

BITS AND BYTES

QUALIFICATIONS ROUND

TEAM DETAILS:

Member1

NAME: _____

COLLEGE: _____

Mobile No: _____

Email: _____

Branch and Sem: _____

Member2

NAME: _____

COLLEGE: _____

Mobile No: _____

Email: _____

Branch and Sem: _____

RULES :

1. There are two sections, section 1 and section 2.
2. Marking Scheme:
 1. No negative marking
 2. No partial marking
 3. Marks of each question is mentioned along with it.
 4. Marks can be: 2,4 or 6.
3. Please write all the answers in the question paper, using as less words as possible.
4. Compiler: gcc running on unix

Section 1

1.

1

When a program is started, the files that are opened automatically are

- a) stdin
- b) stderr
- c) stdin, stdout and stderr
- d) None

Ans: _____

2.

1

The register qualifier can be applied only to those variables that are

- a) static and auto
- b) auto and extern
- c) static only
- d) auto only

Ans: _____

3.

2

```
main()
{
    printf("%d %f\n",4,4);
    printf("%d %f\n",4.0,4.0);
}
```

Output is:

- a)
4 garbage
garbage 4.0
- b)
4 4
4 4.0
- c)
4 4.00
4 4.0

Ans: _____

4.

2

```
void main()
{
    while(printf("%d",printf("")));
}
```

- a) 0
- b) 1
- c) 11111.... infinite loop
- d) 00000.... infinite loop

Ans: _____

5.

2

```
#define squ(n) {n>0?squ(n-1)*n:1}
```

```
main()
{
    int a=squ(2);
    printf("%d",a);
}
```

- a) Program does not compile, compile error
- b) Program compiles but shows linker error
- c) 2
- d) 4

Ans:

6.

2

```
void main()
{
    int i1=12;
    switch(i1)
    {
        case 1: goto lure;
        break;
        case 2: printf("This is second choice");
        break;
        default: printf("This is default choice");
    }
}
void fun(void)
{
    lure: printf("This is unconditional jump");
}
```

- a) This is default choice
- b) This is unconditional jump
- c) Program does not compile,compile error
- d) Program compiles but shows linker error

Ans:

7.

2

```
main()
{
char *str1="abcd";
char str2[]="abcd";
printf("%d %d %d",sizeof(str1),sizeof(str2),sizeof("abcd"));
}
```

a) 5 5 5 b) X X X

c) X X 4 d) X 5 5

(X = size of char pointer)

Ans:

8.

2

```
main()
{
    int i,j,k;
    k=5;j=6;
    i=j*=k;
    printf("i=%d ",i);
    i==(j*=k);
    printf(" i=%d",i);
}
```

the output is

- a) i=30 i=30 b) i=30 i=1 c) i=1 i=30 d) i=30 i=0

Ans: _____

Section B.

RULES:

1. Please specify only the output of the code fragments.
2. If you feel there is a compile error, just mention it.
3. Compiler: gcc, Platform: unix, Machine: Intel x86
4. Machine dependent Informations:
 - a) sizeof(int) = 4 bytes
 - b) sizeof(char) = 1 byte
 - c) sizeof(short int) = 2 bytes
 - d) sizeof(double) = 8 bytes
 - e) Layout of int:

f) Layout of struct:

9.

2

```
int i;
float j;
i =5/2;
j =5/2;
printf("%f , %d ",j,i);
```

Ans: _____ , _____

10.

```
int y=100,x;  
x = y= y++;  
printf("%d, %d ", x,y);
```

2

Ans:

11.

2

```
int* f1()  
{  
    int a=1;  
    return &a;  
}  
void main()  
{  
    printf("%d",*f1());  
}
```

Ans:

12.*

6

what does this function do ?

```
b(n)  
{  
    return n ? b(n<<1) << 1 | n<0 : 0 ;  
}
```

Ans:

13.

2

```
int i,j;  
scanf("%d,%d",&i,&j) ;  
switch(i)  
{  
    case 1: printf("This is first choice");  
        break;  
    case j: printf("This is second choice");  
        break;  
    case 1+2+4: printf("This is the third and last choice");  
        break;  
}
```

Ans:

14.

4

```
int i=5;  
printf("%d %d %d %d %d",i++,i--,++i,--i,i);
```

Ans:

15.

2

```
int x =100;
if(!x)
    printf("x=%d",!x);
else
    printf("x=%d",x);
```

Ans:

16.

2

What is wrong in the following code fragment ?

```
char *str;
gets(str);
printf("%s",ptr);
```

Ans:

17.

2

```
#define square(x) x*x
main()
{
    int i;
    i = 200/square(4);
    printf("%d",i);
}
```

Ans:

18.

2

```
#define a 10
main()
{
    #define a 50
    printf("%d",a);
}
```

Ans:

19.

2

```
#define getchar() 100
main()
{
    printf("%d\n",getchar());
}
```

Ans:

20. 4

```
main()
{
    printf("%p",main);
}
```

Ans: _____

21. 2

```
int i;
printf("%d",scanf("%d",&i)); // value 10 is given as input here
```

Ans: _____

22. 2

```
int i=0;
for(;i++;printf("%d",i));
printf("%d",i);
```

Ans: _____

23. 2

```
#define FALSE -1
#define TRUE 1
#define NULL 0
main()
{
    if(NULL)
        puts("NULL");
    else if(FALSE)
        puts("TRUE");
    else
        puts("FALSE");
}
```

Ans: _____

24. 2

```
int k=1;
printf("%d==1 is \"%s\",k,k==1?"TRUE":"FALSE");
```

Ans: _____

25.

6

```
#include<stdio.h>

#define TOTAL_ELEMENTS (sizeof(array) / sizeof(array[0]))
int array[] = {23,34,12,17,204,99,16};

int main()
{
    int d = -1;

    if (d < TOTAL_ELEMENTS)
        printf("of course -1 is less than %d",TOTAL_ELEMENTS);
    else
        printf("how on earth");
    return 0;
}
```

Output of the above program is : how on earth

Why ?? (specify in atmost 7 words)

Ans:

26.

2

```
enum {false,true};
```

```
int main()
```

```
{
```

```
    int i=1;
    do
    {
        printf("%d\n",i);
        i++;
        if(i < 15)
            continue;
    }while(false);
    return 0;
}
```

Ans:

27.

2

```
f()
{
    int a=2;
    f1(a++);
}
f1(int c)
{
    printf("%d", c);
}
```

Ans:

FROM NOW ON cout WILL BE USED TO PRINT OUTPUT

(it simply prints the value of the variable)

28.

4

```
int i = 2^17;
short int s = i;
cout<<s;
```

Ans: _____

29.

4

```
unsigned int i = 2^31 + 4;
short int s = *(short int*)&i;
cout<<s ;
```

Ans: _____

30.

6

```
void main()
```

```
{
```

```
    struct temp
    {
        int i;
        char c;
        int j;
        char s;
    }var;
```

```
    var.i = 9;
    var.c = 'a';
    var.j = 11;
    var.s = 'b';
```

```
    int *ip = (int*)&var;
    ip++;
    cout<<*(char*)ip
```

```
}
```

Ans: _____

31.

6

```
char a[4];
a[0] = 0;
a[1] = 1;
a[2] = 0;
a[3] = 0;
cout<<*(int*)a<<endl;
*(int*)a = 97;
cout<<a[0]<<endl;
```

Ans: _____