**COMPUTER F3 MS**

1. **Define the term data integrity. (2mks)**

Data integrity refers to the dependability, timeliness, availability, relevance, accuracy & completeness of data/information

1. **State three ways of minimizing threats to data integrity. (3mks)**
* Backing up the data on external storage media
* Enforcing security measures to control access to data
* Using error detection & correction software when transmitting data
* Designing user interfaces that minimize chances of invalid data being entered
1. (a) i. Subtract 1102 from 110102 (1mk)

|  |
| --- |
| *110102* |
|  *1102* |
| ***101002*** |

 ii. Find the sum of binary number 101.1012 and 110.1002  (1mk)

|  |
| --- |
|  *101.1012* |
|  *110.1002* |
| ***1100.0012*** |

 iii. Convert binary number 11010110.10012 into octal number. (1mk)

  **

 vi. Convert binary number 11010110.10012 into hexadecimal number. (1 mark)

 

 4. Convert the following numbers to their decimal equivalent

 i. 11.0112 (2 marks)

 *(2 0 x 1) + (21 x 1) + (2 -1 x 0) + (2-2 x 1) + (2-3 x 1)*

*= 1 + 2 +0+0.25+0.125*

*= 3.37510*

 ii. 0.110112 (2 marks)

 *0. (2 -1 x 1) + (2-2 x 1) + (2-3 x 0)+ (2 -4 x 1) + (2-5x 1)*

 *0. 5 + 0.25+ 0.0 +0.0625+0.03125*

 *=0.8437510*

(5) i. Convert 3BD16 to Octal. (3mks)

 *A = 10 = 1010*

 *B = 11 = 1011*

 *C = 12 = 1100*

 *D = 13 = 1101 ✓1mk*

 *001 010 101 110 001 101*

 *1 2 5 7 1 5 ✓1mk*

 *Therefore ABCD16 = 1257158 ✓1mk*

 6. Using one’s complement, calculate 510 – 910. use six bit in your calculation. (3mks)

 *Conversion*

 *510 = 0001012*

 *910 = 0010012✓1mk*

 *-910: ones complement = 110110*

 *Adding 000101 ✓1mk*

 *110110 +*

 *1110112­­ ✓1mk*

7.  **State at least four advantages of storing data in computer files over the manual filing system (4mks)**

* Stored information takes up less space
* Easier to update and modify
* Provides faster access and retrieval of data
* Reduces duplication of data or stored records
* Cheaper
* Enhances data integrity (i.e. accuracy and completeness)

8. With aid of a diagram highlight four main stages of data processing. (6mks)

Data collection

output

Data input

processing

9. Discus five stages of data collection (10mks)

* Data creation
* Data preparation
* Conversion
* Validation
* transmission

10. Define the following elements of a computer file. (3mks)

i. Character

a character is the smallest element in a computer file and refers to a letter, number or special symbol that can be input, processed stored and output by a computer.

ii) Field

a field is a logical combination of characters to represents meaningful piece of data.

iii) Record

a record is a collection of related fields that represent a single entity.