

BITS, PILANI -DUBAI CAMPUS
DUBAI INTERNATIONAL ACADEMIC CITY, DUBAI
II SEMESTER 2011-2012

COMPREHENSIVE EXAMINATION (PARTIAL OPEN BOOK)

COURSE : TA C252 COMPUTER PROGRAMMING II

DATE : 03.06.2012

DURATION : 3 HOURS (Part A+B) **WEIGHTAGE**: 40% (20+20 Marks)

PART A (Closed book)

Question 1-20 carries 0.5 marks each

1. What will be the output of the following code segment?

```
#include<stdio.h>
main() { int a=10;
        fun(&a);
        printf("%d\n",a);}
void fun(int *num){
    *num=20;}
```

- A.** 20
- B.** 10
- C.** Memory Address
- D.** Garbage

2. What is the result of the following code?

```
main(){
    int a=0,b=3,c=0;
    for(a=0;a<=b;a++){
        {
            c=c+a;
        }
    }
    printf("%d\n",c);}
```

- A.** 3
- B.** 4
- C.** 5
- D.** 6

3. What character ends all strings?

- | | | | |
|-----------------|-----------------|-------------------|-------------------|
| A. \' \' | B. \' \' | C. \' \0\' | D. \' \n\' |
|-----------------|-----------------|-------------------|-------------------|

4. What is the result of the following code?

```
int x=2;
switch(x)
{
    case 1: printf("One");
    case 2: printf("Two");
    case 3: printf("Three");
    default: printf("HELLO");
}
```

- A.** One
- B.** Two
- C.** Hello
- D.** TwoThreeHello

5. What is the result of the following code?

```
main()
{
    char a='a',*p;
    p=&a;//Let's say 6982 is the address of a
    printf("\nSize of p== %d\n",sizeof(p));
}
```

- A.** 1
- B.** 2
- C.** 4
- D.** 6982

6. What is the result of the following code?

```
main()
{
    int a=10,*p,b;
    p=&a;//Let's say 2564 is the address of a
    b=a+*p;
    printf("%d %d %d\n",a,b,*p);
}
```

- A. 10 20 10
- B. 10 20 2564
- C. 10 10 10
- D. error

7. What is the result of the following code?

```
main()
{
    int *p,a=10,i;
    p=(int *)calloc(4,20);
    //let's say p's value is 1024
    printf("\n%d\n",*(p+2));
    free(p);
}
```

- A. 0
- B. 1028
- C. 1032
- D. Garbage value

8. What is the result of the following code?

```
main()
{
    char *p;
    char a='b';
    p=malloc(5,sizeof(p));
    //let's say p's value is 3562
    printf("%u\n",p);
    free(p);
}
```

- A. 0
- B. 3562
- C. Error
- D. Garbage value

9. Which data structure is not having end?

- | | | | |
|----------|------------------------|----------|-------------------------|
| A. Queue | B. Doubled Linked List | C. Stack | D. Circular Linked list |
|----------|------------------------|----------|-------------------------|

10. What is the result of the following code, if while running the program `./a.out Comp Prog II` argument is given?

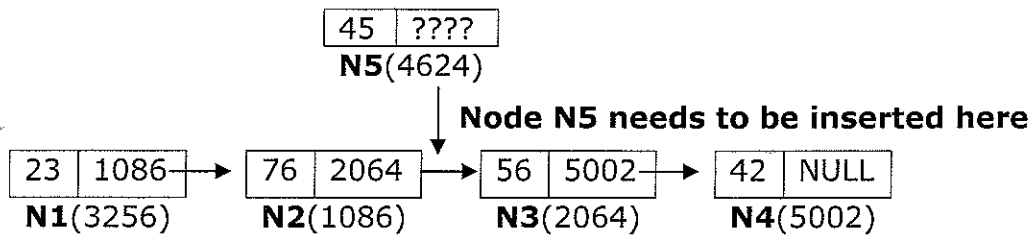
```
main(int argc, char *argv[])
{
    printf("%d",argc);
}
```

