



**GYALPOZHING COLLEGE  
OF  
INFORMATION TECHNOLOGY**



*C programming  
ITP203*

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Group A

### Question 1

Ans: Given Binary number is (01110)  
1's complement is 10001  
2's complement is (1's complement + 1) i.e.

$$\begin{array}{r} 10001 \text{ (1's complement)} \\ + 1 \\ \hline 10010 \text{ (2's complement)} \end{array}$$

∴ 2's complement is 10010.

### Question 2

Ans: Given Binary is (10001)  
∴ 1's complement is 01110 //

### Question 3

Ans:

$$\begin{array}{r} 00101 \\ 101 \overline{) 11010} \\ \underline{0 \downarrow} \phantom{11} \\ 11 \phantom{01} \\ \underline{- 0} \phantom{11} \\ 110 \phantom{01} \\ \underline{- 101} \phantom{01} \\ 0011 \phantom{01} \\ \underline{- 0} \phantom{01} \\ 110 \phantom{01} \\ \underline{- 101} \phantom{01} \\ 001 \end{array}$$

∴ Remainder = 001

Quotient = 00101

Question 4.

$$\text{Sol}^n \quad (75)_{10} \rightarrow (?)_{16}$$

$$\begin{array}{r}
 75 \div 2 = 37 \text{ remainder } 1 \\
 37 \div 2 = 18 \text{ remainder } 1 \\
 18 \div 2 = 9 \text{ remainder } 0 \\
 9 \div 2 = 4 \text{ remainder } 1 \\
 4 \div 2 = 2 \text{ remainder } 0 \\
 2 \div 2 = 1 \text{ remainder } 0 \\
 1 \div 2 = 0 \text{ remainder } 1
 \end{array}$$

$\therefore$  binary no is  $(1001011)_2$

$$\therefore (75)_{10} \rightarrow (1001011)_2$$

converting  $(1001011)_2$  to Hexadecimal

0100 1011

4

B

$\therefore$  Hexadecimal is

$(4B)_{16}$

$$\therefore (75)_{10} \rightarrow (4B)_{16}$$



Question 5

$$(776)_8 + (01011011)_2 \rightarrow (?)_8$$

Firstly convert  $(01011011)_2$  to octal  
converting base 2 to 10

$$(01011011)_2$$

$$\text{Now : } (1 \times 2^0) + (1 \times 2^1) + (0 \times 2^2) + (0 \times 2^3) + (1 \times 2^4) + (1 \times 2^5) + (0 \times 2^6) + (0 \times 2^7)$$

