

## Department of Computer Science

Class : F. Y. B.Sc.(Comp. Sci.) Sem. – II

Paper : Advanced Programming using C (CSCO- 1201)

### Objective Questions

1. Which of the following cannot be a structure member?
  - A. Another structure
  - B. Function
  - C. Array
  - D. None of the mentioned
2. Which operator connects the structure name to its member name?
  - A. -
  - B. .
  - C. Both (b) and (c)
3. Size of a union is determined by size of the.
  - A. First member in the union
  - B. Last member in the union
  - C. Biggest member in the union
  - D. Sum of the sizes of all members
4. How will you free the allocated memory ?
  - A. `remove(var-name);`
  - B. `free(var-name);`
  - C. `delete(var-name);`
  - D. `dalloc(var-name);`
5. one of elements of a structure can be a pointer to the same structure.
  - A. True
  - B. False
6. A structure can not be nested inside another structure.
  - A. True
  - B. False
7. Union elements can be of different sizes.
  - A. True
  - B. False

8. A structure can only contain dissimilar elements
- A. True
  - B. False
9. The "->" operator can be used to access structures elements using a pointer to a structure variable only
- A. True
  - B. False
10. It is not possible to create an array of pointer to structures.
- A. True
  - B. False
11. In C, structure values can be passed as arguments to function by?
- A. passing each member of the structure as an argument of function call
  - B. passing copy of the entire structure to the called function
  - C. passing structure as an argument using pointer
  - D. All of above
12. The first and second arguments of fopen are?
- A. A character string containing the name of the file & the second argument is the mode.
  - B. A character string containing the name of the user & the second argument is the mode.
  - C. A character string containing file pointer & the second argument is the mode.
  - D. None of the mentioned of the mentioned.
13. For binary files, a \_\_\_ must be appended to the mode string.
- A. Nothing
  - B. "b"
  - C. "binary"
  - D. "01?"
14. If there is any error while opening a file, fopen will return?
- A. Nothing
  - B. EOF
  - C. NULL
  - D. Depends on compiler
15. Which type of files can not be opened using fopen()?
- A. .txt
  - B. .bin
  - C. .c
  - D. None of the mentioned
16. stdout, stdin and stderr are?

- A. File pointer
- B. File descriptors
- C. Streams
- D. Structure

17. FILE is of type \_\_\_\_\_ ?

- A. int type
- B. char \* type
- C. struct type
- D. None of the mentioned

18. If the file name is enclosed in double quotation marks

- A. The preprocessor treats it as a user-defined file
- B. The preprocessor treats it as a system-defined file
- C. Both a & b
- D. None of the mentioned

19. If the file name is enclosed in angle brackets

- A. The preprocessor treats it as a user-defined file
- B. The preprocessor treats it as a system-defined file
- C. Both a & b
- D. None of the mentioned

20. C preprocessor

- A. Takes care of conditional compilation
- B. Takes care of macros
- C. Takes care of include files
- D. Acts before compilation

21. A preprocessor command

- A. need not start on a new line
- B. need not start on the first column
- C. has # as the first character
- D. comes before the first executable statement

### **Answer in One Sentence**

1. Give the use of rewind () function.
2. What is dynamic memory allocation?
3. Which function is used to join two strings? Give syntax.
4. Give the difference between structure and union.

5. Which function is used to move file pointer?
6. What is a pointer?
7. List the functions for <string.h> file.
8. Give the difference between malloc() and calloc().
9. State True/False : A macro name must always be written in capital letter.
10. Define macro.
11. What is the meaning of \* and & operators in pointer?
12. What is the use of . (dot) operator?
13. State the use of ftell().
14. State the use of fopen().
15. What is dynamic memory allocation?
16. What is String?
17. What is the use of → operator?
18. State the use of fseek().

### **Short Answer Question**

1. What is the output of following C code? Justify.

```
int main()
{
static char name[] = "programming";

char *s;

s = &name[6] - 4;

while(*s)

printf("%c", *s++);

}
```

2. What is the output of following C code? Justify.

```
#define Test(x) (x*x)
```

```
int main()
```

```
{
```

```
int a,b=3;
```

```
a= Test (b+3);
```

```
printf(“%d-%d”,a,b);
```

```
}
```

3. What is the output of following C code? Justify.

```
struct employee
```

```
{
```

```
char name[20];
```

```
int empno;
```

```
}el, *ptr, e[20];
```

```
int main()
```

```
{
```

```
printf(“\n%d”,sizeof(el));
```

```
printf(“\n%d”,sizeof(ptr));
```

```
printf(“\n%d”,sizeof(e));
```

```
}
```

