

Exam cell - 21/12/26  
Jurnal

Reg.No.: 

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VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN  
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]  
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

**Question Paper Code: 140001**

B.E. /B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025

Fifth Semester

Computer Science and Engineering

U23CTCP4 - LEVERAGING ARITHMETIC AND CODES SNIPPET

(Common to EEE & ECE)

(Regulation 2023)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(50 x 1 = 50 marks)

- | Q. No. | Questions   | Marks | KL | CO  |
|--------|---|-------|----|-----|
| 1.     | Choose the one which conveys the meaning of the sentence correctly.   | 1     | K2 | CO1 |
|        | a) Sincerely I remain yours hoping to be hearing from you.            |       |    |     |
|        | b) Hoping to have heard from you, I sincerely remain yours.           |       |    |     |
|        | c) Hoping to hear from you, I remain yours sincerely.                 |       |    |     |
|        | d) Hoping to be hearing from you, I remain yours sincerely.           |       |    |     |
| 2.     | The orator had been left the auditorium before the audience stood up. | 1     | K2 | CO1 |
|        | a) had left   |       |    |     |
|        | b) had been left  |       |    |     |
|        | c) Was left   |       |    |     |
|        | d) No improvement   |       |    |     |

3. One day you will repent over what you have done. 1 K2 CO1  
 a) About  
 b) Of  
 c) for  
 d) No improvement
4. An individual's optimal pulse rate, the study shows, depends on their weight, height, and age. 1 K2 CO1  
 a) depends on his or her weight, height, and age  
 b) depends on his or her weight, height, and how old they are  
 c) have depended on their weight, height, and age  
 d) has depended on their weight, height, and age
5. Though all competitive exams do not allow using a calculator, but where they are permitted, there are restrictions on the models allowed. 1 K3 CO1  
 a) Though all competitive exams do not allow using calculators,  
 b) Not all competitive exams allow the use of a calculator,  
 c) Every competitive exam does not allow using of calculators,  
 d) No correction required.
6. Many believed that girls who received western education would make slaves of their husbands. 1 K2 CO1  
 a) have received  
 b) could received  
 c) had received  
 d) No improvement
7. Choose the one which conveys the meaning of the sentence correctly. 1 K2 CO1  
 a) Yesterday to collect the pass book I went to the bank.  
 b) To collect the pass book yesterday, I went to the bank.  
 c) I went yesterday to the bank to collect the pass book.  
 d) I went to the bank yesterday to collect the pass book.
8. Choose the one which conveys the correct meaning of the sentence 1 K2 CO1  
 a) He served sandwiches to the children on paper plates.  
 b) He served sandwiches on paper plates to the children.  
 c) He served to the children sandwiches on paper plates.  
 d) He served on paper plates sandwiches to the children.

9. Choose the one which conveys the meaning of the sentence correctly. 1 K2 CO1
- a) He made a final decision at the conclusion of the meeting.
  - b) He made a decision at the conclusion of the meeting.
  - c) He made a final decision at the end of the meeting.
  - d) He made a decision at the end of the meeting.
10. Choose the one which conveys the meaning of the sentence correctly. 1 K2 CO1
- a) To succeed in this role, you need strong communication skills, analytical thinking, and you must be adaptable.
  - b) To succeed in this role, you need strong communication skills, analytical thinking, and adaptability.
  - c) To succeed in this role, you need strong communication skills, analytical thinking, and must be adaptable.
  - d) To succeed in this role, you need strong communication skills, analytical thinking, and to be adaptable.
11. A shopkeeper mixes two varieties of rice costing Rs.50/kg and Rs.40/kg. In what ratio should they be mixed to get a mixture worth Rs.44/kg? 1 K1 CO2
- a) 3:2
  - b) 2:3
  - c) 1:3
  - d) 3:1
12. In what ratio must a grocer mix two varieties of pulses costing Rs. 15 per kg and Rs. 20 per kg respectively so as to get a mixture worth Rs. 16.50 per kg? 1 K1 CO2
- a) 3:7
  - b) 5:7
  - c) 7:3
  - d) 7:5
13. Find the ratio in which rice at Rs. 7.20 per kg be mixed with rice at Rs. 5.70 per kg to produce a mixture worth Rs. 6.30 per kg. 1 K1 CO2
- a) 1:3
  - b) 2:3
  - c) 3:4
  - d) 4:5