- | | | | |
|------|------|------|----------|
| A. 1 | B. 3 | C. 4 | D. Error |
|------|------|------|----------|

11. Which data structure keeps track of the next as well as previous element?

- | | | | |
|----------|------------------------|----------|-------------------------|
| A. Queue | B. Doubled Linked List | C. Stack | D. Circular Linked list |
|----------|------------------------|----------|-------------------------|

12. Consider the following singly linked list arrangement



What will be the address sequence of the N2, N5, N3

- | | |
|---------------------|---------------------|
| A. 2064, 5002, 4624 | B. 1086, 2064, 4624 |
| C. 4624, 2064, 5002 | D. 4624, NULL, 1086 |

13. What is the result of the following code, if while running the program "a.out computer.c" argument is given?

```

main(int argc, char *argv[])
{
    FILE *f;
    f=fopen(argv[1],"r");
    if(f!=NULL)
    {
        printf("%s",argv[1]);
    }
}

```

- | |
|---------------|
| A. a.out |
| B. computer.c |
| C. argv[1] |
| D. Error |

14. What is the result of the following code?

```

main()
{
    int *p,x=5;
    p=&x; //let's say x's memory address is 1000
    printf("\n%d\n",*p+x);
}

```

- | |
|---------|
| A. 1000 |
| B. 1002 |
| C. 5 |
| D. 10 |

15. What is the result of the following code?

Consider that the file INP.txt is residing in the memory between the 36948 to 40126 addresses

```

main()
{
    FILE *f;
    f=fopen("INP.txt","r");
    printf("%u",f);
}

```

- | |
|-----------|
| A. 401236 |
| B. 36948 |
| C. 0 |
| D. error |

16. If the base address of a character array is 5368, what will be the address of 3rd element?

- | | | | |
|---------------------|---------|---------|---------|
| A. Compiler defined | B. 5369 | C. 5371 | D. 5376 |
|---------------------|---------|---------|---------|

17. What will be the result of the following code?

```
main()
{
    int i=5;
    if(!i)
        printf("This is CPII ");
    printf("This is CPII again");
}
```

- A. This is CPII
- B. This is CPII again
- C. This is CPII This is CPII again
- D. error

18. Stack and Queue data structures are respectively

- A. PUSH & POP
- B. LIFO & FIFO
- C. FIFO & LIFO
- D. POP & PUSH

19. Consider the following code segment

```
char *p, str[]="COMPPROGII";
p=str;
p+=8;
```

What string does **p** point to

- A. COMPUTERPROGII8
- B. COMPPROG
- C. MPPROGII
- D. II

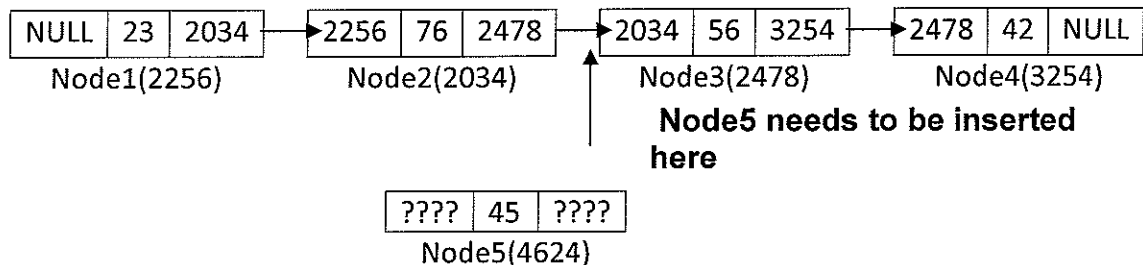
20. What will be the result of the following code segment

```
main()
{
    int arr[10]={5,9,10,4,16,19,24,1,0,25};
    int i,j,k;
    i=++a[3];
    j=a[3]++;
    k=a[i++];
    printf("\n%d %d %d %d\n",i,j,k,a[3]);
}
```

