

Marks Scored:

KATHMANDU UNIVERSITY
End Semester Examination[C]
June, 2018

Level: B. E./B.Sc.

Course : COMP 103

Year : I

Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

Date

JUN 14 2018

SECTION "A"

[20 Q. × 0.5 = 10 marks]

Encircle the best alternative.

- Scale factor of any data type is
 - total number of scale of that data type
 - size of the data type
 - value returned by size of operator for the data type
 - total number of bytes occupied by the variable
- Which of the following data type specifier has the longest life in program execution?
 - Static
 - Local
 - Register
 - Automatic
- Which of the following statement is true if the return type of function is void?
 - Function may or may not return any value
 - Function return value is optional
 - Function does not return any value at all
 - Function return value equal to 0
- The use of "continue" statement
 - To terminate a use of case in switch statement
 - To force immediate termination of loop
 - Both a and b
 - To skip a certain condition in loop
- Which of the following is valid name of any user defined function?
 - Main
 - auto
 - abc
 - 12function
- If you pass an array as an argument to a function, what actually gets passed?
 - Value of elements in array
 - First element of the array
 - Base address of the array
 - Address of the last element of array
- What is output of following program :

```
char *ptr;
char myString[] = "abcdefg";
ptr = myString;
ptr += 5;
printf("%c", *ptr);
```

 - e
 - f
 - a
 - Generate error

8. The loop in which the statements within the loop are executed at least once is called
- a) Entry controlled loop
 - b) Exit controlled loop
 - c) Middle controlled loop
 - d) Recursion

9. What is the value of myArray[1][2]; in the sample code segment below?

```
int i, j, myArray[2][3];
for (i=0; i<3; i++)
    for (j=0; j<2; j++)
    {
        myArray[j][i] = ctr; ++ctr;
    }
```

- a) 2
- b) 5
- c) 6
- d) 3

10. What value does testarray[2][1][0] in the sample code below contain?

```
int testarray[3][2][2] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12};
```

- a) 9
- b) 10
- c) 11
- d) 12

11. Incrementing a pointer that points to an array will

- a) Cause an error.
- b) Cause the pointer to point to the next element in the array.
- c) Increase the value of the element that the pointer is pointing to.
- d) None of the above

12. How many times will Hello be printed by given sections of statements?

```
int x;
for (x= -1 ; x<=10 ; x++)
{
    if(x > 5)
    break;
    printf("Hello");
}
```

- a) 0 times
- b) 7 times
- c) 5 times
- d) infinite times

13. Which of the following is not logical operator?

- a) &&
- b) ||
- c) &
- d) !

14. Which statement will you add in the following program to work it correctly?

```
#include<stdio.h>
void main()
{
    int a=60;
    printf("%d", pow(a,4));
}
```

- a) #include<conio.h>
- b) #include<math.h>
- c) #include<stdlib.h>
- d) #include<string.h>

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15. What is the output of the following program segment?

```
main()
{
int i = ++2;
printf("%d\n", i);
}
```

- a) 3 b) 2 c) 0 d) Generate error

16. typedef keyword helps to

- a) define type of existing variable b) define type of existing keyword
c) define a new datatype d) define an equivalent datatype

17. When applied to a variable, what does the unary "&" operator yield?

- a) The variable's value b) The variable's binary form
c) The variable's address d) The variable's format

18. Dynamic memory allocation helps to

- a) Allocate memory during static linking
b) Allocate memory during the compile time
b) Allocate memory during both compile and run time
c) Allocate memory during run time

