

(Section : Computer Science)

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26. What will happen if we compile and execute the following program?

```
static int count = 20; int main(void) { int i = 0;
static int count = 6; while (i < count) { i++; count--;
printf("%d", i); foo(i); } return 0;
}
void foo(int value) { static int count = 5;
    if (value > count) { printf("%s",
        "THANKS");
    }
    count = getCount(count);
}
int getCount(int oldCount) { count--;
    ;
    return oldCount - count;
}
```

- A. The compiler will report syntax error
- B. The compiler will report compilation error for redefined variable
- C. The program will run fine and will print 01THANKS2THANKS
- D. The program will run fine and will print 01THANKS2THANKS3THANKS

27. What is the accurate way to define a new type representing an array of 10 integers?

- A. typedef int[10] arrayOfTenInts;
- B. typedef int arrayOfTenInts[10];
- C. typedef int\*[10] arrayOfTenInts;
- D. typedef int;[10] arrayOfTenInts\*;

28. What will happen if we compile and execute the following program?

```
int main(void)
{ int i = 0;
  while (1) {
    i++;
    printf("%d", i);
    fork();
  }
  return 0;
}
```

- A. The compilation will report syntax error
- B. The program will print numbers starting 0 to INT\_MAX and exit
- C. The program will print numbers starting 1 to INT\_MAX and exit
- D. None of the above

29. What is the output of following program?

```
int main(void) {  
    printf("%d", fact(5));  
}  
  
int fact(int number) {  
    if (number < 0)  
        { return 1; }  
    return number * fact(number - 1);  
}
```

- A. 1                      B. 24                      C. 120                      D. Segment Fault

30. What is the return code of running the executable for following source code?

```
#define ONE 20  
#define TWO 3  
#define THREE 11  
  
int main(void) {  
    printf("%05d", ONE * TWO * THREE);  
}
```

- A. 3                      B. 5                      C. 11                      D.20

31. Which of the following statements is correct?

- A. Base class pointer cannot point to derived class.
- B. Derived class pointer cannot point to base class.
- C. Pointer to derived class cannot be created.
- D. Pointer to base class cannot be created.

32. Which of the following problem causes an exception?

- A. Missing semicolon in statement in main().
- B. A problem in calling function.
- C. A syntax error.
- D. A run-time error.

33. Which of the following keyword is used to overload an operator?

- A. Overload              B. operator              C. friend              D. override

34. What is the output of following function for start pointing to first node of following linked list?

1->2->3->4->5->6

```
void fun(struct node* start)
{ if(start ==
  NULL)
  return;
  printf("%d ", start->data);

  if(start->next != NULL ) fun(start->next-
    >next); printf("%d ",
    start->data);
}
```

A. 1 4 6 6 4 1

B. 1 3 5 1 3 5

C. 1 2 3 5

D. 1 3 5 5 3 1

35. Consider the following function that takes reference to head of a Doubly Linked List as parameter. Assume that a node of doubly linked list has previous pointer as prev and next pointer as next.

```
void fun(struct node **head_ref)
{ struct node *temp = NULL;
  struct node *current =
  *head_ref;

  while (current != NULL) {
    temp = current->prev;
    current->prev = current->next;
    current->next = temp; current =
    current->prev;
  }

  if(temp != NULL )
    *head_ref = temp->prev;
}
```

Assume that reference of head of following doubly linked list is passed to above function

1 <--> 2 <--> 3 <--> 4 <--> 5 <--> 6.

What should be the modified linked list after the function call?

A. 2 <--> 1 <--> 4 <--> 3 <--> 6 <--> 5.

B. 5 <--> 4 <--> 3 <--> 2 <--> 1 <--> 6.

C. 6 <--> 5 <--> 4 <--> 3 <--> 2 <--> 1.

D. 6 <--> 5 <--> 4 <--> 3 <--> 1 <--> 2.

36. A priority queue is used to implement a stack S that stores characters

1. PUSH(C) is implemented as INSERT(Q,C,K) where K is an appropriate integer key chosen by the implementation.
2. POP is implemented as DELETEMIN(Q).

