FCIS-Ain Shams University
Subject: Introduction to Computers
Midterm exam(A)
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Answer the following Questions: (Total marks 15)
Calculators are not allowed

1. A CPU's word size is important because it determines which **OS** the CPU can use.
2. 1 Gigabyte = **1024 x 1024** Kilobytes. [1 mark]
3. The four-step process of fetch, decode, execute, and store is called a(n): machine cycle[1 mark]
4. **Input** is the first operation of the information-processing cycle, and enables the computer to accept data. [1 mark]
5. The **File compression utilities** create archives by storing files in a special format. [1 mark]
6. Convert $(27)_{10}$ to binary **$(11011)_2$**. [1 mark]
7. Convert $(10001)_2$ to a representation using a base-5 **$(10001)_2=(17)_{10}=(32)_5$** [1 mark]
8. Convert $(1110100100011)_2$ to hexadecimal **1D23**. [1 mark]
9. What is the result of multiplying $(AB)_{16}$ by 2 in binary**$(AB)_{16} + (AB)_{16} = (156)_{16} = (1\ 0101\ 0110)_2$** [1 mark]
10. Convert signed $(11001)_2$ encoded using the 2's complement notation into decimal. [1 mark]
    2's $(11001)_2 = (-7)_{10}$.
11. How many characters are stored in a 12 KB Unicode English text file? [1 mark]
    6K characters [1 mark]
12. How many different values can be represented in 7 bits in each of the following cases: unsigned, sign magnitude, and two's complement representations? Mention the allowed range of values in each case [3 marks]
    Unsigned: 128 values, Range: 0 to 127
    Sign magnitude: 127 values, Range: -63 to 63
    Two's complement: 128 values, Range: -64 to 63