19. Individual member of structure can be accessed through pointer to the structure by using

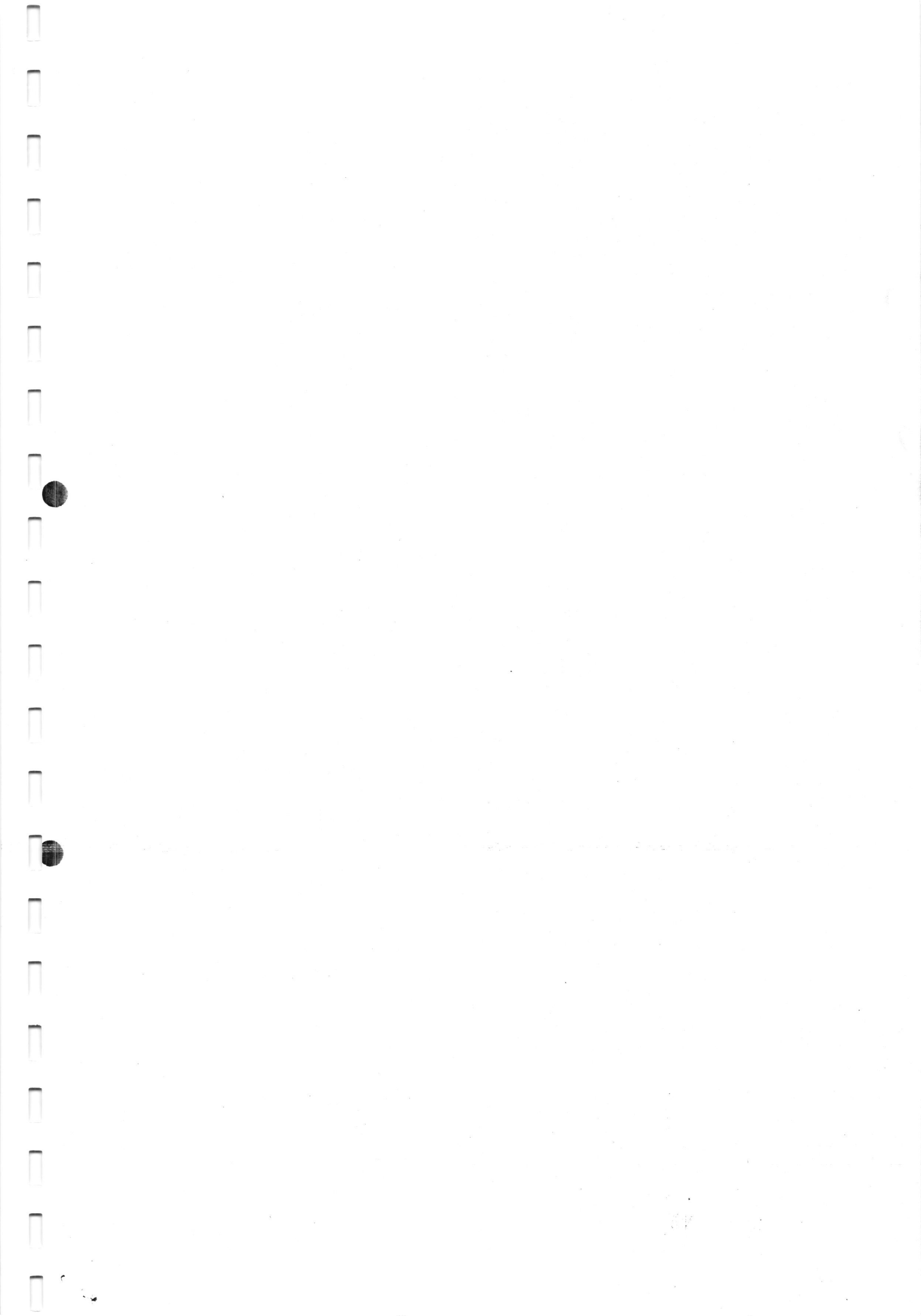
- a) Arrow operator b) Asterisk operator c) Dot operator d) And operator

20 For a structure declaration:

```
struct a{
char a;
}b;
```

What will size of (b) return?

- a) 1 b) 4 c) 2 d) Generate error



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JUN 14 2018
Course : COMP 103
Semester : I
F.M. : 40

Level : B. E./ B. Sc.
Year : I
Time : 2 hrs.30 mins.

SECTION "B"

[6 Q. × 4 = 24 marks]

Attempt *ANY SIX* questions.

1. Explain in brief about operator precedence and associativity rule in context of arithmetic operators.
2. What is control statement? Explain in brief about similarity and differences between switch statement and if-else ladder statement with appropriate syntax.
3. What are advantages of making program modular? Describe in brief about different components involved in modularization in C programming. [2+2]
4. Write a program to count total number of perfect numbers stored in an array using function. (A number 28 is perfect because $1+2+4+7+14=28$)
5. Write a recursive function to display Highest Common Factor of two input numbers. Explain the intermediate statements in comment sections.
6. How can we access structure members using pointer to structure? Explain with appropriate example.
7. Write a program to find sum of all diagonal elements of 2-dimensional array.

A[4][4] =

1	2	3
3	1	4
2	0	2

 here sum is $1+1+2+2+3=9$

SECTION "C"

[2 Q. × 8 = 16 marks]

Attempt *ANY TWO* questions.

8. How can we achieve dynamic memory allocation in c programming? Explain with appropriate syntax. What is direct and indirect recursive functions? What are the advantages and disadvantages of recursive function over its iterative counterpart. [4+1+3]
9. Write a program to count total number of vowels in an input string. Use built-in function toupper() or tolower() to count both upper and lower case vowels. // toupper('a') returns 'A'. e.g. for string "aAcDeU", it should return value 4.
Explain in brief about waterfall model of software development life cycle. [4+4]
10. Declare a structure which can hold name, address, contact number and date of birth of an employee. The date of birth (DOB) has three members: day, month and year. Create an structure array to hold information about 10 employee and display the information sorted by their date of birth.
Hint: [use nested structure, sort considering all three members of DOB: day, month and year]