$$= 1 + 2 + 4 + 0 + 16 + 32 + 128 + 0$$

$$= 183$$

$$\therefore (183)_{10}$$

Then convert base 10 to 8

8	183	7
8	22	6
	2	

$$\therefore (183)_{10} \rightarrow (267)_8$$

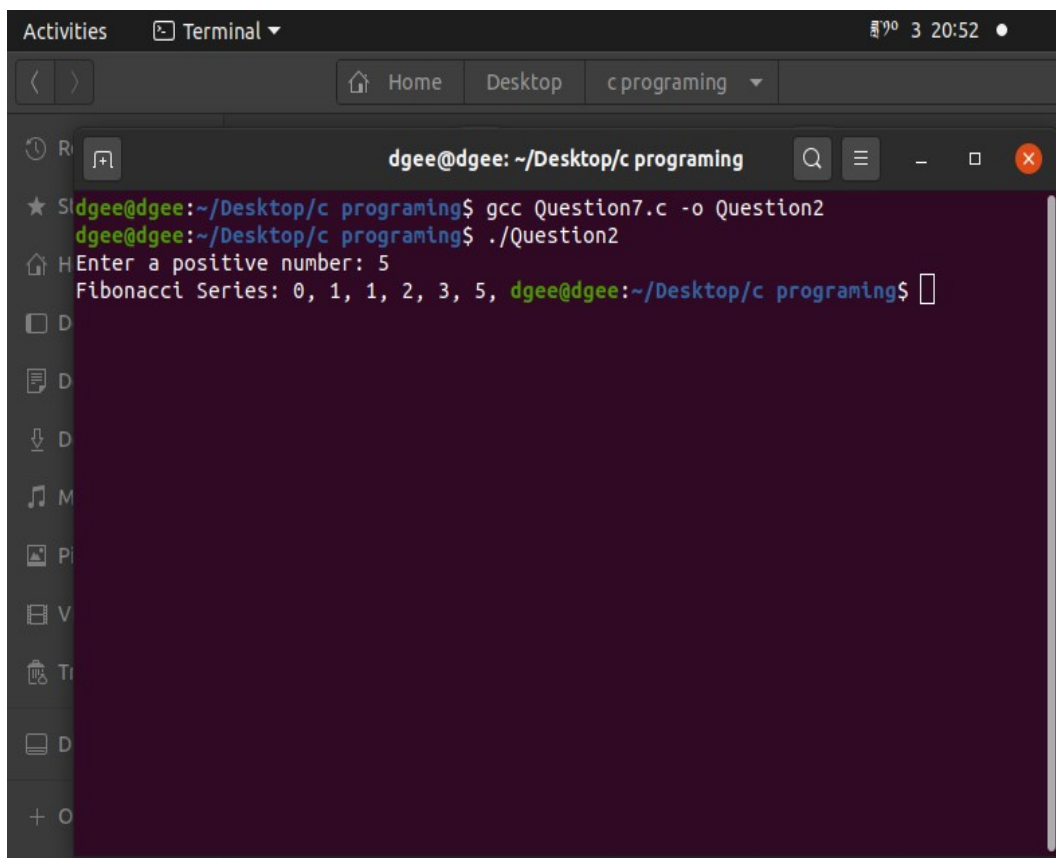
$$(776)_8 + (267)_8 = (1265)_8$$

$$\begin{array}{r} 776 \\ + 267 \\ \hline 1265 \end{array}$$

## Question 7

```
#include <stdio.h>
int main() {
    int x1 = 0, x2 = 1, nextTerm = 0, n;
    printf("Enter a positive number: ");
    scanf("%d", &n);
    printf("Fibonacci Series: %d, %d, ", x1, x2);
    nextTerm = x1 + x2;
    while (nextTerm <= n) {
        printf("%d, ", nextTerm);
        x1 = x2;
        x2 = nextTerm;
        nextTerm = x1 + x2;
    }
    return 0;
}
```

## Output



The screenshot shows a terminal window titled "Terminal" with the following content:

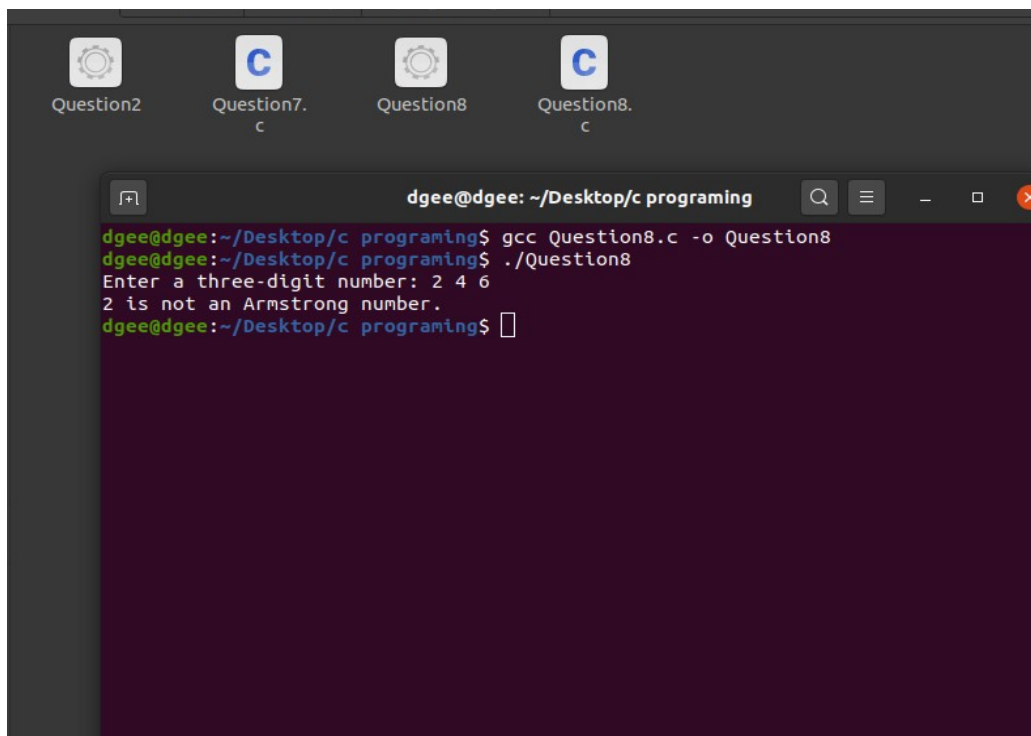
```
Activities  Terminal  3 20:52
< >  Home  Desktop  c programming
dgee@dgee: ~/Desktop/c programming
dgee@dgee:~/Desktop/c programming$ gcc Question7.c -o Question2
dgee@dgee:~/Desktop/c programming$ ./Question2
Enter a positive number: 5
Fibonacci Series: 0, 1, 1, 2, 3, 5, dgee@dgee:~/Desktop/c programming$
```

The terminal output shows the program successfully compiling and running. It prompts the user to enter a positive number (5) and then prints the Fibonacci series up to that number: 0, 1, 1, 2, 3, 5.

## Question8

```
#include <stdio.h>
int main() {
    int num, Number, remainder, result = 0;;
    printf("Enter a three-digit number: ");
    scanf("%d", &num);
    Number = num;
    while (Number != 0) {
        // remainder contains the last digit
        remainder = Number % 10;
        result += remainder * remainder * remainder;
        // removing last digit from the original number
        Number = Number / 10;
    }
    if (result == num)
        printf("%d is an Armstrong number.", num);
    else
        printf("%d is not an Armstrong number.", num);
    printf("\n");
    return 0;
}
```

## Output



```
dgee@dgee: ~/Desktop/c programing
dgee@dgee:~/Desktop/c programing$ gcc Question8.c -o Question8
dgee@dgee:~/Desktop/c programing$ ./Question8
Enter a three-digit number: 2 4 6
2 is not an Armstrong number.
dgee@dgee:~/Desktop/c programing$
```