COMPETITIVE ENTRANCE EXAMINATION INTO HTTC BAMBILI	
CYCLE: **2nd CYCLE** LEVEL: **1st YEAR** OPTION: **FUNDAMENTAL COMPUTER SCIENCE**	**2014 SESSION**
DURATION 3 HOURS	

INSTRUCTIONS

- **In your answer booklet, write only the answer chosen against the question number**
- **This question paper must be submitted together with the answer booklet**

PART I: ALGORITHMS AND PROGRAMMING

1. Give the evaluation part of the expression a-b-c-d in the C language: A. a-(b-c-d) B. (a-b)-(c-d) C. (a-b-c)-d D. (((a-b)-c)-b)
2. Convert the expression ((A+B)*C-(D-E)^(F+G)) to equivalent prefix notation. A : -^/-*+ABC-DE+FG ; B : AB+C*DE--FG+ ^ ; C : ^-*+ABC-DE+FG ; D : ^-+*ABC-DE+FG
3. What is the data structure used to perform recursion? A: Link list; B: dequeue; C:Arrays; D: Stack; E: String; F: Char
4. Consider the following programs

```
void main()
{
int const *p=5;
printf("%d",++(*p));
}
```

Program 1

```
main()
{
int c[]={2, 8, 3, 4, 4, 6, 7, 5};
int j, *p=c, *q=c;
for(j=0 ; j<5 ; j++){
printf(«  %d », *c) ;
++q;}
for(j=0; j<5; j++){
printf("%d", *p);
++p;}
}
```

program 2

```
main()
{
float me=1.1;
double you=1.1;
if(me==you)
printf("i love u");
else
printf("i hate u");
}
```

program 3

Predict the output or error(s) in the program 1: A: Compiler error; B: 6; C: 5; D: 7; E: 55; F: 4

5. Give the output or error(s) for the program 2: A: 2 2 3 3 4 4 5 5 6 6; B: 2 8 3 4 4 6 7 5; C: 5 2 4 5 6 8 7; D: 2 2 2 2 2 2 3 4 6 5; E: Error; F: All of above
6. Give the output or error(s) for the program 3: A: I love U; B: I hate U; C: error; D: 1.1; E: meyou
7. Two main measure for the efficiency of an algorithm are: A. Processor and memory; B: Complexity and capacity; C: Time and space; D: Data and space

8. Linked list are best suited….A: for relatively permanent collections of data; B: for the size of the structure and data in the structure are constantly changing; C: for both of above situation; D: for none of above situation
9. Which data element allows deleting data elements from front and inserting at rear? A: stacks; B: Queues; C: Deques; D: binary search tree
10. Identify the data structure that allows deletions at both ends of the list but insertion at only one end. A: Input-restricted deque; B: Output-restricted deque; C: Priority queues; D: None of above
11. Which of the following data structure is non linear type? A: String; B: List; C: Stacks; D: None of above
12. Which of the following data structure is linear type? A: String; B: List; C: Queues; D: All of above
13. Which of the following sorting algorithm is of divide-and-conquer type? A: Bubble sort; B: Insertion sort; C: Quick sort; D: All of above
14. The complexity of bubble sort algorithm is: A: O(n); B: O(logn); C: $O(n^2)$; D: O(nlogn).
15. Which of the following statements correctly declare a function that receives a pointer to pointer to a pointer to a float and returns a pointer to a pointer to a pointer to a pointer to a float? A: float **fun(float ***); B: float **fun(float **); C:float fun(float ***); D: float ****fun(float ***)
16. What patterns among A, B, C and D in the table corresponds to the following programs?

```
#include <stdio.h>
#include <conio.h>
void main()
{  int i, j, n, temp;
clrscr();
printf("how many rows");
scanf("%d", &n);
temp=n;
for(i=1 ; i<=n ; i++)
{ for(j=1; j<temp; j++)
{printf("*");}
printf("\n");
}
 getch();
}
```

*	*	* * * * * *	*
* *	* * *	* * * * *	* * *
* * *	* * * * *	* * * *	* * * * *
* * * *	* * * * * * **	* * *	* * *
* * * * *	B	* *	*
A		*	D
		C	

17. In the following program add a statement in the function fun() such that address of a gets stored in f?

```
#include<stdio.h>
int main()
{
int *j;
void fun(int **);
fun(&j);
return 0;
}
void fun(int **k)
{
 int a=10;
/*add a statement here*/
}
```

A : **k=a ; B : k &a ; C : *k=&a ; D : &k=*a

18. What would be the equivalent pointer expression for referring the array element a[i][j][k][l] in C programming?

    A: ((((a+i)+j)+k)+l); B: *(*(*(*(a+i)+j)+k)+l); C: (((a+i)+j)+k+l); D: ((a+i)+j+k+l)

19. In which header file is the NULL macro defined in the C programming?

    A: stdio.h; B: stddef.h; C: stdio.h and stddef.h; D. math.h

20. Can you combine the following two statements into one?

    char*p; p= (char*)malloc(100);

    A: char p=*malloc(100); B: char*p=(char)malloc(100);

C: char*p= (char*)malloc(100); D: char(*p)=(char*)(malloc*)(100)