02 unit

Number Systems

01.**2011 A/L**

(C) Show how the computation 5+ (-3) is done in 8-bit two's complement arithmetic. Explain how you deal with the carry generated from the most significant bit.

02**. 2012 A/L**

(b) Show how the computation 15+(-15) is done in 8-bit two's complement arithmetic. Explain how you deal with the carry generated in the most significant bit.

03**. 2013 A/L**

(a) (i) Convert 13_{10} and -19_{10} into two's complement numbers. Use 8- bits to represent a number.

(ii) Compute $13_{10}-19_{10}$ by using two's complement numbers obtained in section (i) above and give the answer in two's complement form.

(iii) Explain how the positive and negative numbers in two's complement can be converted into decimal notation.

04**. 2014 A/L**

(a) Show that the negative of 0001_2 is 1111_2. Note that both numbers are in two's complement form.

05. **2015 A/L**

(a) Assume that in particular digital device integers are represented in 8-bits two's complement form. However, the results of computations are printed in decimal.

(i) Give the representation of 10_{10} in the above device.

(ii) Give the representation of -25_{10} in the above device.

(iii) Explain how the computation of 10_{10} -25_{10} done by device by using your representations. Given in sections (i) and (ii) above.

(iv) List the steps necessary to transform the result obtained in section (iii) above into decimal form in order to print the answer.

06**. 2018 A/L**

(b)(i) Write down the two's complement representation of 12_{10} using 8 bits.

(ii) Write down the two's complement representation of -68_{10} using 8 bits.

(iii) Compute -68_{10} + 12_{10} using the above representatios (i) and (ii).

(iv) State one advantage of using two's complement representation for data in internal operations of a computer.