Signature of the invigilator

NATIONAL INSTITUTE OF TECHNOLOGY CALICUT

Department of Computer Science and Engineering

First Semester B.Tech., Test 1 Examination, Thursday, 24 January, 2019 @ 09.30-10.30 Hrs

ZZ1004D-COMPUTER PROGRAMMING (Max. Marks: 15)

Name: **Roll No.:** **Sl. No.:** **Batch:**

RUBRIC: (i) All questions are related to 'C' programming language. #include<stdio.h> is assumed to be wherever is required.
$ (ii) For Objective type questions, marks will be awarded ONLY if the options (A|B|C|D) are provided in the box.
(iii) Q1 to Q8 carry 0.5 mark each, Q9 to Q14 carry 1 mark each.
(iv) For rough work, use the additional sheets. CTE means Compile Time Error.

Q1. void main function returns zero, if the program has terminated successfully and returns non-zero, if the program has not terminated successfully**.** [C]
A) Not Always. Sometimes returns special character. B) TRUE
C) FALSE D) Cannot Say

Q2. main() { int Void = 100; printf ("%d", Void); } [B]
A) CTE, as Void is a keyword B) 100
C) Run Time Error, as it is not a valid Identifier D) 000

Q3. main() { int a = 10, b = 20, c = 30; if (c > b > a) printf("TRUE"); else printf("FALSE"); } [D]
A) CTE B) TRUE
C) Compilation Successful, but no output D) FALSE

Q4. main() { int b; float c = 2.6; b=13/c; printf("%05d",b); } [C]
A) 005.00 B) 055 C) 00005 D) CTE E) 5

Q5. Which of the following is not a valid constant? [D]
A) 0x7E22 B) -4.5E-2 C) '07659' D) -4.5E E) 1294uL

Q6. The CONTINUE statement cannot be used with [B]
A) for B) switch C) while D) do while E) If else

Q7. Minimum and maximum value for a signed character variable is [A]
A) -128 & 127 B) -128 & 128 C) -127 & 127 D) -127 & 128

Q8. Which of the following is TRUE with respect to statement "int a;"? [A]
A) Definition and Declaration B) Definition Only
C) Declaration only D) const keyword is associated with int a;

Predict the Output for Questions 9 to 12 and fill the output in the Box.

Q9. Assume that i, j, and k are integer variables and their values are 8, 5 and 0 respectively. What will be the value of variable i after executing the following expression? [i = 3]
k=(j>5)?(i<5)?i-j:j-i:k-j; i-=(k)?(i)?(j):(i):(k++);

Q10. [f = 122]
```
main() { int i=28, j=5,k=18, f=8; f = i++ + --j; k= f + --k + ++f;
         f = i * j-- - k++ / 3 + f++; printf ("%d", f); }
```

Q11. [Exam]
```
void main() {
    int exam= 1; switch (exam << (3 + exam)/16) {
                    default: printf("Welcome\n"); break;
                    case 0: printf("to T1\n");
                    case 1: printf("Exam\n"); break;
                    case 16: printf("at ECLC\n"); } }
```

Contd. … (2)

Q12. If variable 'x' is declared as integer and 'y' is declared as float, write the values of x after executing each of the following statements. (given: int a=7, x, b=8, c=18; float p=1.4, q=2.5, r=3.0, f=2.0;)

<table>
<tr><td>x= ((a>b)||(c>b))+((q>r)&&(a==r))+q;</td><td>Value of x is 3</td></tr>
<tr><td>x=(a+=c)+(p==0.7f);</td><td>Value of x is 25</td></tr>
</table>

Q13. main() { char a, b; a= 'b'; char b=a; printf("%d\n", b); }

Error due to redeclaration of b

Q14. main() { int x = (21, 3, printf ("1")); printf("%d", x); }

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Q15. Convert the following statements into a successfully executable C program:

a) Declare two variables (a &b) as integer and two variables (c & d) as long integer. Initialize the long integer variables (c =0 & d=1). **[0.5 Mark]**

b) Get integer input from the user and write a for loop running from 0 upto input (received from the user) times and incrementing it by 2. **[0.5 Mark]**

c) Inside for loop, multiply a long integer variable by 10 and increment it to 1. Store the result in the same long integer variable. Outside for loop, print the value obtained in the long integer variable in long integer format. **[0.5 Mark]**

d) The code written is complete and runs without any errors and produces exact output. **[0.5 Mark]**

Note: Only four variables (a, b, c, d) must be used in the program.

```
int main() {
        int a, b;
        long int c=0, d=1;
        scanf("%d",&a);
        for (b=0; b<a; b+=2)
            d = (d*10)+1;  //c=(c*10) + 1;
        printf("%ld",d);

    }
```

Q16. For the following program, pl. fill the appropriate answers in the box provided. The program finds the minimum number of bits required to store an integer number. Assume integer size is four bytes. [3 Marks]

```
main() {
    int n, count=0, i;
    scanf("%d",&n);
    if(      ?      )
        return 0;
    for(        ?        )
            if (          ?          )
                count=i;
    printf("Total number of bits required = %d\n", ++count);
}
```

n == 0

i=0; i< 32; i++

(1 << i) & n

For example, the test cases are as follows:

Input 1: 15 Output 1: 4
Input 2: 16 Output 2: 5
Input 3: 56 Output 3: 6

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