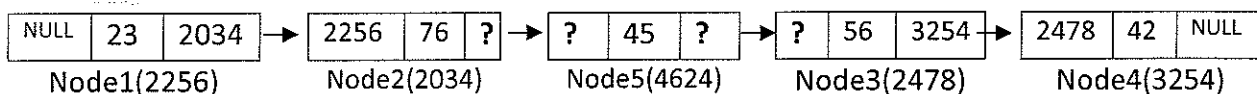
- A. 10 4 16 4
- B. 5 5 16 6
- C. 4 5 19 5
- D. 10 4 16 19

Question 21-25 carries 2 marks each

21. Consider the following doubly linked list arrangement



Rewrite the doubly linked list arrangement



22. Write the equivalent conditional operator

```
if(x==30) if(y==10) printf("Great");  
else printf("Good"); else printf("wow");
```

23. What will be the result of the following code segment

```
union fun{  
    int I;  
    float j;  
};  
union fun f;  
funct(union fun);  
main()  
{  
    f.i=15;  
    funct(f);  
    printf("\n%d\t%f\n",f.i,f.j);  
}  
funct(union fun f)  
{  
    f.j=20.75;  
    printf("\n%d\t%f\n",f.i,f.j);  
}
```

24. What will be the result of the following code segment?

```
#include<stdio.h>  
#include<string.h>  
main()  
{  
    char str1[5]="BITS",str2[4]="CSD",str3[10];  
    printf("%d",strlen(str1));  
    strcpy(str3,str1);  
    printf("%s",str3);  
    strcat(str3,str2);  
    printf("%s",str3);  
}
```

25. Consider the following stack

25	12	8	19						
----	----	---	----	--	--	--	--	--	--

Rewrite the stack after each operation

Pop(), Push(5), Push(17), Pop(), Pop(), Push(10)

PART B (Open book)

Q1. Mr. Bhupendra a doctor, runs his own clinic and very biased with the number of patients he sees every day, means he sees only a particular number of patients each day. For example only 5 patients for a particular day. He maintains a first in first out sequence for seeing the patients. As soon as the patient comes to the

reception, patient will tell his name to the receptionist, and the receptionist will tell him whether the doctor will see him that day or not, if he gets the chance to be seen by the doctor, the receptionist will tell him his number in the queue.

Write a C Program to facilitate the receptionist for above mentioned tasks. A prototype of the run is given below.

12M

Ex.

<u>Main Menu</u> 0. Exit 1. Add patient 2. Patient to be diagnosed 3. List the remaining patients Enter your choice : 1 Enter patient's name : NandKumar	<u>Main Menu</u> 0. Exit 1. Add patient 2. Patient to be diagnosed 3. List the remaining patients Enter your choice : 3 The list is : 1. NandKumar 2. Alok 3. Pankaj 4. Devilal 5.
<u>Main Menu</u> 0. Exit 1. Add patient 2. Patient to be diagnosed 3. List the remaining patients Enter your choice : 2 The diagnosed person is : NandKumar	<u>Main Menu</u> 0. Exit 1. Add patient 2. Patient to be diagnosed 3. List the remaining patients Enter your choice : 3 The list is : 1. 2. Alok 3. Pankaj 4. Devilal 5.

Q2. Mr. Ravi is a business man. He frequently needs to contacts his clients, but his phone memory does not have enough memory to hold all his contacts. Therefore he keeps all his contacts in a file in the computer. And whenever needs he opens the file and search the contact in the file.

Write a C program to assist Ravi. Your program must do the following thing.

The name of the file (which holds the contacts) should be taken as command line from the user. Then read the contents of the file and show them all on the screen.

8M

Ex.

@prithvi:~\$ a.out CONTACTS.txt

NandKumar	nkumar@gmail.com	9982134008
Ravindra	ravi@yahoo.com	9829359972
Mahesh	mahi@hotmail.com	9350126753
....