4. What is the output of following C code? Justify.

```
int main()
```

```
{
```

```
int a=5,b=10, c=7;
```

```
predict(a, &b, c);
```

```
printf(“ %d - %d - %d “,a,b,c);
```

```
}
```

```
void predict( int p, int *q, int r)
```

```
{  
P=50;  
*q=*q * 10;  
R=77;  
}
```

5. What is the output of following C code? Justify.

```
#include<stdio.h>  
  
int print( int a, int b)  
{  
    printf("\n a=%d\n",a);  
    printf("\n b=%d\n",b);  
    return 0;  
}  
  
main()  
{  
int (*fptr) (int , int);  
fptr=print;  
print(2,3);  
fptr(2, 3);  
return 0;  
}
```

6. Find and correct error in the following code:

```
#include(stdio.h)  
  
int main()  
{  
    char ch='c';  
    const char *ptr=&ch;  
    *ptr='a';  
}
```

```
        Return 0;
    }
```

7. Find and justify the output of the following program:

```
#include<stdio.h>

int main()
{
    int ***r, **q, *p, i=7;
    p=&i;
    q=&p;
    r=&q;
    printf(“%d %d %d\n”,*p,**q,***r);
    return (0);
}
```

8. Predicate the output for the following :

```
struct student
{
    Char name[10];
    int rollno;
}

Stud[4]={ “smaran”, 1,
          “sankalp”, 2,
          “spandan”, 3,
          “sarthak”,4
        }

main()
{
    struct student *ptr=stu;
    for(i=0,i<4;i++)
```

```
{
printf(" At address %u : %s %d", ptr, ptr->name, ptr->rollno);
ptr++;
}
}
```

9. What is the output for the following program?

```
void main()
{
char str[] = "program";
char *ptr = str;
printf("%c%c", *ptr, *ptr+4);
ptr = ptr + 3;
printf("%c%c", *ptr, *(ptr+2));
}
```

### **Write short notes on the following**

1. Write notes on :

- i. Structure
- ii. Union

2. Write notes on preprocessor.

### **Long Answer Question**

1. Give the syntax and use of following functions:

- i) strlen()
- ii) strcat()
- iii) strcmp()
- iv) strcpy()
- v) strev()

2. Define file. Explain any four file functions.

3. Explain malloc and calloc function with example.

4. Explain the following dynamic memory allocation functions with example :
  - i) malloc()
  - ii) calloc()
  - iii) realloc()
  - iv) free()
5. Explain :
  - i) Simple macro substitution
  - ii) Macros with argument
  - iii) Nesting of macros
6. Explain :
  - i) pointer to pointer
  - ii) Self-referential structure
7. Explain the following with example :
  - a) strrev()
  - b) strcmp()
  - c) strlen()
  - d)strupr()
  - e) strlwr();
8. Explain the following functions with example :
  - a) fclose()
  - b) fopen()
  - c) fgets()
  - d) fputs()
  - e) fcloseall()
9. Differentiate between structure and union.
10. Explain concept of pointer to pointer with example.
11. What are command line arguments? How are they declared? Give the advantages of command line arguments.
12. Explain the following functions with proper syntax :
  - a) fflush()
  - b) remove()
  - c) rename()
  - d) ftell()
13. Explain the following functions with function:
  - a) fprintf()
  - b) fscanf()
  - c) fread()
  - d) fwrite()
14. Explain memory allocation techniques.

### **Attempt the following program**

1. Write a C program to read a file and display alternate characters from a file.
2. Write a C program to declare book structure ( bookno, bookname, author). Accept details of n books and display books of particular author.
3. Write a program to copy the content of one text file to another.
4. Write a menu driven program using string library functions for :
  - i) Copy of String
  - ii) Concatenation of two Strings
5. Write a function to calculate the length of a string. (Don't use std. library functions).
6. Write a 'C' program to copy the contents of one file to another file. The file names are passed using command line arguments.
7. Write a 'C' program to insert number of characters of substring at given position in string. (eq. s1=abcdef, s2=pqr, position=2, o/p = abcpqrdef)
8. Write a 'C' program to store the information of player with attributes : name, number of innings and total score. Calculate the average score of each player and display information of all players.
9. Write a 'C' program to count no. of digits, no. of spaces, no. of lower case letters and no. of upper case letters from a given input string.
10. Write a program to accept student information using structure (roll number, name, percentage) for n students. Display student details having highest percentage.
11. Write a 'C' program for creating a structure employee with employee number, employee name and salary. Accept details of n employee and display the employee details having the highest salary.

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