SL Unit 2 – Computer Organization

Quiz 3

Question 1			
Objectives:	2.1.2	Exam Reference:	May-14 5

Distinguish between the use of **two** types of primary memory. [2]

*Award up to **[2 marks max]**.*
*Award **[1 mark]** for identifying **two** types of primary memory.*
*Award **[1 mark]** for the use of **each** type of the memory identified ×2.*
RAM stores data and instructions currently in use
ROM stores permanent instructions
Cache stores frequently used instructions
*(Award **[1 mark]** if only general scheme of CPU is given.)*

Question 2			
Objectives:	2.1.7	Exam Reference:	Nov-14 1

State **one** example of *application software*. [1]

*Award **[1 mark]** for a valid example.*
Word processor; spreadsheet; database management system; e-mail; web browser; CAD; graphic processing software;

Question 3			
Objectives:	2.1.2, 2.1.4	Exam Reference:	Nov-17 8a.b.

The machine instruction cycle is the process by which a program instruction is fetched, decoded, executed and the results are stored.

(a) State where all instructions and data are stored. [1]

Primary memory / RAM

(b) Outline the role of the data bus and address bus in this process. [2]

*Award up to **[2 max]**.*
***Note**: there must be explicit reference to both address and data bus*

Example 1
Buses are used as physical connections to carry information to the CPU;
The data bus transports data from/to CPU, whereas the address bus the memory address where the data is supposed to go/be.

Example 2
Data bus is a physical connection to transport data from-to CPU to be processed;

Address bus is a physical connection to transport an address of memory storage where data (transported in the data bus) should be read/written;

***Note:** Award **[1]** mark, for responses that show some understanding of use of buses in CPU, for address location and data transport without using specialist terminology*

Question 4

Objectives:	2.1.10	Exam Reference:	Nov-14 5

The contents of a 12-bit register is represented in hexadecimal as A5F.

(a) State its binary representation. [1]

*Award **[1 mark]** for right binary number. Accept any spaces.*
1010 0101 1111;

(b) State how many different integers can be represented in this register. [1]

*Award **[1 mark]** for either answer.*
2^{12} or 4096;