14. The cost of Type 1 rice is Rs. 15 per kg and Type 2 rice is Rs. 20 per kg. If both Type 1 and Type 2 are mixed in the ratio of 2 : 3, then find the price in Rs./kg of the mixed variety of rice is. 1 K3 CO2
- a) 18  
b) 18.50  
c) 19  
d) 19.5
15. How much water be mixed in 36 litre of milk worth Rs. 4.80 per litre, so that value of mixture is Rs. 3.60 per litre? 1 K3 CO2
- a) 10  
b) 12  
c) 11  
d) 14
16. A single card is chosen at random from a standard deck of 52 playing cards. What is the probability of choosing a card that is not a king? 1 K2 CO2
- a)  $\frac{4}{52}$   
b)  $\frac{12}{13}$   
c)  $\frac{1}{13}$   
d)  $\frac{4}{13}$
17. A coin is tossed and a single 6-sided die is rolled. Find the probability of getting the head side of the coin and getting a 3 on the die. 1 K2 CO2
- a)  $\frac{1}{2}$   
b)  $\frac{1}{6}$   
c)  $\frac{1}{12}$   
d)  $\frac{1}{18}$
18. Two dice are tossed. What is the probability that the total score is a prime number is? 1 K2 CO2
- a)  $\frac{1}{6}$   
b)  $\frac{5}{12}$   
c)  $\frac{1}{2}$   
d)  $\frac{7}{9}$

19. A factory has 2 machines, M1 and M2. M1 produces 60% of total items and m2 produces 40%. Defective rates are 2% for M1 and 3% for M2. If an item is defective, what is the probability it came from M2? 1 K3 CO2
- a) 0.40
  - b) 0.55
  - c) 0.333
  - d) 0.375
20. A test for a disease is 99% accurate 0.5% of the population has the disease. If the person tests positive, what is the probability that they actually have the disease? 1 K3 CO2
- a) 0.33
  - b) 0.83
  - c) 0.37
  - d) 0.99
21. How many words can be formed by using 4 letters from the word "COMPUTER"? 1 K3 CO3
- a) 1680
  - b) 3020
  - c) 760
  - d) 1020
22. In how many ways can the letters of the word "LEADER" be arranged? 1 K3 CO3
- a) 72
  - b) 44
  - c) 360
  - d) 720
23. In how many ways can a group of 5 men and 2 women be made out of total of 7 men and 3 women? 1 K3 CO3
- a) 63
  - b) 90
  - c) 126
  - d) 45

24. Five teams how to compete in a League, with every team playing every other team exactly once, before going to the next round. How many matches will have to be held complete the League round of matches? 1 K3 CO3
- a) 20
  - b) 10
  - c) 8
  - d) 5
25. Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed? 1 K3 CO3
- a) 210
  - b) 1050
  - c) 25200
  - d) 21400
26. In how many different ways can the letters of the word 'LEADING' be arranged in such a way that the vowels always come together? 1 K3 CO3
- a) 360
  - b) 480
  - c) 720
  - d) 5040
27. In how many ways a committee, consisting of 5 men and 6 women can be formed from 8 men and 10 women? 1 K3 CO3
- a) 266
  - b) 5040
  - c) 11760
  - d) 86400
28. In how many different ways can the letters of the word 'OPTICAL' be arranged so that the vowels always come together? 1 K3 CO3
- a) 120
  - b) 720
  - c) 4320
  - d) 2160

29. Out of the five digits 1, 2, 3, 4 and 5, how many two digits number can be formed without repetition of digits? 1 K3 CO3

