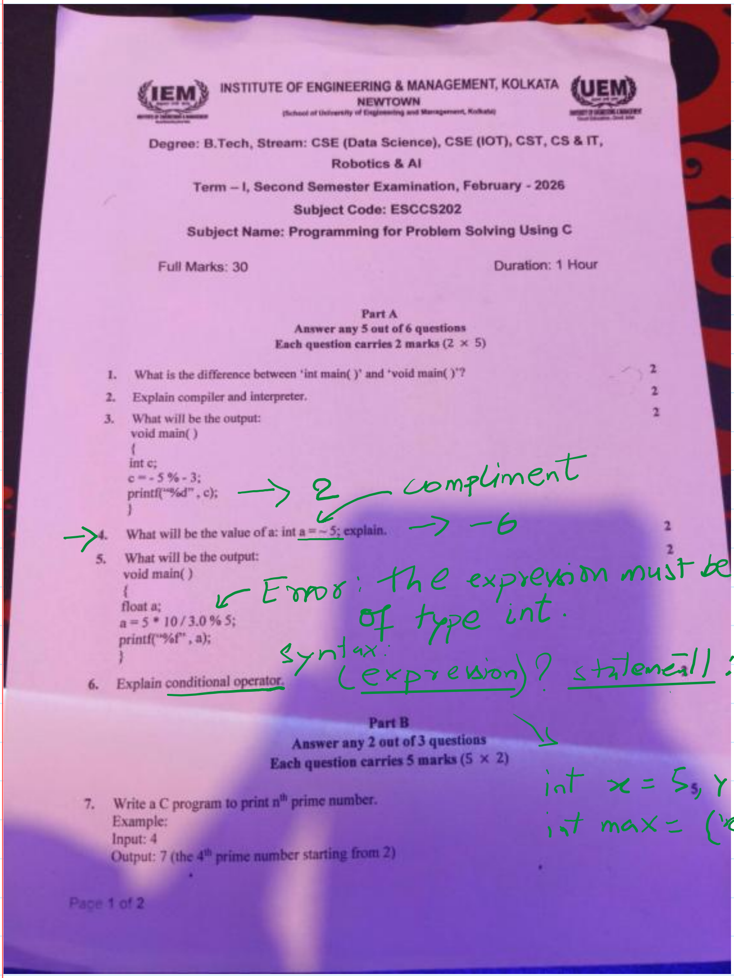
Paper discussion

14 February 2026 20:08



INSTITUTE OF ENGINEERING & MANAGEMENT, KOLKATA
NEWTOWN
(School of University of Engineering and Management, Kolkata)

Degree: B.Tech, Stream: CSE (Data Science), CSE (IOT), CST, CS & IT, Robotics & AI

Term – I, Second Semester Examination, February - 2026

Subject Code: ESCCS202

Subject Name: Programming for Problem Solving Using C

Full Marks: 30 Duration: 1 Hour

Part A
Answer any 5 out of 6 questions
Each question carries 2 marks (2 × 5)

1. What is the difference between 'int main( )' and 'void main( )'? 2
2. Explain compiler and interpreter. 2
3. What will be the output: 2

```
void main( )
{
int c;
c = - 5 % - 3;
printf("%d" , c);      →  2
}
```

compliment

→ 4. What will be the value of a: int a = ~ 5; explain. → -6 2

5. What will be the output: 2

```
void main( )
{
float a;
a = 5 * 10 / 3.0 % 5;
printf("%f" , a);
}
```

Error: the expression must be of type int.

