

CSP2348 Exam Information

Now that 9 modules have been went through, you will no doubt be curious about the format and coverage of the exam. I have been to Delphi and the oracle has spoken on the CSP2348 exam. This is what she told me:-

The exam is a three-hour **restricted-open-book** exam – you are permitted to take **ONE** textbook (either *Java Collections*, by D. Watt & D. Brown, or *Data Structures & Algorithms in Java*, by M. Goodrich & R. Tamassia) into the exam room for reference purpose (note that no annotation and inserted sheets are contained in the textbook). You will be requested to attempt questions worth of 100 marks which will then be converted to 60% of the unit mark.

The exam paper has three sections. Section A is to assess your understanding of the topics/ contents covered by the unit, including the basic concepts of data structures and ADT, and basic techniques of doing algorithms analysis, etc. Section B is on the fundamentals of algorithm analysis. And Section C is to test your problem solving skills, in particular, with applying, writing or modifying existing algorithms of those frequently used algorithms for array, linked list and binary tree data structures, and conducting algorithm analysis, etc.

Questions in **Section A** require *brief answers* only. The questions are drawn from the lecture slides, weekly tutorials/workshops, or weekly Review questions. There are 3 questions in Section A (i.e., Q1 through to Q3).

- Q1 consists of 30 *Multiple Choice* questions, carrying 30% of total exam marks (1 mark each).
- Q2 requests you to fill in some *missed* words or expressions etc. to make the sentence/s complete and/or true. An example of such type of questions may read like:

The notation $O(n^2)$ means that an algorithm's time (or space) growth rate is proportional to _____.

There are a total of 10 blanks for you to fill in. Q2 carries 10% of total exam marks (1 mark each blank).

- Q3 consists of 5 *brief-answer* questions, carrying 10% marks (2 marks each). You are requested to *briefly* answer each of these questions, say, using *one* or *two* sentences only. One example of such type of questions could read:

Why is binary search strategy unsuitable for linked lists?

Section B consists of four questions (i.e., Q4 through to Q7), carrying 20% exam marks altogether. This section is to test your fundamental knowledge/skills of algorithm analysis and the simple problem solving ability, and so on. The basic skills required for this question include calculation of *floor* or *ceiling* functions; calculation or listing particular algorithm complexities using big-O notation; tracking an algorithm/method thus to generate algorithm execution outputs;(e.g., build and traverse a binary trees); and/or writing a key statement/s of specified operations against particular data structures, etc.

Section C focuses on algorithms and their analysis. You need to choose and attempt **THREE** out of the **FOUR** questions (Q8 through to Q11) in this section. Each question is worth 10 marks.

(Note: if you answered all questions, the solutions to the first three answered questions will be marked /counted, unless you clearly indicated your preference)

- Q8 requests you modify (or re-write) a binary tree related algorithm to solve a particular application problem, and then analyze your algorithms.
- Q9 requests you apply a sorting strategy/method to solve a particular application scenario. The outcome will be an extension or variation of an array sorting algorithm. You will also be requested to analyze your algorithms.
- Q10 is also an algorithm writing/analyzing task in the theme of array searching/sorting.
- Q11 requests you modify (or re-write) an existing algorithms that we went through during our lectures for the purpose of improving the algorithm performance (or, reducing algorithm complexity), thus to complete a particular task. Once again, algorithm analysis is necessary.

Detailed exam format, coverage, possible tips, recommendations and a sample paper will be included in the Unit Review lecture in the last teaching week (commencing 25 May. 2015). Please make sure you attend the lecture. See you there.

I hope that you have enjoyed the unit to date and found the first assignment both interesting and challenging. I wish you well with your second assignment and, more importantly, the exam 😊

Best wishes,

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