- a) 12
- b) 10
- c) 15
- d) 20

30. There are 8 boys and 7 girls out of which a team of 5 players to be selected. In how many ways the team can be selected if at least 2 girls and 2 boys should be in the team? 1 K3 CO3

- a) 2456
- b) 2156
- c) 2486
- d) 2336

31. What will be the output? 1 K3 CO4

```
#include<stdio.h>
void array(int **p);
int main()
{
    int arr[2][4] = {{2, 4, 6, 8}, {10, 12, 14, 16}};
    int *ptr;
    ptr = &arr[0][0];
    array(&ptr);
    return 0;
}
void array(int **p)
{
    printf("%d", **p + 5);
}
```

- a) 2
- b) 10
- c) 12
- d) 7

32. What will be the output?

1 K3 CO4

```
#include<stdio.h>
void fun(char**);
int main()
{
    char *arr[] = { "red", "green", "blue" };
    fun(arr);
    return 0;
}
void fun(char **p)
{
    printf("%s\n", *(p+2));
}
```

- a) red
- b) green
- c) blue
- d) Compilation error

33. What will be the output?

1 K3 CO4

```
#include<stdio.h>
int function(int, int);
int main()
{
    int a = 15, b = 10 + a;
    printf("%d", function(a, b-a));
    return 0;
}
int function(int x, int y)
{
    return (x + (x == y));
}
```

- a) 0
- b) 25
- c) 15
- d) 35

34. What will be the output? 1 K3 CO4

```
#include<stdio.h>
#define prod(a,b) a*b
int main()
{
    int x = 5, y = 6;
    printf("%d", prod(x+1, y-2));
    return 0;
}
```

- a) 5
- b) 9
- c) 11
- d) 0

35. What will be the output? 1 K3 CO4

```
class Stones
{
    public static void main(String[] args)
    {
        try {
            int a = 10, b = 0;
            System.out.println(a / b);
        }
        catch (ArithmeticException e) {
            System.out.println("Division error");
        }
    }
}
```

- a) 5
- b) 0
- c) Division error
- d) ArithmeticException

36. What will be the output?

1 K3 CO4

```
class Point {
    protected int x, y;
    public Point(int _x, int _y) {
        x = _x;
        y = _y;
    }
}

public class Main {
    public static void main(String args[]) {
        Point p = new Point(5, 10);
        System.out.println("x = " + p.x + ", y = " + p.y);
    }
}
```

- a) x = 10, y = 5
- b) x = 5, y = 10
- c) Compilation error
- d) Run time error

37. What will be the output?

1 K3 CO4

```
class Circle {
    final double PI;
    final int radius;
    public Circle(int r) {
        radius = r;
        PI = 3.14;
    }
    public void display() {
        System.out.println("Radius: " + radius + ", PI: "
+ PI);
    }
}

public class Main {
    public static void main(String[] args) {
        Circle c = new Circle(7);
        c.display();
    }
}
```

- a) Radius: 7, PI: 3.14
- b) Radius: 7
- c) PI: 3.14
- d) Error

38. **What will be the output?** 1 K3 CO4

```
int[] arr = {5, 3, 8, 4};
int p = partition(arr, 0, 3);
System.out.println("Partition index: " + p);
System.out.print("Array after partition: ");
```

```
for(int x : arr) System.out.print(x + " ");
```

- a) Partition index: 1, Array after partition: 3 4 8 5
- b) Partition index: 2, Array after partition: 3 4 5 8
- c) Partition index: 3, Array after partition: 3 4 5 8
- d) Partition index: 2, Array after partition: 3 4 8 5

39. **What will be the output?** 1 K3 CO4

```
int[] arr = {1, 3, 5, 7, 9, 11};
int index = binarySearchRecursive(arr, 0, arr.length - 1, 5);
```

```
System.out.println(index);
```

