

CSc 245 Final Review Questions

Summer 2020

Each section will give "Review Questions", which will help you review important concepts but have no solutions in the back of the book, and "Review Exercises" which will be more applications of concepts and will have solutions in the back of the book.

1. Math Review - Review Homework 1.

2. Logic

- **Review Questions:**

- Pg 116: 1,2,3,4

- **Review Exercises:**

- 1.1: 1, 5, 11cfh, 17bdf

- 1.3: 5, 7ab, 11a, 21*, 27*, 33*,

- * Use equivalence tables and/or truth tables. Note some of the equivalence tables from the slides have additional rules that may make some of these trivial, don't use these when practicing!

3. Quantification

- **Review Questions :**

- Pg 117: 6,7

- **Review Exercises:**

- 1.4: 5bc, 7cd, 9bc, 11ef, 33ae

- 1.5: 5ab, 11abd,

4. Arguments

- **Review Questions:**

- Pg 117: 8, 9

- **Review Exercises:**

- 1.6: 3,9ad, 13bc,23

5. Proofs

- **Review Questions :**

- Pg 117: 10, 11, 12, 13, 16

- **Review Exercises:**

- 1.7: 5,9,17

6. Sets

- **Review Questions :**
 - Pg 196-7: 1, 2, 3, 4, 5 (ignore symmetric difference), 6,7
- **Review Exercises:**
 - 2.1: 5ab, 11df, 45bd
 - 2.2: 3bd, 13, 27ac. Additional Set proofs: 23, 33

7. Matrices

- **Review Questions (pg 116):**
 - Pg 197: 17,18
- **Review Exercises:**
 - 2.6: 2b, 3c,5, 27bc

8. Relations

- **Review Questions (pg 116):**
 - Pg 666: 1, 2, 3, 6, 7, 10, 11, 12, 13, 14, 15,
- **Review Exercises:**
 - 9.1: 5ab, 13ab,
 - 9.3: 3, 7, 19, 27,
 - 9.5: 1, 21, 27,
 - 9.6: 1, 5, 7, 11,

9. Functions

- **Review Questions (pg 116):**
 - Pg 196: 8,9,10
- **Review Exercises:**
 - 2.3: 1, 7ab, 13ab,21 abc,23 ab,

10. Integers

- **Review Questions:**
 - Pg 325: 1*, 2, 3, 7, 8, 9
 - *Note, $a \text{ div } b$ is equivalent to $a|b$ and $a \text{ mod } b$ is equivalent to $a\%b$
- **Review Exercises:**
 - 4.1: 9, 13bd, 35, 41
 - 4.3: 3 ab, 17 bc, 25 ac, 27ac

11. Sequences & Strings

- **Review Questions:**
 - Pg 197: 12,13,15,16
- **Review Exercises:**
 - 2.4: 3ab, 25 bd
 - 2.5: 1be

12. Mathematical Induction

- **Review Questions:**
 - Pg 399: 1, 2, 3, 4
- **Review Exercises:**
 - 5.1: 7, 15, 21, 31
 - 5.2: 7, 11

13. Counting

- **Review Questions:**
 - Pg 462-3: 1,2,3,4,5,6,8,9,13,15
- **Review Exercises:**
 - 6.1: 3, 7, 13, 33cde, 51
 - 6.2: 5, 11, 15
 - 6.3: 9, 11, 13, 21 bc, 25, 29, 35
 - 6.5: 9cde, 13, 33
 - 8.5: 3, 5, 7

14. Recursive Algorithms

- **Review Questions:**
 - Pg 245: 1, 2
 - Pg 399: 7, 10, 11, 12
- **Review Exercises:**
 - 3.1: 3, 9, 11
 - 5.3: 3ab, 7 ab, 9, 25 bc, 27
 - 5.4: 7, 9, 19

15. Recurrence Relations

- **Review Questions:**
 - Pg 593: 1a, 6, 7, 8
- **Review Exercises:**
 - 2.4: 9 ad
 - 8.2: 1, 3 ac,
 - 8.3: 10