Quiz - Paper 4

Instructions

- This quiz contains 25 multiple-choice questions.

- Select the best answer for each question.

- Time allowed: 30 minutes.

1. **What happens when you run this C code? printf("VTU" + 1);**
   - A) Prints "TU" (string pointer arithmetic)
   - B) Segmentation fault (core dumped)
   - C) Prints "VTU1"
   - D) Compiler error: cannot add integer to string literal
2. **What will this loop print?**

   ```
   int i = 0;
   for(; i < 5; i++) {
       if(i == 2)
           continue;
       printf("%d ", i);
   }
   ```

   - A) 0 1 3 4
   - B) 0 1 2 3 4
   - C) 1 2 3 4 5
   - D) Infinite loop (obviously)
3. **What's the value of x after this code?**

   ```
   int x = 5;
   int y = x++;
   int z = ++x;
   x += y + z;
   ```

   - A) 19
   - B) 18
   - C) 17
   - D) A number that only makes sense after 3 energy drinks

4. **Why is this code problematic?**

```
int* get_number() {
   int x = 10;
   return &x;
}
```

   - A) Returns pointer to local variable that goes out of scope
   - B) The function name doesn't have enough underscores
   - C) Integer pointers are so last semester
   - D) It's missing 17 unnecessary typecasts

5. **What's the output of this masterpiece?**

```
#define SQUARE(x) x*x
int main() {
   int result = SQUARE(3+2);
   printf("%d", result);
   return 0;
}
```

   - A) 25
   - B) 11
   - C) 13
   - D) Your professor's disappointment

6. **What happens when you run this code snippet?**

```
char *ptr = malloc(10);
strcpy(ptr, "VTU Computer Science Department");
printf("%s", ptr);
free(ptr);
```

   - A) Buffer overflow: preparing you for real-world programming
   - B) It prints the string then crashes spectacularly
   - C) Undefined behavior: the program might work, explode, or steal your girlfriend
   - D) The string gets truncated to "VTU Comput"

7. **What's the biggest difference between malloc() and calloc()?**
    - A) calloc() initializes memory to zero; malloc() leaves it uninitialized
    - B) calloc() sounds cooler in lab reports
    - C) malloc() is faster but causes more debugging tears
    - D) One function judges your coding skills silently; the other judges openly

8. **How many ways can you corrupt memory in C?**
    - A) More than the number of students who've failed this course
    - B) Exactly 42
    - C) It's a trick question - all C programs eventually corrupt memory
    - D) *(int)*0 = 0; // Answer not found

9. **What does "dangling pointer" mean in C?**
    - A) A pointer that refers to memory that has been freed
    - B) A pointer with existential doubt about its purpose
    - C) The state of every student during a C programming exam
    - D) A pointer that's hanging on to its last bit of sanity

10. **What's the best way to find the memory leak in your program?**
    - A) Use Valgrind or similar memory analysis tools
    - B) Add more memory to your computer until the problem goes away
    - C) Ask the lab assistant who will also be confused
    - D) Restart your computer and pretend it never happened

11. **The relationship between sleep and debugging ability is:**
    - A) Inversely proportional: less sleep = more bugs = less sleep
    - B) Directly proportional: sleeping on the keyboard produces the best code
    - C) Exponentially decaying: effectiveness drops faster than VTU attendance after week 3
    - D) Undefined: like most pointer arithmetic in your assignments

12. **What's the most accurate way to predict when your C assignment will be finished?**
    - A) Take your initial estimate and multiply by π
    - B) Count the number of semicolons, divide by your will to live
    - C) Add one day for each pointer in your code
    - D) You'll finish approximately 30 minutes after the deadline

13. How many VTU students does it take to fix a segmentation fault?

- A) One to add 500 printf statements and one to interpret the results
- B) Three - one to code, one to Google, one to pray
- C) None - they'll change their major instead
- D) The entire lab section plus one StackOverflow expert

14. What happens when your code passes all test cases on the first try?

- A) You wake up from your dream
- B) The external examiner becomes suspicious and fails you anyway
- C) You frantically check if you submitted the right file
- D) The universe creates a new bug to maintain cosmic balance

15. What's the difference between first-year and second-year programmers debugging C code?

- A) First-years blame the compiler; second-years blame the professor
- B) First-years don't know what pointers are; second-years wish they still didn't
- C) First-years copy code from the internet; second-years know which parts to copy
- D) First-years panic when seeing errors; second-years expect them

16. If you comment your code thoroughly, what's most likely to happen?

- A) Your comments will eventually lie as the code changes but they don't
- B) You'll spend more time commenting than coding
- C) No one will read them anyway, including future you
- D) All of the above, in that exact depressing order

17. What's the most effective way to summon bugs into existence?

- A) Say "My code works perfectly" right before the demo
- B) Submit your assignment 5 minutes before the deadline
- C) Tell your friend "I just need to add one more feature"
- D) Remove all your printf debugging statements because "it works now"

18. What does a C programmer say when feeling overwhelmed?

- A) "I'm suffering from pointer decay"
- B) "My stack has overflowed"
- C) "I've malloc'd more than I can free()"
- D) "seg fault (core dumped)"

19. What's the proper sacrifice to make before your C programming viva?

- A) A circle of Red Bull cans and torn assignment papers
- B) Your social life for the past month
- C) The last 3 chapters you never understood
- D) Your sanity, one segmentation fault at a time

20. What's the official name for the phenomenon where code works in the lab but fails during evaluation?

- A) Professor's Paradox
- B) The Demo Day Curse
- C) Heisenbug: the act of observing the code changes its behavior
- D) Murphy's Law of Academic Demonstration

21. What's the actual difference between AI and a VTU C programming student?

- A) AI learns from its mistakes
- B) AI can process more than one error message without crying
- C) AI doesn't blame the compiler for logical errors
- D) AI hasn't experienced the emotional damage of forgetting a semicolon

22. What's the correct measurement unit for C program quality at VTU?

- A) Segfaults per function
- B) Minutes spent explaining why it doesn't work
- C) Number of last-minute fixes that caused new problems
- D) Ratio of code that works to code you understand

23. What's the most reliable way to generate a truly random number in C?

- A) Count the number of times you'll recompile before finding a missing brace
- B) The number of minutes the lab computers take to boot
- C) Use the rand() function but forget to seed it with srand()
- D) Measure time between "It works!" and discovering why it works

24. If your C program has no comments but runs perfectly, is it good code?

- A) Yes, but only until you need to modify it next week
- B) No, but you'll get full marks anyway
- C) It exists in a superposition of brilliant and terrible until your professor observes it
- D) Yes, if you can convince yourself you'll remember how it works

25. What happens when you finally understand someone else's uncommented C code?

- A) You immediately get assigned to maintain it forever
- B) You gain the power to write equally incomprehensible code
- C) You realize you've been staring at the screen for 6 hours and need food
- D) Your newfound knowledge will be lost during the next compile error