



4.2.6 Hash Tables & Dictionaries

- 1) A computer game stores information about the characters currently being used by players. A **dictionary** is used to associate each character's unique identification number with its name.

The current state of the dictionary is shown in **Figure 1**.

Figure 1

```
characters = {  
    1045: "Knight",  
    1050: "Wizard",  
    1052: "Archer",  
    2012: "Healer"  
}
```

- a) What value will be returned by a lookup operation using the key 2012?

[1 mark]

- 980;

A hash table has been used to implement the dictionary. The hashing algorithm that has been used is id number MOD 100.

- b) What value is returned by the hashing function when it is applied to the id number 2012?

[1 mark]

- 12;

- c) Describe the steps involved in adding a record to a hash table.

[5 marks]

- Hash algorithm applied;
- to key value; NE. to data/item
- result is location in table where the record should be stored;
- if location is not empty;
- then use next free location; A. description of any feasible collision resolution method

