

The Open University of Sri Lanka
B.Sc Degree Programme – Level 03
Department of Mathematics and Computer Science
No Book Test II- 2015/2016
CPU1140: Fundamentals of Computers



Registration No:

Duration: **One hour only (1 hour)**

Date: **30.04.2016**

Time: **10.30 am – 11.30 am**

Answer All Questions

Clearly state the steps you use in the space given.

1. Convert 1289_{10} into **Binary**.

2. Convert 110110_2 into **Decimal**.

3. Convert 234_8 into **Binary**.

4. Convert $34FC_{16}$ into **Binary**.

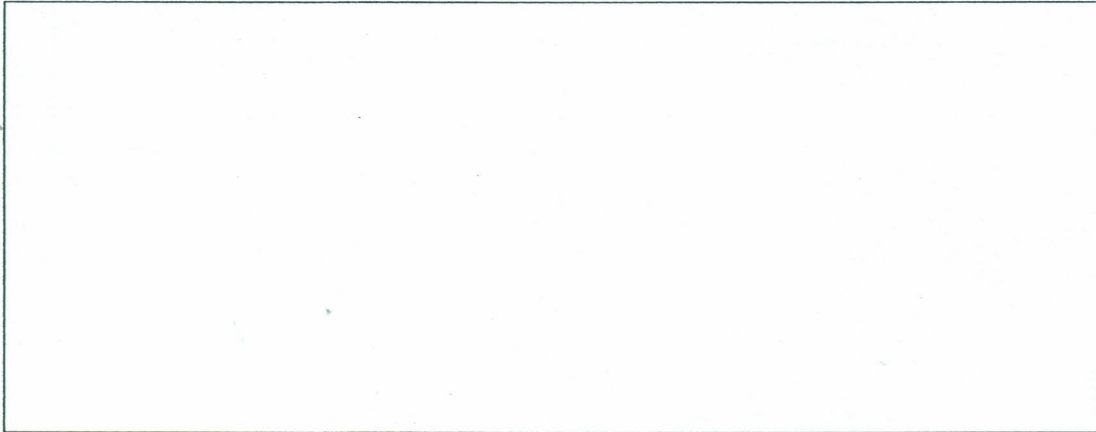
5. Solve the following sums using **Binary Arithmetic**.

i. $110101_2 + 111101_2$

ii. $100111_2 - 11101_2$

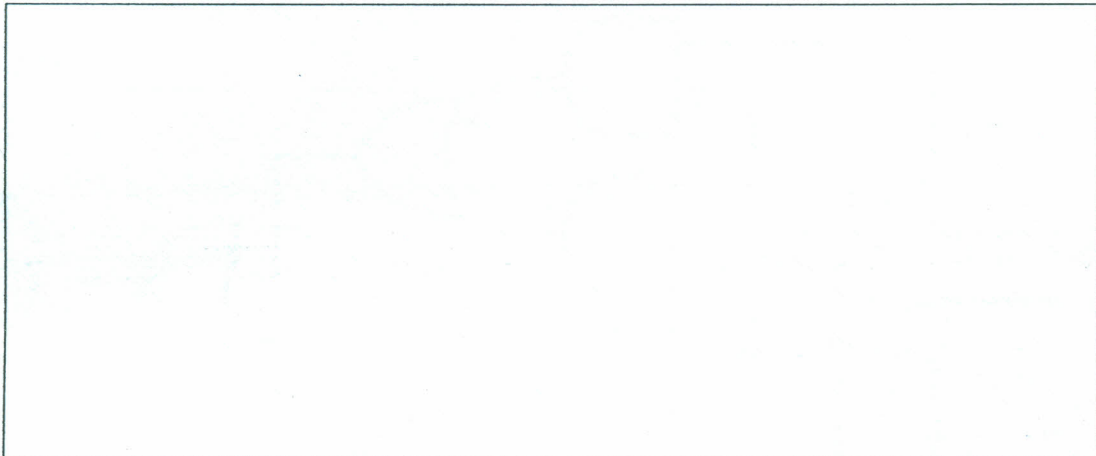
iii. $1101111_2 / 1101_2$

iv. $100111_2 / 1001_2$



6. Use 2's complement representation and solve the following sums.

i. $23_{10} - 18_{10}$

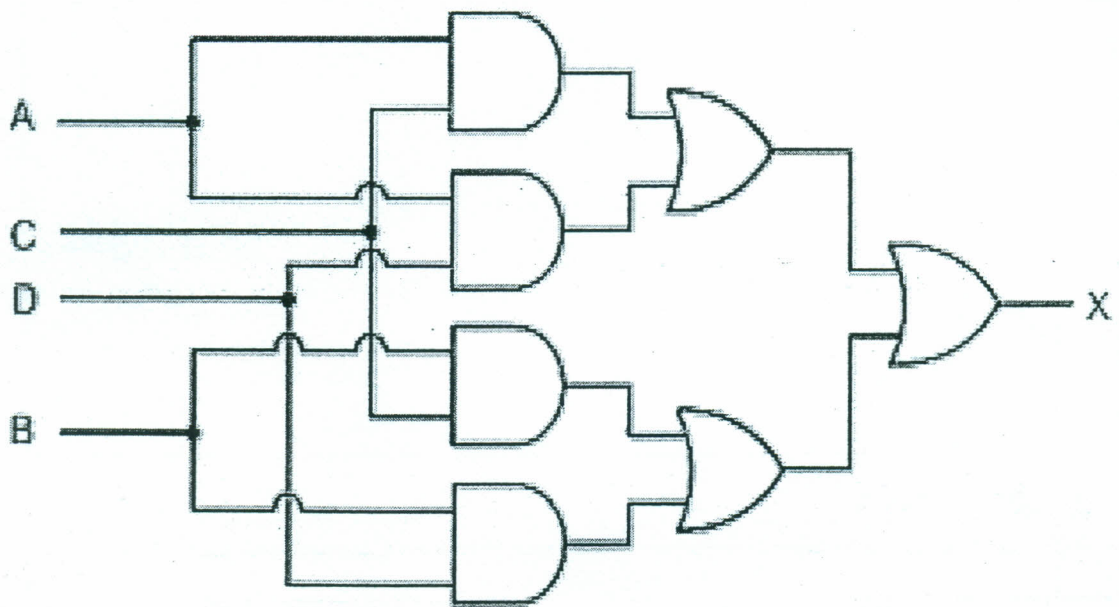


ii. $687_{10} - 345_{10}$



7. What is **Duality principle**? Explain using an example.

8. Derive the **Boolean equation** for the output of the following logic circuit.



9. Minimize the Boolean equation above (question 8) using **Boolean algebraic rules**.



10. Draw the **simplified logic circuit** for minimised output in question 9.



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