For a sequence of operations, the key chosen are in :

- |                              |                              |
|------------------------------|------------------------------|
| A. Non-increasing order      | B. Non-decreasing order      |
| C. Strictly increasing order | D. Strictly decreasing order |

37. The initial configuration of a queue is a, b, c, d, ('a' is in the front end).

To get the configuration

d, c, b, a,

one needs a minimum of

- |                                |                                |
|--------------------------------|--------------------------------|
| A. 2 deletions and 3 additions | B. 3 deletion and 2 additions  |
| C. 3 deletions and 3 additions | D. 3 deletions and 4 additions |

38. Consider the following circular queue which can accommodate maximum six elements with the following data front = 2 rear = 4 queue = \_\_\_\_, L, M, N,

\_\_\_\_, \_\_\_\_

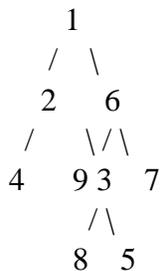
What will happen after ADD O operation takes place?

- A. front = 2 rear = 5; queue = \_\_\_\_, L, M, N, O, \_\_\_\_
- B. front = 3 rear = 5; queue = L, M, N, O, \_\_\_\_
- C. front = 3 rear = 4; queue = \_\_\_\_, L, M, N, O, \_\_\_\_
- D. front = 2 rear = 4; queue = L, M, N, O, \_\_\_\_

39. If the sequence of operations – push (1), push (2), pop, push (1), push (2), pop, pop, pop, push (2), pop ; are performed on a stack, the sequence of popped out values are?

- |                  |                  |                  |                  |
|------------------|------------------|------------------|------------------|
| A. 2, 2, 1, 1, 2 | B. 2, 2, 1, 2, 2 | C. 2, 1, 2, 2, 1 | D. 2, 1, 2, 2, 2 |
|------------------|------------------|------------------|------------------|

40. Here is a binary tree.



If we visit the nodes of this tree using a preorder traversal, in what order will the nodes be visited?

A. 1 2 3 4 5 6 7 8 9

B. 1 2 4 9 6 3 8 5 7

C. 4 9 2 8 5 3 7 6 1

D. 4 2 9 1 8 3 5 6 7 10.

41. The depth of complete binary tree is given by .....

A.  $D_n = n \log_2 n$

B.  $D_n = n \log_2 n + 1$

C.  $D_n = \log_2 n$

D.  $D_n = \log_2 n + 1$

42. What is the time complexity of search, insert and delete of height balanced binary search trees?

A.  $O(\log N)$ ,  $O(\log N)$ ,  $O(\log N)$

B.  $O(N \log N)$ ,  $O(\log N)$ ,  $O(\log N)$

C.  $O(N \log N)$ ,  $O(N \log N)$ ,  $O(N \log N)$

D. None of the above

43. Which of the below statements is correct regarding binary heap?

A. There is no implied ordering between siblings or cousins and no implied sequence for an inorder traversal

B. There is no implied ordering between siblings or cousins but there is implied sequence for an in-order traversal

C. There is implied ordering between siblings or cousins but no implied sequence for an inorder traversal

D. There is implied ordering between siblings or cousins and there is sequence for an in-order traversal

44. What is the time complexity of heapsort algorithm?

A.  $O(N)$

B.  $O(\log N)$

C.  $O(N \log N)$

D.  $O(N^2)$

45. The part of machine level instruction, which tells the central processor what has to be done, is .....

A. Operation code

B. Address

C. Locator

D. Flip-Flop

46. A system program that combines the separately compiled modules of a program into a form suitable for execution .....

A. Assembler

B. linking loader

C. cross compiler

D. load and go

47. Interprocess communication

- A. is required for all processes
- B. is usually done via disk drives
- C. is never necessary,
- D. allows processes to synchronize activity

48. Which of the following functions is(are) performed by the loader?

- A. allocate space in memory for the programs and resolve symbolic references between object decks.
- B. adjust all address dependent locations, such as address constants, to correspond to the allocated space.
- C. physically place the machine instructions and data into memory.
- D. All of the above.

49. The principle of locality of reference justifies the use of .....

- A. Reenterable
- B. non-reusable
- C. virtual memory
- D. cache memory

50. Consider the situation in which assignment operation is very costly. Which of the following sorting algorithm should be performed so that the number of assignment operations is minimized in general?

- A. Insertion sort
- B. Selection sort
- C. Heap sort
- D. None