- a) 0
- b) 1
- c) 2
- d) -3

40. **What will be the output?** 1 K3 CO4

```
class Main {
    public static void main(String[] args) {
        int a = 5, b = 10, c = 7;
        if (b > a && b > c && a < c) {
            System.out.println("Rotation: Left-Right");
        } else if (a > b && a > c && b < c) {
            System.out.println("Rotation: Right-Left");
        } else if (a > b && a > c) {
            System.out.println("Rotation: Single Right");
        } else {
            System.out.println("Rotation: Single Left");
        }
    }
}
```

- a) Rotation: Single Right
- b) Rotation: Single Left
- c) Rotation: Left-Right
- d) Rotation: Right-Left

41. When the time is 5:40, then what is the angle b/w the hour hand & the minute hand of a clock? 1 K3 CO5

- a)  $70^\circ$
- b)  $60^\circ$
- c)  $74^\circ$
- d)  $80^\circ$

42. How many times do the hands of a clock coincide in a day? 1 K3 CO5

- a) 20
- b) 21
- c) 22
- d) 24

43. The minute hand of a clock overtakes the hour hand at intervals of 64 minutes of correct time. How much does the clock gain or lose in 12 hours? 1 K4 CO5

- a)  $16(5/11)$  min
- b)  $16(4/11)$  min
- c)  $16(6/11)$  min
- d)  $16(7/11)$  min

44. What was the day of 14 April 2000? 1 K4 CO5

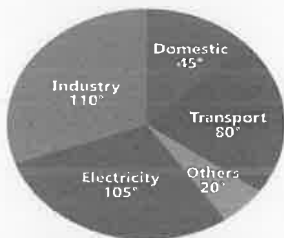
- a) Sunday
- b) Monday
- c) Friday
- d) Tuesday

45. Today 05-05-2025 is Monday. In 96 days, what day will it be? 1 K3 CO5

- a) Saturday
- b) Monday
- c) Friday
- d) Tuesday

46. Which of the following is not a leap year? 1 K3 CO5
- a) 1200
  - b) 600
  - c) 1600
  - d) 2400

47. Directions: Study the following graph carefully & answer the questions given below it. The basic fuel expenditure of a country is dominated by four major uses - Domestic, Transport, Industry and Electricity. In 1992, the total amount of energy used was equivalent to 600 million tonnes of coal. 1 K4 CO5



The energy consumed for other purposes is approximately what percentage of total energy consumed for the other four major uses in 1992 was?

- a) 5%
  - b) 6%
  - c) 20%
  - d) 33%
48. Based on the 47<sup>th</sup> question data. What is difference between energy used for domestic purposes and other purposes in the country in 1992? 1 K4 CO5
- a) 35.33 million ton
  - b) 41.67 million ton
  - c) 52.75 million ton
  - d) Can't be determined

49. Directions: Study the graph carefully and answer the following questions. The bar graph shows the total number of employees and the male employees in five different banks 1 K4 CO5

The bar graph shows the total number of employees and the male employees in five different banks



The number of female employees working in OBC and PNB together is approximately how much percentage less than the total number of employees working in PNB?

- a) 10%  
 b) 8%  
 c) 5%  
 d) 12%
50. Based on the 49th question data. What is the average number of female employees working in all the banks? 1 K4 CO5
- a) 503.6  
 b) 523.6  
 c) 533.6  
 d) None of these

#### PART – B

(5 x 4 = 20 marks)

Q.No.	Questions	Marks	KL	CO
51. a)	i. A container contains 40 L of milk. From this container, 4 L of milk was taken out and replaced by water. This process was further repeated two times. How much milk is now there in the container?	2	K3	CO2

