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COMPETITIVE ENTRANCE EXAMINATION INTO HTTC BAMBILI	
CYCLE: 2nd CYCLE LEVEL: 1st YEAR OPTION: FUNDAMENTAL COMPUTER SCIENCE	2013 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

21. 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)

22. 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

23. What is the data structure used to perform recursion? A: Link list; B:

dequeue; C: Arrays; D: Stack; E: String; F: Char

24. Consider the following programs

<pre>void main() { int const *p=5; printf("%d",++(*p)); }</pre> Program 1	<pre>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;} }</pre> program 2	<pre>main() { float me=1.1; double you=1.1; if(me==you) printf("“i love u”"); else printf("“i hate u”"); }</pre> program 3
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Predict the output or error(s) in the program 1: A: Compiler error; B: 6;

C: 5; D: 7; E: 55; F: 4

25. 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 3 4 6 5; E: Error; F: All of above

26. 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

27. 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
28. 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
29. Which data element allows deleting data elements from front and inserting at rear? A: stacks; B: Queues; C: Deques; D: binary search tree
30. 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
31. Which of the following data structure is non linear type? A: String; B: List; C: Stacks; D: None of above
32. Which of the following data structure is linear type? A: String; B: List; C: Queues; D: All of above
33. 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
34. The complexity of bubble sort algorithm is: A: $O(n)$; B: $O(\log n)$; C: $O(n^2)$; D: $O(n \log n)$.
35. 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 ***)`
36. 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();
}
```

* ** *** **** ***** A	* ** *** **** ***** B	***** ***** ***** ***** ***** C	* ** *** **** ***** D
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n add a statement in the function fun() such that in f?

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

```
fun(&j);
return 0;
}
void fun(int **k)
{
int a=10;
/*add a statement here*/
}
```

38. 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)

39. 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

40. 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)