Suggested time: 60 minutes   08/5/17, 3.00 - 5.00 PM   **Max. Marks: 44**

NOTE: 1. There are 22 questions in Part A. Each question has exactly one answer correct and carry 2M.
   2. There is no negative marking. Overwritten answers will not be rechecked.
   3. For each question, write the correct option (A, B, C, or D) at the designated place on the back of this sheet.
   4. In each question, choose the best option. Assume required header files are included in each given program.

ID		NAME	

Q1. How many times `hello` will be printed?
```
int main(void) {
 int i,j,k;
 for(i=1; i<=4;i++)
  for(j=1;j<=i;j++)
   for(k=1;k<=j;k++)
   printf("hello\n");
 return 0;
}
```
A) 4   B) 10
C) 20   D) 30

Q2. What is the output?
```
int main(void) {
 char arr[][10] = {"Amit",
"Suresh" , "John" , "Smith"};
 char *ptr[4]; int i;
 for(i=0; i<=3; i++)
  ptr[i] = arr[3-i];
printf("%s,%s",ptr[0], arr[0]);
 return 0;
}
```
A) Smith,Amit   B) Amit,Amit
C) Smith,Smith D)Runtime error

Q3. What is the output? Assume arr[] begins at address 65686 and size of integer is of 4 bytes.
```
int main(void) {
  int arr[] = {12, 14, 15, 23, 45};
  printf("%u,%u",arr+1,&arr+1);
  return 0;
}
```
A) 65690,65702
B) 65687,65690
C) 65690,65710
D) 65690,65706

Q4. What is the output ?
```
void main() {
 short int a=5;  float b=10;  short int *p;
 p=&b;
 printf("%u\t",p);
 p++;
 printf("%u",p);
}
```
A) Compilation error
B) The difference in printed addresses is sizeof(short int)
C) The difference in printed addresses is sizeof(float)
D) Segmentation fault run time error.

Q5.What is the output?
```
void fun(int x) {
 if(x>1) {
  fun(--x);
  printf("%d",x);
  fun(--x);
 }}
void main() {
 fun (4);
}
```
A) 1231   B) 1321
C) 1234   D) 4321

Q6. What is the output?
```
int main (void)
{
 char c[] = "KATEWINCE";
 char *p =c;
 printf("%s", p+p[3]-p[1]) ;
 return (0);
}
```
A) INCE   B) EWINCE
C) WINCE
D) None of the above

Q7. What is the output?
```
void main(void) {
 int i  = 0;
for(printf("A");printf("B");printf("C"))
{
 for(printf("D");printf("E");printf("F"))
  break;
 if (i--)  break;
}
}
```
A) ABDECBFE   B) ABDECBDE
C) ADCBD   D) Infinite Loop

Q8 What is the output?
```
int main() {
  union temp { int a, b;};
  union temp t;
  t.a=100;
  t.b=200;
  printf("%d",t.a);
  return 0;
}
```
A) Compilation error   B) 100
C) Run time error   D) 200

Q9. Consider the given program: ➡
If the given program is required to print the size of array arr[], which of the following two statements can be substituted in place of LINE1.
   S1: int temp = (char*) ptr2 - (char*) ptr1;
   S2: int temp = (ptr2 - ptr1) * sizeof(stu);

A) Only S1
B) Only S2
C) Any one of S1 or S2
D) Neither S1, nor S2

```
typedef struct {
 int age;
 float marks;
} stu;
int main() {
 stu arr[5];
 stu *ptr1 = arr;
 stu *ptr2 = ptr1 + 5;
 LINE1
 printf ("%d",temp);
}
```

Q10. Which of the following doesn't require traversal of elements in a linked list, given a pointer to the first node of the list?
A) Deleting an element at the end of a singly linked list
B) Deleting an element from the end of a linear doubly linked list.
C) Inserting an element after the last element in a circular doubly linked list.
D) Inserting an element at the end of a linear singly linked list.