- ii. In an alloy 80% is copper and the remaining tin. In another alloy, copper is 85% and tin is 12%. In what ratio should the two alloys be mixed so that the new mixture must have 15% tin. Also find the percentage of copper in the new mixture. 2
- (OR)
- b) i. Tickets numbered 1 to 50 are mixed and one ticket is drawn at random. Find the probability that the ticket drawn has a number which is a multiple of 4 or 7? 2 K3 CO2
- ii. If a 4-digit number is formed at random using the digits 1,3,5,7 and 9 without repetition, then find the probability that it is divisible by 5, is. 2
52. a) In a group of 6 boys and 4 girls, four children are to be selected. In how many different ways can they be selected such that at least one boy should be there? 4 K3 CO3
- (OR)
- b) Five students are to be arranged on five chairs for a photograph. Three of these are girls and the rest are boys. K3 CO3
- i. Find out the total number of ways in which three girls are together. 2
- ii. Find out the number of ways in which all three girls do not occupy consecutive seats. 2
53. a) A student gets +3 marks for each right answer and -0.5 marks for each wrong answer in an exam, consists of 250 questions. If the student gets 477 marks in the exam, find the no of wrong questions attempted by students. 4 K3 CO4
- (OR)
- b) **What will be the output and explain in details** 4 K3 CO4
- ```
interface I1 {
    int t1 = 1111;
    void method1();
}
```
- ```
interface I2 {
```

```

    int t2 = 2222;
    void method2();
}
interface I3 extends I1, I2 {
    int t3 = 3333;
    void method3();
}

class A implements I3 {
    @Override
    public void method1() {
        System.out.println("Method1: " + t1);
    }

    @Override
    public void method2() {
        System.out.println("Method2: " + t2);
    }

    @Override
    public void method3() {
        System.out.println("Method3: " + t3);
    }
}

public class Main {
    public static void main(String[] args) {
        A obj = new A();
        obj.method1();
        obj.method2();
        obj.method3();
    }
}

```

54. a) **What will be the output and explain in detail.**

4 K3 CO4

```
public class ExceptionDemo {
    public static String method() {
        try {
            System.out.println("In try block");
            return "return from try-catch";
        } catch (Exception e) {
            return "return from catch";
        } finally {
            System.out.println("In finally block");
        }
    }

    public static void main(String[] args) {
        System.out.println(method());
    }
}
```

(OR)

b) **What will be the output and explain in details?**

4 K3 CO4

```
class Parent
{
    private void who()
    {
        System.out.println("Inside private method Parent
        who");
    }
    public static void whoAmI()
    {
        System.out.println("Inside static method, Parent
        whoAmI");
    }
    public void whoAreYou()
    {
        who();
        System.out.println("Inside virtual method, Parent
        whoAreYou");
    }
}
```

```

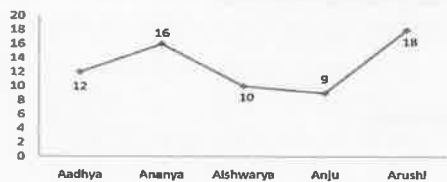
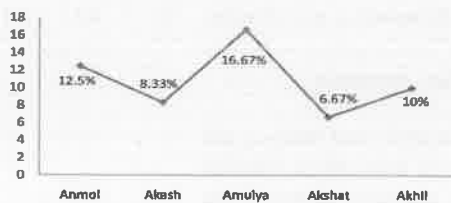
}
class Kid extends Parent
{
private void who()
{
System.out.println("Kid who");
}
public static void whoAmI()
{
System.out.println("Kid whoAmI");
}
public void whoAreYou()
{
who();
System.out.println("Kid whoAreYou");
}
}
public class FgG
{
public static void main(String args[])
{
Parent p = new Kid();
p.whoAmI();
p.whoAreYou();
}
}

```

55. a) 1) At what angle will the hour hand be turned through at 10 minutes past 5, if the clock is started at noon? 2 K4 CO5  
2) If January 1st, 2023, is a Sunday, what day of the week will October 31st, 2023? 2

(OR)

- b) Directions : Study the following line chart carefully and answer the questions given beside. The 1st graph shows the percentage efficiency of different boys and the 2nd one shows the number of days taken by different girls to do a certain piece of work. K4 CO5



- 1) If Amulya starts the work alone and after 2 days Aadhya joins him and after 1 day later Aarushi joins them, then, in how many days will the whole work be completed? 2
- 2) Akshat's efficiency is approximately how much percentage less than Anju's efficiency? 2

### PART - C

(2 x 15 = 30 marks)

