SOLUTIONS

FOR LOOP

Q1

```
#include <stdio.h>
int main() {
   int num, sum = 0;
   printf("Enter a number: ");
   scanf("%d", &num);

   for(; num > 0; num /= 10) {
      sum += num % 10;
   }
   printf("Sum of digits = %d", sum);
   return 0;
}
```

NESTED FOR LOOP

Q2

```
#include <stdio.h>
int main() {
   int n = 5;
   for(int i = 1; i <= n; i++) {
      // print spaces
      for(int j = i; j < n; j++) {
         printf("  ");
      }
      // print stars
      for(int k = 1; k <= i; k++) {
         printf("* ");
```

```
        }
        printf("\n");
    }
    return 0;
}
```

Q3

```
#include <stdio.h>
int main() {
    int n;
    printf("Enter a number: ");
    scanf("%d", &n);

    printf("Factor pairs of %d:\n", n);
    for(int i = 1; i <= n; i++) {
        for(int j = 1; j <= n; j++) {
            if(i * j == n)
                printf("(%d, %d) ", i, j);
        }
    }
    return 0;
}
```

WHILE LOOP

Q1

```
#include <stdio.h>
int main() {
    int i = 1;
    while(i <= 20) {
        if(i % 2 != 0)
            printf("%d ", i);
```

```
        i++;
    }
    return 0;
}
```

NESTED WHILE LOOP

Q1

```
#include <stdio.h>
int main() {
    int i = 1;
    char ch = 'A';
    while(i <= 5) {
        int j = 1;
        while(j <= i) {
            printf("%c ", ch);
            j++;
        }
        ch++;
        printf("\n");
        i++;
    }
    return 0;
}
```

DO WHILE LOOP

Q1

```
#include <stdio.h>
int main() {
    int num;
    do {
        printf("Enter a number (0 to stop): ");
```

```
    scanf("%d", &num);
  } while(num != 0);
  printf("Loop ended!");
  return 0;
}
```

NESTED DO WHILE LOOP

Q1

```
#include <stdio.h>
int main() {
  int i = 0;
  do {
    int j = 0;
    do {
      int k = 0;
      do {
        if(i + j + k == 9)
          printf("%d%d%d ", i, j, k);
        k++;
      } while(k <= 9);
      j++;
    } while(j <= 9);
    i++;
  } while(i <= 9);
  return 0;
}
```