

24T3 DPST1091/CPTG1391 Final EXAM– Wednesday 20th November 2024 –

10:00am (3 hours and 10 minutes) CSE Labs (J17 and K17 rooms String, Sitar,

Oboe, Kora, Flute, Brass, Tabla, Bongo, and Lyre)

https://taggi.cse.unsw.edu.au/FAQ/CSE_lab_map/

1. WHAT IS IN IT?

Everything that we have learnt so far Lots of focus on:

- Simple IF statements and WHILE loops
- Variables: int, double, char, structs
- Strings
- Arrays
- Pointers
- Linked Lists

2. EXAM HURDLES

- There's a linked list hurdle in question 1 or 3
You must also earn a mark of 50% or more in at least one linked list hurdle question
- There's an array hurdle in question 2 or 4
You must earn a mark of 50% or more in at least one array hurdle question
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THESE QUESTIONS WILL BE CLEARLY MARKED ON THE EXAM AS HURDLES

3. NO EXTERNAL HELP

- We will be monitoring this and the exam is invigilated and completely Face-To-Face
- No discussion of the exam or sharing your code with anyone except for DPST1091 staff
- If you experience any issues during the exam, please raise your hand and wait for an invigilator.
- When you come into the room and seat yourself, there will be instructions provided to you how to start the exam.

- We personalise the papers, so your paper may be different to that of someone else.
- You will use a similar command in your practice exam to get you used to the process.

4. *Fit to Sit Policy:*

<https://www.student.unsw.edu.au/exam>

- By sitting the exam on the scheduled assessment date, you are declaring that you are fit to do so and cannot later apply for Special Consideration. If you feel unwell to the point that you cannot continue with the exam, you should stop working. Please raise your hand and let the invigilator know you are unwell.
- Immediately submit a Special Consideration application saying that you felt ill during the exam and were unable to continue.
- You must provide a medical certificate dated within 24 hours of the exam, along with screenshots of the conversation you have had with us.

5. *THE EXAM FORMAT*

11 Practical Answer Questions with the following distribution of marks:

Q1- Q4 (12 marks each) Programming questions (Hurdle questions)

Q5 - Q8 (5 marks each) Debugging questions

Q9 - Q10 (11 marks each) Programming questions

Q11 (10 marks each) Programming questions Similar in style to the questions you did in your problem sets, revision exercises These are also rated to give you an idea of how difficult each question is. We hope that everyone can attempt and complete the first eight questions.

- Questions are similar to the Revision Exercises and labs from basic to very hard.
- (●○○) or (●●○) or (●●●) shows the level of difficulty (basic to very hard).
- Some will have provided code as frameworks.
- Each question will need to be written, compiled and tested.
- You will have access to autotests (but they're just tests!)
- Harder questions will have less autotests.
- There will be no specific style marking, so you don't need to explain your code in comments.
- Read all the questions before starting.
- Start with the easier questions.
- A couple of minutes thinking and drawing a diagram will clarify how you're going to approach a question.
- Use your lab/revision Debugging and testing will be important here.
- Less questions answered completely is better than more questions partially answered.

6. PRACTICAL QUESTIONS QUESTION 1 AND QUESTION 2

Similar to Practical test question 1 or 2 (●○○○)

Question 1 is a linked list hurdle

Question 2 is an array hurdle

Tests your ability to:

- Create simple C programs
- Use variables (int, double, char)
- Use scanf and printf
- Use IF statements and WHILE loops
- Use of simple structs
- Use of arrays of int/double/struct in Q2
- Use of linked list of ints/doubles (no insertion or removal of nodes) in Q1

7. EXAMPLE QUESTION 1

Perform some computation on a linked list

Given a linked list, print the largest value in that list

Edit the function

```
int largest (struct node *head)
```

8. EXAMPLE QUESTION 2

Loop through an array of structs and gather some kind of information.

Given an array of structs, where each struct is:

Print out the total of the number of steps taken in a specific direction.

So for example, if direction is 'l' , find all the structs with direction as 'l' and add the numbers in those structs up.

Edit the function

```
struct direction {  
    int number;  
    char dir;  
};  
  
int total (int size, struct direction array[MAX])
```

9. PRACTICAL QUESTION 3 AND QUESTION 4

Similar to Practical test. (●●○○)

Question 3 is a linked list hurdle

Question 4 is an array hurdle

- If you have answered Q1 and Q2, this means that you have already passed the hurdles of the exam
- These are harder applications of the hurdles .
- You will need to know everything from Q1 and Q2, .
- in addition to: Looping through more than once (maybe) .
- Some insertion/removal of nodes in Q3.
- Testing more difficult conditions and keeping track of more than one thing.

10. Questions 9 and 10

- Harder manipulation of arrays or linked lists (●●●○)
- (Q9) Possibly fgets or string manipulation.
- (Q10) Manipulate linked lists (adding and removing items etc).
- Again, more complex combinations, and some questions requiring interesting problem solving.

11. Question 11

- For those aiming for a HD mark . (●●●●)
- Everything taught in the course might be in these questions .
- Think even some of the hard ones!
- Will also test your ability to break a problem down into its parts .
- The Prac Exam has an example of past Question 11 so you can see the difficulty level Partial completion of this question will award some marks.

12. What should I study?

- The basics are important.
- Know how to use both arrays and linked lists

- Go back and do the labs if you haven't already ..
- The revision exercises on the course webpage are also very useful ..
- Variables, Structs, enums, IF, Looping, Functions, Arrays, Linked Lists are very important to understand!
- You will need to have some understanding of Strings, Pointers, and Memory Allocation to be able to work successfully with char arrays, and linked lists.

13. Exam Marking

- Most of the marking will be automated .
- Make sure your input/output format matches the specification
- Answers for hurdles will also be checked by hand .
- Marks will be earned for correct code, not for passing autotests .
- Minor errors, like a typo in an otherwise correct solution, will only result in a small loss of marks
- Whilst some parts of the exam (the later questions) have been designed to be very challenging, you do not need to complete them to be successful in getting a great mark in this subject.
- Make sure you breathe!
- When you are struggling to understand a question (particularly linked lists):
- DRAW DIAGRAMS!
- Go over your labs and revision questions for extra practice.

Good luck!!!!