Q.No.	Questions	Marks	KL	CO
56. a)	<b>Write a paragraph of about the following topics (not exceed 150–200 words) use correct tenses.</b>	15	K2	CO1
	a) A Day in My Life (Use Present & Present Continuous Tenses)			
	b) A Memorable Journey (Use Past & Past Continuous Tenses)			
	c) My Future Plans (Use Future Tenses)			
	(OR)			

- b) Write an essay in about 200–250 words on the following topic: 15 K2 CO1

**1. Technology cannot replace manpower**

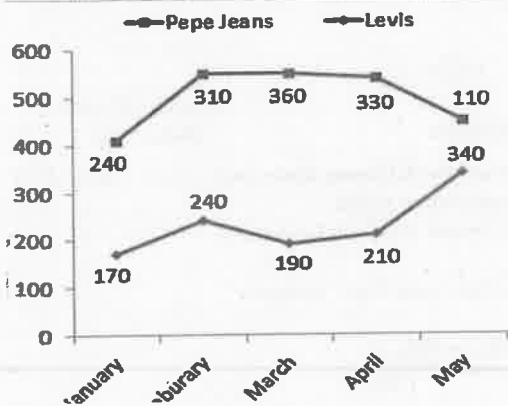
**Instructions:**

Your essay must clearly demonstrate your ability to use the following grammar concepts. You will be evaluated on both your **content** (ideas, structure, coherence) and your **language use** (based on the grammar areas listed below).

**Grammar Focus:**

- Parallelism
- Pronoun–Antecedent Agreement
- Comparisons
- Tenses
- Redundancy

57. a) i. Directions (1-3): Study the following line chart carefully and answer the questions given beside. The line graph shows the data related to the number of Jeans sold of two different brands: Levis and Pepe Jeans during five 15 K4 CO5



- 1) If the total number of jeans sold of both brands together in December is 20% less than that in April, then what is the total number of jeans sold of both brands together in December? (3 Mark)
- 2) What is the respective ratio between total number of jeans sold of brand Pepe Jeans in January and February together and that by the same brand in April and May together? (3 Mark)
- 3) What is the average number of Jeans sold of brand Levis in January, April and May? (3 Mark)

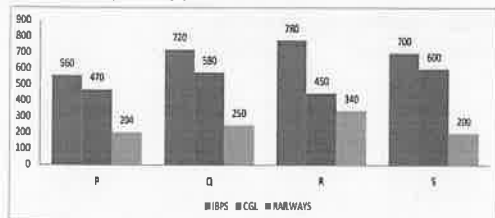
ii.

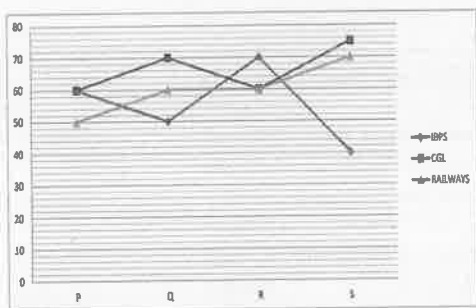
1. Find the angle between the minutes hand and the hours hand at 10:40? (3 Mark)
2. Today is Monday. After 61 days, it will be : (3 Mark)

(OR)

- b) i. Direction (1- 4 ) Study the charts and answer the question. 15 K4 CO5

Number of candidates appearing three different exams from four different cities given in bar graph and percentage of student passed the exams given in line graph.





- 1) Number of candidates who passed IBPS from state P was approximately what percent of number of candidates who passed Railways from S? (3 Mark)
  - 2) What is the respective ratio between the number of candidates who appeared for CGL from R and the number of candidates who passed in Railways from R? (3 Mark)
  - 3) What is the difference between the total number candidates passed CGL from Q and R together and the total number candidates passed Railways from P and S together? (3 Mark)
  - 4) What is number of candidates passed Railways exams from all the state together? (3 Mark)
- ii. If the day before yesterday was Saturday, What day will fall on the day after tomorrow? (3 Mark)