Reg.No.:								

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
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Question Paper Code: 5011

B.E. / B.Tech. DEGREE SUPPLEMENTARY EXAMINATIONS – FEB. / MAR. 2020
First Semester
Computer Science and Engineering
U15CS101– FUNDAMENTALS OF COMPUTING AND C PROGRAMMING
(Common to Electrical and Electronics Engineering, Electronics and Communication Engineering, Information Technology & Biotechnology)
(Regulation 2015)

Time : Three Hours Maximum : 100 Marks

Answer ALL the questions

PART – A

(10 x 2 = 20 Marks)

1. Name the technology used in each generation of Computers.
2. List out the characteristics of digital computers.
3. What are 'C' constants?
4. Differentiate between while and do… while loop construct.
5. What is an array?
6. How strings are represented in 'C' language?
7. State the features of pointers.
8. Differentiate between the storage classes in 'C'.
9. Compare and contrast Union and structure.
10. Give an example for enumeration data type.

PART – B

(5 x 13 = 65 Marks)

11. a) With a neat block diagram, elucidate five main components of a computer system.

(OR)

b) Write an algorithm, pseudo code and flowchart to print the numbers from 1 to 10 and their squares:

1	1
2	4
3	9
...	
10	100

12. a) i. Write a 'C' program to print the numbers between 1 and 10, along with an indication of whether each is even or odd, like this:

1 is odd
2 is even
3 is odd...

(Hint: use the % operator.) (8)

ii. Write a 'C' program to print the first 10 Fibonacci numbers. (5)

(OR)

b) Write a loop that will calculate the sum of every third integer, beginning with i=2(i.e, calculate the sum 2+5+8+11+...)for all values of i that are less than 100. Write the loop in three different ways.

i. Using while loop (4)
ii. Using do while loop (5)
iii. Using for loop (4)

13. a) Elucidate in detail how an array can be passed as a parameter in a user-defined function. Illustrate your answer with an example program.

(OR)

b) Write a 'C' program to copy one string to another and count the number of characters copied, without using string functions.

14. a) Write a 'C' program using a user-defined function to sort numbers in descending order.

(OR)

b) i. Given the following declarations, what is the value of each (5)

```
int a = 5, b = 7;
int *p = &a, *q = &b;
```

a)++a;
b)*p;
c)b;
d)*q;
e) b++;

ii. Write a 'C' program to swap two numbers using pointers (8)

15. a) Write a 'C' program to print the student number, name and marks through accessing structure elements.

(OR)

b) i. Write a 'C' program to print the following details using enumeration (5)

Red: 5
Green: 9
Blue: 3
Yellow: 4
White: 5
Black: 6
Orange: 7

ii. Elaborate on the array of structures with an example in 'C' program. (8)

PART – C

(1 x 15 = 15 Marks)

16. a) i. Write a 'C' program to create a Union structure containing book name (string), price (float) and pages (integer) and use it to store and print the values of different data types. (8)

ii. Calculate the % of memory saved when bit-fields are used for the following structure? (7)

(Assuming size of int = 4, calculate the % using the memory that would be occupied without bit-fields)

```
struct temp{
  int a : 1;
  int b : 2;
   int c : 4;
   int d : 4;
    }s;
```

(OR)

b) i. Write a 'C' program to create user defined data type weeks on int data type and use it in a program to illustrate its working. (8)

ii. Write a 'C' program to create a structure Employee with EID, Name, Basic, Allowance and Deductions. Read values for 'N' employees and print the EID, Name and salary of all the employees. (7)