.
3. All questions carry equal marks.

Question 01

Read the following description about 'Best Tiles' and answer the questions given below. Your answers must include suitable diagrams where necessary.

'Best Tiles' is a tile company that has 2 showrooms and a centralized warehouse. These showrooms and warehouse have the following IT equipments.

Showroom 01	- 12 PCs - Web Server, Proxy Server, Mail Server - 2 Network Printers
Showroom 02	- 09 PCs - Proxy Server - 2 Network Printers
Warehouse	- 11 PCs - Proxy Server - 2 Network Printers - Database Server

All the PC's are connected to the internet. 09 PC's from Showroom 01 and 07 PC's from Showroom 02 are connected to the centralized database, which is located at the warehouse. All the PC's in the warehouse are connected to the centralized database.

Assume that all the necessary permissions required to access Web/Mail/Proxy/Database Servers are granted properly.

- a) (i) Propose a suitable Network for 'Showroom 01'. (06 Marks)
(ii) What are the additional Hardware and Software that is required for this Network? Justify your answer. (06 Marks)
- b) (i) Propose a suitable network to interconnect the two Showrooms and the Warehouse. (06 Marks)
(ii) What are the additional Hardware and Software requirements you request to have an efficient Networking system? Justify your answer. You have to keep in mind that quick information retrieval on stocks is important. (07 Marks)

Question 02

- a) State 5 advantages of computer Networking. (05 Marks)
- b) Briefly describe what 'Network Protocol' is in your own words. (05 Marks)
- c) State 3 advantages of using fiber optic cables in Networking. (05 Marks)
- d) Briefly Eexplain the term 'Collision Detection' in Local Area Networks. (05 Marks)
- e) State at least 3 benefits of using a layered model such as ISO/OSI or TCP/IP in data communication? (05 Marks)

Question 03

- a) What is an IP address? Explain with examples. (05 Marks)
- b) What are the IP address classes available? Explain with examples. (05 Marks)
- c) How do you identify the Network part and Host part of an IP address? Explain with examples. (05 Marks)
- d) Briefly explain 'Subnet Masking' with suitable examples. (10 Marks)

Question 04

- a) 'HTTP uses a Request/Response model'. Comment on the above statement. (08 Marks)
- b) What are the differences between 'GET' and 'POST' methods in HTML? (07 Marks)
- c) What is the syntax of a CSS rule? Briefly explain a CSS rule using suitable examples. (10 Marks)

Question 05

- a) What are the similarities and differences between JavaScript and PHP? (06 Marks)
- b) Write short notes on the following.
- i. Document Object Model (03 Marks)
 - ii. Multi-dimensional Array (03 Marks)
- c) Write a function to check eligibility of a student in either JavaScript or PHP. You are given the following inputs and they have the same conventional meaning. (13 Marks)

TMA1, TMA2, OQ, CAT, LAB1, LAB2, LAB3, LAB4

The eligibility criteria are given as;

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IF CA ≥ 40 AND Average (LAB) ≥ 40
THEN
    Yes
ELSE
    No

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Where;

$$CA = [(Best\ TMA \times 0.7 + Second\ Best\ TMA \times 0.3) \times 0.3] + [Best\ of\ (CAT, OQ) \times 0.3] + [Average\ (LAB) \times 0.4]$$

$$Average\ (LAB) = Average\ of\ (LAB1, LAB2, LAB3, LAB4)$$

Question 06

a) Write an xml document to represent the following data in the given table. (06 Marks)

Name	Gender	Age	Country	Salary (Rs.)
Malini Silva	Female	28	Sri Lanka	25,000.00
Rex de Alwis	Male	62	Sri Lanka	78,000.00
Phillip Hughes	Male	33	Australia	225,000.00
Samit Patel	Male	22	India	14,000.00

b) Explain the differences between '=', '==', and '===' operators in PHP. (09 Marks)

c) What are the factors that you should consider when developing and deploying a website? (10 Marks)

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