

Digital Systems & Microcontrollers - Quiz 1 Grading Scheme

September 9, 2024

Instructions

- Review the grading scheme provided for each question by the respective TA, who has strictly followed this scheme while correcting the papers.
 - In most cases, the TAs have already awarded the maximum possible marks for your solution according to the scheme.
 - Ensure you thoroughly understand the scheme before raising any concerns, and only ask questions if there is a clear discrepancy.
 - Unnecessary or repetitive queries will result in penalties.
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Question 1

Part (a) - Yash Bhutada

- 1.5 marks: All possible combinations are explicitly mentioned.
- 1.5 marks: Correct function is written.
- Partial marks will be awarded for other cases depending on what is written.

Part (b) - Srihari Bandarupalli

Answer: Binary Marking \Rightarrow C is correct.

Part (c) - Srihari Bandarupalli

- 1 mark: If both the function and circuit diagram match.
- 1 mark: If the function covers all combinations correctly.

Question 2

Part (a) - Malla Sailesh

- 1 mark: If the 2's complement of 17 is correct. However, if during conversion the number of bits is reduced from 5 to 4, deduct 0.5 marks.

- 0.5 marks: If the final answer is correct.
- 0.5 marks: If the final answer is obtained from the 2's complement conversion without a carry.

Note: 0 marks if the solution is done without using 2's complement representation.

Part (b) - Malla Sailesh

- 1 mark: If the conversion to base 10 is correct.
- 1 mark: If the conversion to base 6 is done correctly.

Part (c) - Gowlapalli Rohit

- 2 marks: If the expression is evaluated as a' .
- 1 mark: If the expression is evaluated as $a' \cdot (c + b + b \cdot c')$.
- 0.5 marks: If the evaluation is incorrect but some procedure is written.

Question 3

Part (a) - Gowlapalli Rohit

- 2 marks: If the answer is 101001010111.0011 (more than 3 decimal places).
- 1.5 marks: If the answer is 101001010111 but with an incorrect decimal representation.
- 1 mark: If the answer is close to 101001010111.
- 0.5 marks: If the answer is not very close to 101001010111.
- 0 marks: If no steps are shown and only the final answer is written.

Part (b) - Losetti Mourya

- 2 marks: If the method is explained and the answer is reported (1.5 marks for minor mistakes).
- 1 mark: If the method is explained but no answer is given.
- 0.5 marks: If the explanation is close but not entirely correct.
- 0 marks: If binary expansion or long division is used.

Part (c) - Abhinav Reddy Boddu

- 2 marks: If maxterms are computed directly using Boolean laws or formulas (without using minterms).
- 1.5 marks: If the answer is close to the correct maxterm solution using Boolean laws only.
- 1 mark: If maxterms are obtained by first finding minterms.
- 1 mark: If maxterms are obtained using a binary truth table.
- 0 marks: For any other incorrect approach.

Part (d) - Losetti Mourya

- 2 marks: For the correct answer with the correct method.
- 1 mark: For the correct answer but without obtaining minterms from maxterms.
- 0.5 marks: For the correct answer but with no explanation or an incorrect method.
- 0.5 marks: For the correct method but a wrong answer.
- 0.5 marks: If only F' is found but not F .
- 0 marks: For direct answers without explanation or other incorrect cases.