

End-Semester ExaminationIT101Remote Exam

4.

Question 1

#include &lt;stdio.h&gt;

int main() {

int n;

printf("Enter <sup>a</sup> ~~a~~ Number \n");

scanf("%d", &amp;n);

int size = sizeof(n);

printf("Entered Decimal Number : %d \n", n);

printf("Size of Integer data type in compiler : %d \n",  
size);

size = size \* 8;

int binary[size];

int x;

for (x = size - 1; x &gt;= 0; x--) {

if (n &gt; 0) {

binary[x] = n % 2;

n = n / 2;

}

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Name: Archit Agrawal  
Sign: Archit Agrawal

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```
    else {  
        binary[x] = 0;  
    }
```

```
int count1 = 0, count0 = 0;
```

```
for (int i = 0; i < size; i++) {
```

```
    if (binary[i] == 1) count1++;  
    else count0++;
```

```
}
```

```
printf("Number of 1's in binary number of  
input decimal number = %.d\n", count1);
```

```
printf("Number of 0's in binary number of  
input decimal number = %.d\n", count0);
```

```
return 0;
```

```
}
```

Student ID: 202052307  
Name: Archit Agrawal  
Sign: *Archit Agrawal*

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### Question 3

```
#include <stdio.h>
```

```
void printPattern (int K, int array[K][K]) {
```

```
int main() {
```

```
    int n;
```

```
    printf("Enter the number of rows \n");
```

```
    scanf("%d", &n);
```

```
    int pattern[n][n];
```

```
    for (int i=0; i<n; i++) {
```

```
        if (i==0) {
```

```
            pattern[i][0] = 1;
```

```
            continue;
```

```
        if (i==1) {
```

```
            pattern[i][0] = 1;
```

```
            pattern[i][1] = 1;
```

```
            continue;
```

```
        for (int j=0; j<=i; j++) {
```

```
            if (j==0 || j==i) {
```

```
                pattern[i][j] = 1;
```



```

    }
    }
    else {
        pattern[i][j] = pattern[i-1][j] + pattern[i-1][j-1];
    }
}
}

printPattern(n, pattern);
return 0;
}

```

```

void printPattern (int k, int array[k][k]) {
    printf("\n Input Number of Rows = %d\n", k);
    printf(" THE PATTERN FOR %d ROWS IS SHOWN\n\n", k);

    for (int i = 0; i < k; i++) {
        for (int j = 0; j <= i; j++) {
            printf("%d\t", array[i][j]);
        }
        printf("\n");
    }
    return;
}

```