Tutorial Letter 202/2/2013

Computer Systems: Fundamental Concepts

COS1521

Semester 2

School of Computing

IMPORTANT INFORMATION:

This tutorial letter contains the answers for
Assignment 01

BAR CODE

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1. INTRODUCTION

Dear student,

This tutorial letter contains the solutions to Assignment 2 of Semester 2. Tutorial letters can be downloaded from myUnisa (www.My.Unisa.ac.za). If there is any error in this letter, an email will be sent to your myLife account to rectify it.

At this stage, you should have access to the following study material either in print or on myUnisa.

	Letter	**Content**
1	COSALLP/301/4/2013	General school information including telephone numbers
2	CSETALL/301/4/2013	CSET move to Florida information
3	COS1521/101/3/2013	General information and assignments
4	COS1521/102/3/2013	Manual for the prescribed book and additional exercises
5	COS1521/201/2/2013	Tutorial letter for the solution of Assignment 1
6	COS1521/103/3/2013	Exam letter
7	COS1521/202/2/2013	This tutorial letter (Solution for Assignment 2)

COS1521 Lecturers

2. SOLUTION

The solutions to these multiple-choice questions are quite straightforward and therefore not discussed in detail. The answers can be determined from the knowledge gained after going through the prescribe study material as stated on pages 12 & 40 of Tutorial letter 101. In addition, page references are provided to make this process easier. Note that F&M stands for the prescribe text book by Forouzan & Mosharraf. The mark you get out of 50 will be converted into a percentage (%). This assignment contributes 60% towards the semester mark. The semester mark weighs 10% of the final mark.

Question	Answer	Page reference in F&M
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46	3	385
47	4	377
48	2	375
49	1	371
50	1	371

ANSWERS FOR QUESTIONS THAT REQUIRE CALCULATIONS

QUESTION 16

A list contains the following elements:

5 10 15 21 33 47 52 61 88 99 100

At the beginning, first = 1, mid = 6 and last = 11. If the goal is 61, what are the values of first, mid and last respectively after one more iteration of the binary search algorithm?

The input list contains the following elements: Target is 61

The binary search algorithm is to be used. At the beginning first = 1, last = 11 and mid = (11 + 1) / 2 = 6 as stated in the question.

We inspect the element in position 6. The value is 47 which is less than 61, so first = 7, last = 11 and mid = (7 + 11) / 2 = 9, after the first iteration.
(Answer: option 4). *(*Reference: *F & M*, Chapter 8, pp. *230, 231)*

QUESTION 17

Suppose a list contains the following elements:

48 96 20 9 91 5

If bubble sort is used, what is the order of the elements in the list after three passes?

The original list contains the following elements:

|| 48 96 20 9 91 5

Bubble sort must be used. The original list becomes the unsorted list. The smallest element in the unsorted list, i.e. 5, is bubbled to the sorted list. Thus, after the first pass, the order of the elements is as follows, with the || symbol separating the sorted and unsorted lists:

5 || 48 96 20 9 91

The smallest element in the unsorted list, i.e. 9, is bubbled to the end of the sorted list. Thus, after the second pass, the order of the elements is as follows:

5 9 || 48 96 20 91

The smallest element in the unsorted list, i.e. 20, is bubbled to the end of the sorted list. Thus, after the third pass, the order of the elements is as follows:

5 9 20 || 48 96 91

(Answer: option 3). (*F & M*, Chapter 8, pp. 227, 228)