

Computer Programming Set2

Mid Semester Exam

Instructions

1. This is a **closed book online proctored** exam.
 - a. You should not refer to books, notes or online resources.
 - b. You should not discuss questions or answers with anyone (including outsiders)
 - c. You should have your camera and microphone **ON** at all times and no headphones
2. Write the solutions clearly and legibly in A4 sheets, using pen (NOT pencil) and at the end of the exam you should submit the scanned copy of your solutions as explained by the faculty
3. **The name of the scanned copy should be the Roll No + '_' + Set No. (e.g., S20200010XYZ_Set2).**
4. **Write the name and the roll no. on each page of the answer sheets.**
5. Follow all other instructions given by the faculty during the exam

Objective Questions (1 mark each)

1. Which of the following system software is designed for placing the object code at the required position in memory?
 - A. Linker
 - B. Loader
 - C. Compiler
 - D. Interpreter
2. C is an example of which type of programming language?
 - A. Procedural
 - B. Object Oriented
 - C. Declarative
 - D. Logical

3. Convert the decimal number 321 to binary

- A. 101000001
- B. 110000001
- C. 101100001
- D. 101010001

4. Which of the following system software is designed to convert symbolic languages to machine language?

- A. Compiler
- B. Interpreter
- C. Assembler
- D. None of these

5. Consider the two preprocessor directives:

A: `#include<stdio.h>`

B: `#include "functions.c"`

Which of the two are correct?

- A. A only
- B. B only
- C. Both A and B
- D. Neither A nor B

6. What value will be printed by the following piece of code in the program ?

```
int main()
{
    -----
    // x integer and ch character (an English letter)

    x = (ch>='a' && c<='z') ? (ch - 'a') : ch;

    printf("%d", x);
}
```

- A. ASCII value of character (not exactly (b) or (c))
- B. ASCII value of lower case letter
- C. ASCII value of upper case letter
- D. None

7. What is the output of the following piece of code ?

```
int x=10, y=10;
```

```
x ^= y ^= x ^= y;
```

- A. x=10, y=10
- B. x=20, y=10
- C. x=0, y=20
- D. x=10, y=20

8. Assume 4-bit representation of a number (fixed point precession). What is the value of $((\sim x + 1) \& x) == x$, where $x=7$ integer ?

- A. 0
- B. 1
- C. 0111
- D. None

9. What is the value of following expression: $(v|u) \& \& a >> 1$, where $v=3$, $u=4$, $a=7$?

- A. 0
- B. 1
- C. 3
- D. 7

10. What is the value of integer x, after evaluating the following expression: $x = (1, 2), 3, 4;$

- A. 1
- B. 2
- C. 3
- D. 4

11. What is the output of C program with switch statement or block.?

```
int main()
{
    char code='K';
    switch(code)
    {
        case 'A': printf("ANT ");break;
        case 'K': printf("KING "); break;
        default: printf("NOKING");
    }
    printf("PALACE");
}
```

- A. KING PALACE
- B. KING NOTHING PALACE
- C. ANT KING PALACE
- D. Compiler error for using Non Integers as CASE constants.

12. What is the output of C Program with switch statement or block.?

```
int main()
{
    switch(24.5)
    {
        case 24.5: printf("SILVER ");break;
        case 25.0: printf("GOLD "); break;
        default: printf("TIN ");
    }
}
```

```
printf("COPPER");  
}
```

- A. SILVER COPPER
- B. TIN COPPER
- C. COPPER
- D. Compiler error

13. Choose a correct statement about a C Switch Construct.

- A. default case is optional inside switch.
- B. break; causes the control to exit the switch immediately and avoid fall down to other CASE statements.
- C. You can not use duplicate CASE Constants inside a Switch construct.
- D. All the above.

14. A typical “switch” body looks as follows:

```
switch (controlling_expression)  
{  
    case label1:  
        /*label1 statements*/  
        break;  
    case label2:  
        /*label1 statements*/  
        break;  
    default:  
        /*Default statements*/
```

}

Which of the following statements is not the correct statement?

- A. "switch" body may not have any "case" label at all and it would still compile.
- B. "switch" body may not have the "default" label and it would still compile.
- C. "switch" body may contain more than one "case" label where the label value of these "case" is the same and it would still compile.
- D. "switch" body may not have any "break" statement and it would still compile.

15. What is the output of the C Program.?

```
int main()
{
    int a=0, b=0;

    while(++a < 4)

    printf("%d ", a);

    while(b++ < 4)

    printf("%d ", b);

    return 0;
}
```

- A. 0 1 2 3 1 2 3 4
- B. 1 2 3 1 2 3 4
- C. 1 2 3 4 1 2 3 4
- D. 1 2 3 4 0 1 2 3

Descriptive Questions (10 marks each)

1. Explain the process of program execution from compilation to execution.
2. Write a C code to read two numbers, and find their product after exchanging last digits. Input 4270 and 153 output 640950 ($4273 * 150$). Input 348 and 31, output 12958 ($341 * 38$).
3. Differentiate between if-else-if and switch statement