3 A user enters data that is hexadecimal into a computer system. The data is converted to binary to be processed by the computer.

(a) **(i)** Give **one** similarity between hexadecimal and binary.

.....

..... [1]

(ii) Give **two** differences between hexadecimal and binary.

1 .....

.....

2 .....

.....

[2]

(b) Data that is denary can also be converted to binary.

Give the binary number for each of the **three** denary numbers.

15 .....

180 .....

235 .....

[3]

Working space

.....

.....

.....

.....

(c) Denary numbers can also be converted to hexadecimal.

Give the hexadecimal number for each of the **three** denary numbers.

14 .....

100 .....

250 .....

[3]

Working space

.....

.....

.....

.....

.....

.....

(d) A binary integer that is stored in a register in the computer has a logical left shift performed on it.

(i) Describe the process of the logical left shift that is performed on the binary integer.

.....

.....

.....

..... [2]

(ii) State what effect this will have on the binary integer.

.....

..... [1]

(e) A negative binary integer needs to be stored in a register in the computer.

Give the name of the number system that can be used to represent negative binary integers.

..... [1]