6. Explain conditional operator.

syntax:

(expression)? statement1 : statement2;

int x = 5, y = 7;
int max = (x > y) ? x : y;

Part B
Answer any 2 out of 3 questions
Each question carries 5 marks (5 × 2)

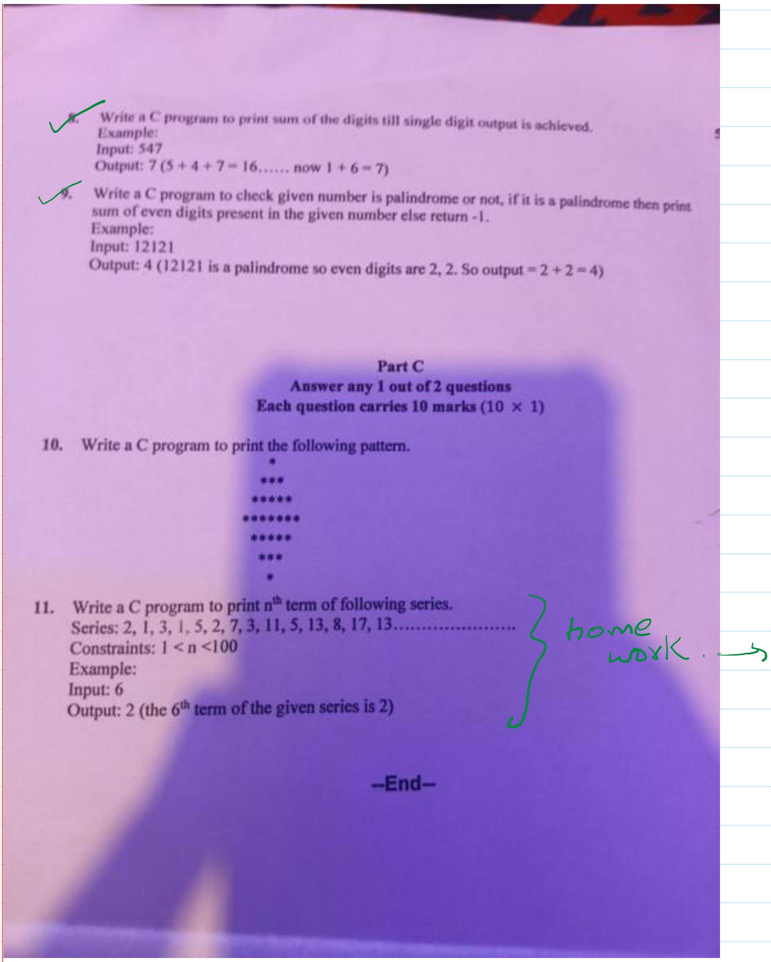
7. Write a C program to print n^th prime number.
Example:
Input: 4
Output: 7 (the 4^th prime number starting from 2)

0000000101

-8	4	2	1
0	1	0	1
1	0	1	0

-8 + 2 = -6.

$\frac{50}{3} = 20.66$



8. Write a C program to print sum of the digits till single digit output is achieved.
Example:
Input: 547
Output: 7 (5 + 4 + 7 = 16…… now 1 + 6 = 7)

9. Write a C program to check given number is palindrome or not, if it is a palindrome then print sum of even digits present in the given number else return -1.
Example:
Input: 12121
Output: 4 (12121 is a palindrome so even digits are 2, 2. So output = 2 + 2 = 4)

Part C
Answer any 1 out of 2 questions
Each question carries 10 marks (10 × 1)

10. Write a C program to print the following pattern.

```
   *
  ***
 *****
*******
 *****
  ***
   *
```

11. Write a C program to print nth term of following series.
Series: 2, 1, 3, 1, 5, 2, 7, 3, 11, 5, 13, 8, 17, 13……………………
Constraints: 1 < n <100
Example:
Input: 6
Output: 2 (the 6th term of the given series is 2)

--End--

home work → next class: functions

```c
#include<stdio.h>
#include<math.h>
int main(int argc, char const *argv[])
{
    int n, d, start = 1, isPrime = 0, count = 0;
    printf("Enter nth value in positive intger: ");
    scanf("%d", &n);
    while(n > 0){
      isPrime = 1;
      start++;
      for(d = 2; d <= sqrt(start); d++){
        if(start % d == 0){
          isPrime = 0;
          break;
        }
      }
      if(isPrime){
        n--;
        count++;
      }
    }
    printf("\n%d the %d th prime number from 2", start, count);
    return 0;
}
```

