



Vidyavardhini's College of Engineering & Technology

Department of Computer Engineering

Academic Year : 2025-26

Assignment No.1

Code/Sub: 2113114/Computer Organization & Architecture

Year/Sem: SE-III

Date of Announcement:

Date of Submission:

Course Outcome 2113114.1: Apply knowledge of number systems to solve conversion of decimal numbers to binary, octal, hexadecimal and draw circuit diagram using logic gates.

Q. No	Question	Bloom Level
1	<p>A second-year computer engineering student, is puzzled when he/she notices that the number -5 is represented in memory as 11111011 on his/her debugger screen. He/She asks you why the number looks so strange compared to positive numbers.</p> <p>Apply your knowledge of 1's complement and 2's complement methods to represent negative numbers, using -5 as an example.</p>	Apply
2	<p>During a digital systems lecture, the professor mentions that the most significant bit (MSB) in an 8-bit signed number indicates the sign of the number. A student is confused and asks how the same binary string can mean different things.</p> <p>Apply your knowledge of number system to illustrate how the MSB determines the sign of a number in signed binary systems, particularly in 1's complement and 2's complement representations.</p>	Apply
3	<p>In a team discussion, two students are debating whether to use 1's complement or 2's complement for representing signed numbers in their emulator project. One argues 1's complement is easier to understand, while the other insists 2's complement is used in practice.</p> <p>Apply your knowledge of number system to illustrate why 2's</p>	Apply



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	complement is preferred over 1's complement for representing signed integers in modern computer systems. Include the advantages it offers.	
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