Q11. In C language, if precedence of + operator is higher than * operator; and operator + is right associative, the value of following expression is:
   E: **5 * 4 + 7 * 8 + 9**
A) 225   B) 449
C) 85   D) 935

Q12. The decimal equivalent for the following IEEE floating point number is:
1 10000000 10110000000000000000000
A) -1.175   B) -3.375   C) -1.6875
D) None of the above

Q14. Assuming 2's complement representation, if X = (A3FD)$_{16}$ and Y = (9CE)$_{16}$, then (X+Y) in base 16 is:
A) F8DCB   B) 8DCB   C) DCB
D) None of the above

Q13. What is the output?
```
int main (void) {
 enum tak {_2 , _3 , _4, _1};
 enum cak {_5,_6,_7 };
 float b;
 int a;
 a = _3*6/_7%(_1-1);
 b = 2*(_3+_5);
 printf ("a=%d b=%d\n",a,b);
}
```
A) a = 0 b = 1
B) a = 1 b = 0
C) Compile time error
D) None of the above

Q15. What is the output ?
```
void main()    {
char *str = "BITS Pilani";
char *str1 = "BITS PILANI";
if (strcmp(str, str1)<0)
  printf("LOWER");
else
  printf("UPPER");
}
```
A) Nothing is printed
B) UPPER
C) LOWER
D) Compilation error

Q16. What is the output?
```
char writeBackward(char s[], int n) {
  if (n == 0)
    return '\0';
  writeBackward(s, n--);
  printf ("%c",s[n]);
}

void main() {
  writeBackward("BITS PILANI",11);
}
```
A) BITS PILANI   B) Compile time error
C) INALIP STIB   D) Run time error

Q17. What is the output?
```
int main() {
  int i,j,k;
  for(i=1;i<=3;i++)  {
   if(i%2==0)
    k=2;
   else
    k=1;
   for(j=1;j<=i;j++,k+=2)
    printf("%d", k);
  }
  return 0;
}
```
A) 213
B) 124135
C) 124
D) None of the above.

Q18. Convert the following from base 6 to base 8:
$(524)_6 = (?)_8$

A) 304
B) 104
C) 404
D) None of the above

Q19. What is the output?
```
int a, b, c = 0;
void foo (void);
void main () {
  static int a = 1;
  foo();
  a += 1;
  foo();
  printf ( "%d %d ", a,b) ;
}
```
```
void foo (void)
{
  static int a = 2;
  int b = 1;
  a += ++b;
  printf ("%d %d ", a,b);
}
```
(A) 3 1 4 1 4 2   (B) 4 2 6 1 6 1
(C) 4 2 6 2 2 0   (D) 3 1 5 2 5 2

Q20. Select the correct choice.
```
void main() {
  typedef struct
  {
    int age;
    char *name;
  } stu;
  stu amit;
  amit.age = 18; //LIN1
  strcpy (amit.name, "amit"); //LIN2
printf ("%s %d",amit.name,amit.age);
}
```
A) Program prints **amit 18**
B) If **amit 18** if to be printed, replace LIN2 with: **amit.name = "amit";**
C) If **amit 18** is to be printed, insert the following after LIN1 and before LIN2:
amit.name=
          (char*)malloc(5*sizeof(char));
D) Both (B) and (C) above.

Q21. The following program intends to find the median (in variable t) of n sorted elements stored in array arr. What should be replaced in place of C and S to achieve the task?
```
  void main() {
    int n, i;
    float t;
    scanf("%d",&n);
    int arr[n];
    //assume arr[] is initialized here.
    if (C)
     S
    else
     t = arr[n/2];
     printf ("Median = %f",t);
  }
```
A) C: n%2==0
   S: t = (arr[n/2] + arr[n/2+1])/2.0;
B) C: (2*n)%2 == 0
   S: t = (arr[n/2] + arr[n/2+1])/2.0;
C) C: n%2==0
   S: t = (arr[n/2] + arr[n/2-1])/2.0;
D) C: (2*n)%2 == 0
   S: t = (arr[n/2] + arr[n/2-1])/2.0;

Q22. Which of the geometric patterns can be _best associated_ with the output of the following program.
```
void main() {
  int i, j, rows;
  scanf("%d", &rows);
  for(i=1; i<=rows; i++) {
    for(j=1; j<=rows; j++)  {
      if(i==1 || i==rows || j==1 || j==rows)
        printf("*");
      else
        printf(" ");
    } //inner for loop
    printf("\n");
  }//outer for loop
}
```
A) two vertical parallel lines
B) two horizontal parallel lines
C) hollow square
D) hollow triangle

Q. No.	1	2	3	4	5	6	7	8	9	10	11
Correct Option											

Q. No.	12	13	14	15	16	17	18	19	20	21	22
Correct Option											

Total Correct Answers: ☐ x 2 = ☐ _Total Marks_   RECHECK: