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B.Tech DEGREE EXAMINATION, DECEMBER 2023

First & Second Semester

18CSS101J - PROGRAMMING FOR PROBLEM SOLVING

(For the candidates admitted during the academic year 2020 - 2021 & 2021 - 2022)

Note:

- i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours

Max. Marks: 100

PART - A (20 × 1 = 20 Marks)

Answer all Questions

		Marks	BL	CO
1. Who is father of C Language?		1	1	1
(A) Bjarne Stroustrup	(B) Dennis Ritchie			
(C) James A. Gosling	(D) Dr. E.F. Codd			
2. A C variable cannot start with		1	1	1
(A) An alphabet	(B) A number			
(C) A special symbol other than underscore	(D) either alphabet nor a number			
3. When variable used in program is whole number, the variable is stored as		1	1	1
(A) fixed string	(B) integers			
(C) negative whole numbers	(D) positive whole numbers			
4. Variable which uses the same name in whole program and in its all routines thus best classified as		1	1	1
(A) middle variable	(B) default variable			
(C) local variable	(D) global variable			
5. Which operator is true only when both the operands are true?		1	1	2
(A) &&	(B)			
(C) !	(D) ?:			
6. What is the output of the code given below?		1	2	2
<pre> int main() { printf("%d ", 1); goto l1; printf("%d ", 2); l1:goto l2; printf("%d ", 3); l2:printf("%d ", 4); } </pre>				
(A) 1 4	(B) Compilation error			
(C) 1 2 4	(D) 1 3 4			
7. Which statement when executed in a switch statement causes immediate exit from the structure.		1	1	2
(A) goto	(B) default			
(C) break	(D) switch			
8. The ternary conditional expression using the operator ?: could be easily coded using ----- statement		1	1	2
(A) Nested if	(B) if-else			
(C) if	(D) for			

9. What is the output of this C code? 1 2 3
- ```
#include
void main()
{
 int a[2][3] = {1, 2, 3, 4, 5};
 int i = 0, j = 0;
 for (i = 0; i < 2; i++)
 for (j = 0; j < 3; j++)
 printf("%d", a[i][j]);
}
```
- (A) 1 2 3 4 5 0                      (B) 1 2 3 4 5 junk  
(C) 1 2 3 4 5 5                      (D) Run time error
10. What will be the data type returned for the following function? 1      1      3
- ```
#include
int func()
{
    return (double)(char)5.0;
}
```
- (A) char (B) int
(C) double (D) multiple type-casting in return is illegal
11. The output of the code below is 1 1 3
- ```
#include
void main()
{
 int k = m();
 printf("%d ", k);
}
void m()
{
 printf("hello");
}
```
- (A) hello 5                              (B) Error  
(C) Nothing                              (D) Junk value
12. Comment on the 2 arrays regarding P and Q: 1      1      3
- ```
int *a1[8];
int *(a3[8]);
```
- P. Array of pointers
Q. Pointer to an array
- (A) a1 is P, a2 is Q (B) a1 is P, a2 is P
(C) a1 is Q, a2 is P (D) a1 is Q, a2 is Q
13. Which of the following are correct syntaxes to send an array as a parameter to function? 1 1 4
- (A) func(&array); (B) func(#array);
(C) func(*array); (D) func(array[size]);
14. In C, if you pass an array as an argument to a function, what actually gets passed? 1 1 4
- (A) Value of elements in array (B) First element of the array
(C) Base address of the array (D) Address of the last element of array
15. In which stage the following code #include gets replaced by the contents of the file stdio.h? 1 1 4
- (A) During Preprocessing (B) During Execution
(C) During linking (D) During Editing

- | | | |
|--|--|-----------------|
| 16. How many numbers of pointer (*) does C have against a pointer variable declaration?
(A) 7
(C) 255 | (B) 127
(D) No limits. | 1 1 4 |
| 17. What is the output of this C code?
#include
void main()
{
int k = 5;
int *p = &k;
int **m = &p;
**m = 6;
printf("%d\n", k);
} | | |
| (A) 5
(C) 6 | (B) Compile time error
(D) Junk | 1 1 5 |
| 18. Which of the following are themselves a collection of different data types?
(A) string
(C) char | | |
| (B) structures
(D) array | | 1 1 5 |
| 19. Which of the following cannot be a structure member?
(A) Another structure
(C) Array | | |
| (B) Function
(D) different data types | | 1 1 5 |
| 20. Number of bytes in memory taken by the below structure is
#include
struct test
{
int k;
char c;
}; | | |
| (A) Multiple of integer size
(C) multiple of char size | (B) integer size+character size
(D) Multiple of word size | 1 1 5 |

PART - B (5 × 4 = 20 Marks)

Answer any 5 Questions

- | | |
|--|-----------------|
| 21. Define Problem solving. List the six steps of problem solving? | 4 2 1 |
| 22. What is a flowchart? Give the symbols/shapes used in the flowchart. | 4 1 1 |
| 23. List the relational and logical operators used in C? | 4 2 2 |
| 24. Give the general syntax of the conditional operator? | 4 1 2 |
| 25. Write the concept of function call by reference with a sample program. | 4 2 3 |
| 26. Mention the advantages of using function. | 4 2 4 |
| 27. Differentiate between a union and a structure. | 4 2 5 |

PART - C (5 × 12 = 60 Marks)

Answer all Questions

- | | |
|--|------------------|
| 28. (a) Write a note on Algorithm, Flow chart and Pseudocode. | 12 3 1 |
| (OR) | |
| (b) Explain the scope, lifetime of variable in C with example. | |

29. (a) 1. Write a C program to read 10 nos. and reverse it using array[6 marks] 12 3 2
2. Concatenate two arrays of length minimum 5 numbers.[6 marks]

(OR)

- (b) Discuss about arrays with its syntax, declaration, accessing it and operations in one dimensional array.

30. (a) Elucidate about String Functions: gets(), puts(), getchar(), putchar(), sprintf(), with an example programs 12 4 3

(OR)

- (b) Illustrate call by value and call by reference with example for each type.

31. (a) Explain in details with an example Pointer Declaration and dereferencing, pointers, Void Pointers and size of Void Pointers 12 4 4

(OR)

- (b) Write a program to read in an array of names and to sort them in alphabetical order using array of pointers

32. (a) Given employee name, age, salary, date of birth and Aadhar no. Write a program to read and display information of an employee using structures . 12 3 5

(OR)

- (b) Write the syntax of malloc and calloc function with a suitable example. Assume you have allocated dynamic memory of 10 bytes using malloc or calloc function, how this allocated memory will be released? If it is not released what are the consequences?

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