~~1~~ ~~2~~ 3

√5

2 : 1

false

1 ~~1~~ ~~0~~

n = ~~3~~ ~~2~~ ~~1~~ 0
isPrime = ~~0~~ ~~1~~ ~~1~~ ~~1~~ ~~0~~ 1
start = ~~1~~ ~~2~~ ~~3~~ ~~4~~ 5
count = ~~0~~ ~~1~~ ~~2~~ 3
d = ~~2~~ ~~2~~ ~~2~~ 3

0

5 the 3th prime number from 2

```c
    printf("\n%d the %d th prime number from 2", start, count);
    return 0;
}
```

5 the 3th prime number from 2

```c
#include<stdio.h>
#include<math.h>
int main(int argc, char const *argv[])
{
    int n, d, start = 1, isPrime = 0, count = 0;
    printf("Enter nth value in positive intger: ");
    scanf("%d", &n);
    while(n > 0){
        isPrime = 1;
        start++;
        for(d = 2; d <= sqrt(start); d++){
            if(start % d == 0){
                isPrime = 0;
                break;
            }
        }
        if (isPrime){
            n--;
            count++;
        }
    }
    printf("\n%d (the %d th prime number from 2)", start, count);
    return 0;
}
```

```c
#include<stdio.h>
int main(int argc, char const *argv[])
{
    int n, t, rev = 0, sed = 0;
    printf("Enter any int value: ");
    scanf("%d", &n);
    t = n;

    for(;t>0; rev = rev*10 + t % 10, t /= 10);

    if(rev == n){
        for(;rev > 0;  rev /= 10){
            if((rev % 10)%2 == 0){
                sed += rev % 10;
            }
        }
        printf("\n%d", sed);
    }
    else{
        printf("-1");
    }
    return 0;
}
```

0 x 10 + 1

n = 1331

t = ~~1331~~ ~~133~~ ~~13~~ ~~1~~0

rev = ~~0~~ ~~1~~ ~~13~~ ~~133~~ ~~1331~~ ~~133~~ ~~13~~ ~~1~~0

sed = 0

output:

0

← The body of for loop is absent.

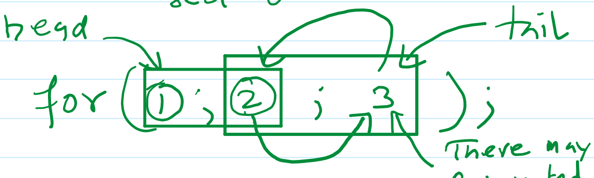
snakeloop

n = 12121

t = 12121

rev = 0

sed = 0



There may be subparts separated by commas.

for(①;②;③)

optional

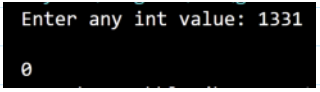
```
    return 0;
}
```

optional

for(①;②;③)

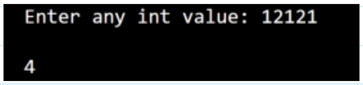
if condition is not specified, by default it is true, the loop will become infinite.

Output:



```
Enter any int value: 1331

0
```

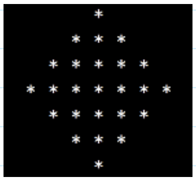


```
Enter any int value: 12121

4
```

```
#include<stdio.h>
int main(int argc, char const *argv[])
{
    int n = 4, i, j;
    //upper triangle
    for(i = 0; i < n; i++){
        //loop for printing spaces
        for(j = 0; j < n - i; j++){
            printf("  ");
        }
        //loop for printing astrisks
        for(j = 1; j <= i*2+1; j++){
            printf("* ");
        }
        printf("\n");
    }
    //lower triangle
    for(i = 1; i < n; i++){
        //loop for space
        for(j = 0; j <= i; j++){
            printf("  ");
        }
        //loop for asterisk
        for(j = 1; j <= (n-i-1)*2 + 1; j++){
            printf("* ");
        }
        printf("\n");
    }
    return 0;
}
```

Output:



```
      *
    * * *
  * * * * *
* * * * * * *
  * * * * *
    * * *
      *
```