*****END*****

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II SEMESTER 2011-2012

COURSE : COMPUTER PROGRAMMING II (TA C252)
COMPONENT : TEST – II (**OPEN BOOK**)
DURATION : 50 MINUTES
WEIGHTAGE : 20% (20 Marks)
DATE : 17-05-2012

Q1. What do you understand by 'Overflow' and 'Underflow' in context of stack and queue? Explain with an example.

3M

Q2. What will be the output of the following code segment? Explain

3M

```
main()
{
    int i=7, j=15;
    fun (i , &j);
    printf ("%d %d", i, j);
}
fun (int i, int *j)
{
    i = i * i;
    *j=*j **j;
}
```

Q3. What will be the output of the following code segment? Explain

2M

```
main()
{
    float marks[5]={10.5,15,11.25,14.10.5};
    float *f;
    f=marks; //Assume the base address of marks array is 56382
    printf("%d %u",*(f+2),f);
}
```

Q4. In a class there are n number of students, each student has name, idno and CGPA. Write a C program which will have the structure of the student with above mentioned elements. Accept total number of students from the user and declare a structure array for holding those many student details. Take input from the user for each element of the structure for every student. Display the user input data.

10M

Ex.

Total number of the students in the class: 5

Name of the student 1: *stud1*
IDNO of the student 1: *s1*
CGPA of the student 1: *8.75*

Name of the student 2: *stud2*
IDNO of the student 2: *s2*
CGPA of the student 2: *6.25*

Name of the student 3: *stud3*
IDNO of the student 3: *s3*
CGPA of the student 3: *7*

Name of the student 4: *stud4*
IDNO of the student 4: *s4*
CGPA of the student 4: *4.25*

Name of the student 5: *stud5*
IDNO of the student 5: *s5*
CGPA of the student 5: *9.5*

Student Name	student IDNO	CGPA
1. stud1	s1	8.75
2. stud2	s2	6.25
3. stud3	s3	7
4. stud4	s4	4.25
5. stud5	s5	9.5

Q5. Explain "circular linked list" with an example.

2M

*****END*****

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II SEMESTER 2011-2012

COURSE : COMPUTER PROGRAMMING II (TA C252)
COMPONENT : TEST – I (CLOSED BOOK)
DURATION : 50 MINUTES
WEIGHTAGE : 25% (25 Marks)
DATE : 10-03-2012

1. Write a function definition which will do the following
- a. Accepts 1 integer and 1 character argument
 - b. Add these two argument values and returns one integer value
- [2M+2M]**

2. What is the difference between "pass by value" functions and "pass by reference" functions? Explain with an example.
- [6M]**

3. What will be the result of the following code segment? Explain.

```
main()
{
    int x=2;
    switch(x)
    {
        case 1: printf("One");
        case 2: printf("Two");
        case 3: printf("Three");
        default: printf("HELLO");
    }
}
```

[2M]

4. What will be the result of the following code segment? Explain.

```
main()
{
    int x;
    for(x=0; x<10; x++);
    {
        printf("%d",x);
    }
}
```

[2M]

5. What will be the result of the following code segment? Explain.

```
main()
{
    int a=2;
    int i=(a==0)?20:30;
    printf("%d\n",i);
}
```

[2M]

6. What will be the index number of the last element of an array with 7 elements?

[1M]

7. What will be the result of the following code segment? Explain.

```
main()
{
    int i=65;
    printf("%c %d\n",i++,++i);
}
```

[2M]

8. What will be the result of the following code segment? Explain.

```
main()
{
    int a=b=50;
    if(a<50)
        a=40;
    else
        a=20;
    if(a)
        b=30;
    printf("%d\t%d\n",a,b);
}
```

[2M]

9. What will be the result of the following code segment? Explain.

```
main()
{
    int a[]={5,9,1,7},*p;
    p=a;
    printf("\n%d\n",*(p+2));
}
```

[2M]

10. What will be the result of the following code segment? Explain.

```
main()
{
    int *p,x=5;
    p=&x; //let's say x's memory address is 1024
    printf("\nX== %d\n",*p++);
}
```

[2M]

END