Indian Institute of Technology Kanpur
ESC101 Fundamentals of Computing, 2018-19-a

Name: **ANSWER KEY**

Roll:

Sect:

MINOR QUIZ

W11P*

P1

```
 1  #include <stdio.h>
 2  int bar(int a, int b){
 3      if(a > b)
 4          b = a;
 5      else
 6          a = b;
 7      return (a + b)/2;
 8  }
 9  int main(void){
10      int a = 5, b = 6, c;
11      c = bar(a, b);
12      printf("%d%d%d",a,b,c);
13      return 0;
14  }
```

Q1: What is the output of this code?

```
 1  #include <stdio.h>
 2  void foo(int a){
 3      if(a % 10 == 0)
 4          printf("%d", a);
 5      else
 6          foo(a-1);
 7  }
 8  int main(void){
 9      foo(26);
10      return 0;
11  }
```

Q2: What is the output of this code?
Note: whitespaces indicated using gray-colored characters as in Prutor

GOLD SOLUTION	**GOLD SOLUTION**
566	20
MAX MARKS	**MAX MARKS**
5	**5**

P2

```
1   #include <stdio.h>
2   void swapPointers(int *a, int *b){
3       int *temp = a;
4       a = b;
5       b = temp;
6   }
7   int main(){
8       int a = 42, b = 24;
9       int *ptr = &a, *qtr = &b;
10      swapPointers(ptr, qtr);
11      printf("%d%d", a, b);
12      return 0;
13  }
```

Q1: What is the output of this code?

```
1   #include <stdio.h>
2   char* foo(char* p1, char* p2){
3       char ch = p1[2];
4       // strchr returns a pointer to the first
5       // occurrence of ch in p2. If ch is not
6       // present in p2 at all, strchr returns
7       // a NULL pointer
8       return strchr(p2,ch);
9   }
10  int main(){
11      char p1[] = "abcde";
12      char p2[] = "esc101rocks";
13      printf("%s", foo(p1,p2));
14      return 0;
15  }
```

Q2: What is the output of this code?
Note: whitespaces indicated using gray-colored characters as in Prutor

GOLD SOLUTION	GOLD SOLUTION
4224	c101rocks
MAX MARKS	**MAX MARKS**
5	**5**

P3

```
1   #include <stdio.h>
2   int locate(int *arr, int cols, int i, int j){
3       return *(arr + cols * i + j);
4   }
5   int main(){
6       int mat[3][4] = {{1,2,3,4},{5,6,7,8},{9,10,11,12}};
7       int *ptr = &mat[0][0];
8       printf("%d", locate(ptr,2,2,1));
9   }
```

Q1: What is the output of this code?

```
1   #include <stdio.h>
2   #include <string.h>
3   char* foo(char* str1, char* str2){
4       // strstr returns a pointer to first occurrence
5       // of str2 as a substring in str1. If there is no
6       // occcurrence then a NULL pointer is returned
7       return strstr(str1, str2);
8   }
9   int main(){
10      char str1[] = "Delhidelhi", str2[] = "hi";
11      char *ptr = foo(str1, str2);
12      if(ptr != NULL){
13          *(ptr + 4) = '\0';
14          printf("%s",ptr);
15      }else printf("SEGFAULT");
16      return 0;
17  }
```

Q2: What is the output of this code?
Note: whitespaces indicated using gray-colored characters as in Prutor

GOLD SOLUTION	GOLD SOLUTION
6	hide
MAX MARKS	**MAX MARKS**
5	**5**

P4

```
1   #include <stdio.h>
2   void foo(int *a, int *b){
3       int *c = (int*)((*b)/(*a));
4       printf("%ld", *c);
5   }
6   int main(){
7       int a = 4;
8       int b = 2 ? 2 : 0;
9       foo(&a, &b);
10      return 0;
11  }
```

Q1: What is the output of this code?

```
1   #include <stdio.h>
2   void funny(int *a, int *b, int gap){
3       *a += ((*b % gap) * gap);
4   }
5   int main(){
6       int a = 5, b = 9, gap = 10;
7       funny(&a, &b, gap);
8       funny(&b, &a, gap);
9       printf("%d%d", a/gap, b/gap);
10  }
```

Q2: What is the output of this code?
Note: whitespaces indicated using gray-colored characters as in Prutor

GOLD SOLUTION	GOLD SOLUTION
The code will compile and not give divide-by-zero error but cause a segfault	95

MAX MARKS	MAX MARKS
5	**5**