10 . (b) Test 10

Test Summary

- No. of Sections: 2
- No. of Questions: 3
- Total Duration: 45 min

Section 1 - Coding Proficiency

Section Summary

- No. of Questions: 2
- Duration: 30 min

Additional Instructions:

None

Q1. **Prime Factors**
Write a ‘C’ program to find out prime factors of given number

Input Format

Input represents the value n

Output Format

Print the prime factors separated by space

Constraints

1<= num <= 1000000

Sample Input

```
225
```

Sample Output

```
3 3 5 5
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q2. **Prime Numbers Between Intervals**
C Program to Display Prime Numbers between Two Intervals

Input Format

Input contains the start and end range

Output Format

Print the values separated by space

Constraints

1 <= start < end <= 1000000

Sample Input

```
5 15
```

Sample Output

```
5 7 11 13
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Section 2 - Essay Writing

Section Summary

- No. of Questions: 1
- Duration: 15 min

Additional Instructions:

None

Q1. **ESSAY WRITING**

Write a response explaining the pros and cons of the arms race. Do the benefits outweigh the risks? Provide examples.

Directions

In the nuclear age, the production and development of weaponry challenge the very existence of humankind. How useful are weapons? Do the benefits outweigh the risks?

Keywords

Answer Key & Solution

Section 1 - Coding Proficiency

Q1

Test Case

Input

```
6745
```

Output

```
5 19 71
```

Weightage - 5

Input

```
315
```

Output

```
3 3 5 7
```

Weightage - 5

Input

```
2940
```

Output

```
2 2 3 5 7 7
```

Weightage - 10

Input

```
8115
```

Output

```
3 5 541
```

Weightage - 10

Input

```
6481
```

Output

```
6481
```

Weightage - 10

Input

```
7402
```

Output

```
2 3701
```

Weightage - 10

Input

```
14416
```

Output

```
2 2 2 2 17 53
```

Weightage - 10

Input	Output
49498	2 24749

Weightage - 10

Input	Output
51078	2 3 8513

Weightage - 10

Input	Output
69511	13 5347

Weightage - 10

Input	Output
32535	3 3 3 5 241

Weightage - 10

Sample Input	Sample Output
225	3 3 5 5

Solution

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {

    int num, factor;
    scanf("%d",&num);
    for(factor=2 ; num>1 ; factor++)
    {
        if(num % factor==0)
        {
            while(num % factor==0)
            {
                num = num/factor;
                printf("%d ",factor);

            }
```

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {

    int num, factor;
    scanf("%d",&num);
    for(factor=2 ; num>1 ; factor++)
    {
        if(num % factor==0)
        {
            while(num % factor==0)
            {
                num = num/factor;
                printf("%d ",factor);

            }
```

```
        }
    }
    return 0;
}
```

```
    }
}
    return 0;
}
```

Q2

Test Case

Input

```
100 200
```

Output

```
101 103 107 109 113 127 131 137 139 149 151 157
```

Weightage - 5

Input

```
20 100
```

Output

```
23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89
```

Weightage - 5

Input

```
125 567
```

Output

```
127 131 137 139 149 151 157 163 167 173 179 181
```

Weightage - 10

Input

```
642 1000
```

Output

```
643 647 653 659 661 673 677 683 691 701 709 719
```

Weightage - 10

Input

```
1000 2000
```

Output

```
1009 1013 1019 1021 1031 1033 1039 1049 1051 1061
```

Weightage - 10

Input

```
2000 5000
```

Output

```
2003 2011 2017 2027 2029 2039 2053 2063 2069 2081
```

Weightage - 10

Input

```
5000 8000
```

Output

```
5003 5009 5011 5021 5023 5039 5051 5059 5077
```

Weightage - 10

Input

```
10000 15000
```

Output

```
10007 10009 10037 10039 10061 10067 10069 10079 1(
```

Weightage - 10

Input

```
1 10000
```

Output

```
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59
```

Weightage - 10

Input

```
2000 20000
```

Output

```
2003 2011 2017 2027 2029 2039 2053 2063 2069 2081
```

Weightage - 10

Input

```
3000 25000
```

Output

```
3001 3011 3019 3023 3037 3041 3049 3061 3067 3079
```

Weightage - 10

Sample Input

```
5 15
```

Sample Output

```
5 7 11 13
```

Solution

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main()
{
    long long num, factor, till, start, end;
        scanf("%lld %lld",&start,&end);
        for(num=start ; num<=end ; num++)
        {
            till = num/2;
            for(factor=2 ; factor<=till ; factor++)
            {
                if(num % factor == 0)
                   break;
```

```
            }
            if(factor>till && till!=0)
                printf("%lld ",num);
        }
    return 0;
}
```

```
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main()
{
    long long num, factor, till, start, end;
        scanf("%lld %lld",&start,&end);
        for(num=start ; num<=end ; num++)
        {
            till = num/2;
            for(factor=2 ; factor<=till ; factor++)
            {
                if(num % factor == 0)
                   break;
            }
            if(factor>till && till!=0)
                printf("%lld ",num);
        }
    return 0;
}
```

Section 2 - Essay Writing

Q1

Sample Essay

No Essay

Keywords

NUCLEAR AGE, PRODUCTION, DEVELOPMENT, WEAPONRY, CHALLENGE, EXISTENCE, HUMANKIND, USEFUL, WEAPONS, BENEFITS,

OUTWEIGH, RISKS,

/