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| **Code** | Output |
|  **//5 pts**int a[3][3] = {1} ; for (i=0; i<3 ; i++)  for(j=0; j<3 ; j++) if( i > j) a[i][j] = a[i][j] + i-j ; else if( i<j ) a[i][j] = a[i][j] + i+j ; else a[i][j] = a[i][j] + i\*i;for (j=0; j<3; j++){  for (i=0; i<3; i++)  printf("%d ",a[i][j]); printf("\n");} | **1 1 2****1 1 1****2 3 4**  |
|  **//2 pts**int a[2][2] = {1,2,3} ; for (i=0; i<2 ; i++)  for(j=0; j<2 ; j++) a[1][1] += a[i][j];for (i=0; i<2; i++){  for (j=0; j<2; j++)  printf("%d ",a[i][j]); printf("\n");} | **1 2****3 12**  |
|  **//3 pts**char \*f = "Taha,";char \*b = "Moha\nad";char str[80];strcpy(str, "welcome ");strcat(str, f);strcat(str, b);puts(str);printf("%s", strtok(str, ","));puts(str); | **welcome Taha,Moha****ad****welcome Tahawelcome Taha**  |

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|  **//4 pts**#include<stdio.h> #include<string.h>int myfun(char \*str){  int res=0, i ; for(i=1 ; i<strlen(str); i++){  res =res+ res \*10+(str[i] - '0'); printf("%d\n",res); } if(str[0] == '-')  res = -res; return res;}int main(){ char str[] = "-123"; printf("%d", myfun(str)); return 0;} | **1****13****146****-146**  |

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| int arry[][4] = {{5, 12, 8, 15},  {9, 6, 4, 2}, {3, 7, 1, 10}}, k, m;for(m = 2; m >= 0; m--){ for(k = 2; k >= 0; k--){ printf("%d ", arry[2 - k][3 - m]); } printf("\n");}  | //5 pts**12 6 7****8 4 1****15 2 10**Each correct answer is worth of 0.5 points. For correct format 0.5 point. |
| What is the output if the input file contains:**ICS 103 is a programming course** FILE \*inptr;inptr = fopen("input.txt", "r");char str1[128], str2[128];fscanf(inptr, "%s", str2);fgets(str1, 4, inptr);puts(str1);printf("%s", str1);printf("%s", str2); | // 3 pts; 2 + 1 for format 10 10ICS  |
| #include<stdio.h> #include<string.h>int main(void){ int i; char users[10][50], \*token; char data[50] = "Admin\*User1@\*User2\*%@"; char delims[] = "\*@%" ; token = strtok(data, delims);  i = 0; while(token != NULL){  strcpy(users[i], token) ;  puts(users[i]) ; i++;  token = strtok(NULL,delims);  } printf("%d", i) ;return 0;} | // 5 pts; 4 + 1 for formatAdmin User1 User2 3   |

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| [3 points]What is the output if the input is:DHAHRAN IS COLD TODAYchar str1[81], str2[81];scanf("%s", str1);gets(str2);printf("%s", str2);puts(str1);printf("%s", str1); | Output: **IS COLD TODAYDHAHRAN** **DHAHRAN**  |
| [5 points]int matrix[][4] = {{5, 12, 8, 1},  {9, 5, 4, 2}, {3, 7, 1, 4}, {11, 20, 13, 16}}, k, m;for(m = 2; m >= 0; m--){ for(k = 2; k >= 0; k--){ printf("%2d ",matrix[m][k]+ matrix[k][3]); } printf("\n");} | Output: **5 9 4** **8 7 10****12 14 6** |

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| [7 points]#include <stdio.h>#include <strings.h>int main(void) { char strings[][80]  = {"THIS", "IS", "THE", "BEST"}; int k, m; for(k = 0; k <= 3; k++){ for(m = strlen(strings[k]) - 1; m >= 0; m--){ printf("%c", strings[k][m]); } printf("\n"); } printf("\n"); for(k = 0; k <= 2; k++){ strcat(strings[k], strings[k + 1]); }  for(k = 0;k < 4; k++)  puts(strings[k]);  return 0;} | Output:**SIHT** **SI** **EHT** **TSEB** **THISIS** **ISTHE** **THEBEST** **BEST**  |

1. What will be shown on the screen as a result of executing the following program?

#include<stdio.h>

int main() {

int i, j;

int x[3][3]={{1,2,3},{4},{5,6}};

for(j=2;j>=0;j--)

 for(i=0;i<=2;i++)

 printf("%d",x[i][j]);

return 0; }

1. 560400123
2. 321004065
3. 300206145
4. None of the above is true
5. What is the output of the following program?

#include<stdio.h>

int main(){

 char s[] = "Hello\0Hi";

 printf("%d %s", strlen(s),s);

}

1. 5 Hello
2. 5 Hello\0Hi
3. 9 Hello\0Hi
4. 8 Hello\0Hi

3. Given the program below, we would like to insert a new statement, after the statement **p = &array1[2][2]**,

 that would assign the integer value 5 to the 2-D array element indexed by row # 2 and column # 2:

**#include<stdio.h>**

**#define ROWS 3**

**#define COLS 3**

**int main(void) {**

 **int array1[ROWS][COLS] ;**

 **int \*p ;**

 **p = &array1[2][2] ;**

 **----------------------------- // new statement to be inserted here**

 **printf(“%d”, array1[2][2]) ;**

 **return 0;**

 **}**

 Which of the following answers is the best?

 A. array1[2][2] = 5 ;

 B. \*p = 5 ;

 C. array1[ROWS-1][COLS-1] = 5 ;

 **D. All of the above are correct. D**

 E. None of A, B, and C are correct.

4. An integer 2-D array, **arr,** has 4 rows and 3 columns. Which of the following will correctly initialize all **arr** elements to 1?

 A. **int arr[4][3] = {1} ; C**

 B. **int arr[4][3] = { {1} , {1} , {1} , {1} } ;**

 **C. int arr[4][3], i, j; for(i=0; i<4; i++) for(j=0; j<3; j++) arr[i][j] = 1;**

 D. **int arr[4][3], i, j; for(j=0; j<3; i++) for(i=0; i<4; j++) arr[j][i] = 1;**

 E. None of the above is correct.

8. A 2-D array **A** has **m** rows and **n** columns, and a 2D-array **B** has **x** rows and **y** columns. To get the absolute

 value of the difference (subtraction) of all the elements of **A** minus **B**, or, mathematically, to compute

 **|A – B|** which one of the following statements must be true regarding the number of rows and columns of

 the two arrays?

A. x == m and y == m

**B. x == m and y == n B**

C. x == n and y == n

D. x == n and y == m

E. None of the above is correct.

1. What is the output of the following program?

 **#include<stdio.h>**

 **#include<string.h>**

 **int main(void) {**

 **char string1[] = "CE 324";**

 **char string2[] = "ME 101";**

 **if(strcmp(string1,string2) == 0)**

 **printf("A") ;**

 **else if (strcmp(string1,string2) > 0)**

 **printf("B") ;**

 **else**

 **printf("C") ;**

 **return 0;**

 **}**

 A. A

 B. B

 **C. C C**

 D. The information given is not sufficient to give an answer.

 E. None of A, B, and C is correct.