Reg.No.:												

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

Question Paper Code: 140004

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 All)
(Regulation 2023)

Time: Three Hours Maximum: 100 Marks

Answer ALL the questions

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

PART – A

Answer ALL Questions (50 x 1 = 50 marks)

Q. No.	Questions	Marks	KL	CO
1.	Identify the grammatically correct sentence: a) She is not only a skilled coder but also knows how to manage a team. b) She not only codes skillfully but also management of the team. c) She is not only a skilled coder but also a strong team leader. d) She not only is a skilled coder but also managing teams well.	1	K2	CO1
2.	The general consensus among the members was to postpone the vote. a) The consensus among the members was to postpone the vote. b) The general opinion and consensus was to postpone the vote. c) The overall general consensus was postponing the vote. d) The general consensus and decision was to postpone the vote.	1	K2	CO1

3. Choose the correct sentence from the following: 1 K2 CO1

a) She died in the home in which she was born at the age of 88.

b) She died, at the age of 88, in the home in which she was born.

c) She died at the home in which she was born at the age of 88.

d) She died in the home aged 88 in which she was born.

4. Starfish are, remarkably, able to clone itself by literally tearing off a limb; that limb then undergoes its own process of rapid cell regeneration. 1 K2 CO1

a) Starfish are, remarkably, able to clone himself by literally tearing off a limb; that limb then undergoes its own process of rapid cell regeneration.

b) Starfish are, remarkably, able to clone oneself by literally tearing off a limb; that limb then undergoes its own process of rapid cell regeneration.

c) Starfish are, remarkably, able to clone themselves by literally tearing off a limb; that limb then undergoes its own process of rapid cell regeneration.

d) No correction required.

5. Either the employees or the manager will share their suggestions in the meeting. 1 K2 CO1

a) his suggestion

b) their suggestion

c) his or her suggestions

d) No correction required

6. The solution that he worked out was ***not only correct but complicated.*** 1 K2 CO1

a) was not only correct but also complicated.

b) was correct but complicated.

c) was correct only but complicated.

d) No correction required

7. Identify the grammatically correct sentence. 1 K2 CO1

a) No other boy is as taller as subhash.

b) Gold is one of the more precious metal.

c) Mohan is the young boy in the class.

d) The metrological department says "this year, Hyderabad will face the hottest summer in the decade".

8. Choose the most appropriate way to rewrite the sentence without changing its meaning. 1 K2 CO1

After reading the book, the movie seemed disappointing.

a) After reading the book, the disappointing movie was watched.

b) The movie seemed disappointing after reading the book.

c) After I read the book, the movie seemed disappointing.

d) No correction required.

9. **What did happen** there in the first place is not a matter of our concern? 1 K2 CO1

a) What should happened

b) What happened

c) What would have happened

d) What happens

10. Actual evidence of misconduct may not be *the most important criteria to determine whether a President gets impeached.* 1 K2 CO1

a. the most important criteria to determining the impeachment of a President.

b. the most important criterion in determining whether a President gets impeached.

c. the most important criterion to determine if a President gets impeached.

d. the most important criteria for determining the impeachment of a President.

11. A trader mixes two varieties of sugar costing Rs. 30/kg and Rs. 40/kg in the ratio 2:3. Find the cost price per kg of the mixture. 1 K3 CO2

a) 34

b) 36

c) 38

d) 35

12.	Two liquids A and B are mixed in the ratio 3:2. If the mixture is 30 liters, find the quantity of A. a) 12 b) 15 c) 18 d) 20	1	K3	CO2
13.	A man has two varieties of sugar, one costing Rs. 30/kg and the other Rs. 50/kg. In what ratio should he mix them to get a mixture costing Rs. 40/kg? a) 1:2 b) 1:1 c) 2:3 d) 3:2	1	K3	CO2
14.	A vessel contains 60 liters of milk. 12 liters of milk are taken out and replaced with water. If this process is repeated once more, how much milk is now in the vessel (approximately)? a) 35 b) 48 c) 38 d) 30	1	K3	CO2
15.	In what ratio must a shopkeeper mix Peas and Soybean of Rs. 16 and Rs. 25 per kg respectively, so as to obtain a mixture of Rs. 19.50? a) 9:5 b) 7:5 c) 11:7 d) 12:8	1	K3	CO2
16.	A card is drawn from a standard deck of 52 cards. Probability of getting a red card or a king card is: a) 30/52 b) 15/26 c) 1/52 d) 7/13	1	K2	CO2

17.	A die is rolled twice. Probability of getting two sixes is: a) 1/36 b) 1/12 c) 1/6 d) 1/18	1	K2	CO2
18.	A bag contains 4 white and 6 black balls. Two balls are drawn without replacement. Probability both are white is: a) 1/5 b) 2/15 c) 1/3 d) 1/2	1	K2	CO2
19.	Two dice are rolled. Probability of getting a sum of 7 is: a) 1/6 b) 1/8 c) 1/12 d) 1/36	1	K3	CO2
20.	Two cards are drawn from a deck without replacement. Probability both are aces: a) 1/221 b) 1/169 c) 1/1326 d) 1/221	1	K2	CO2
21.	The number of ways to arrange 5 different books on a shelf is: a) 60 b) 120 c) 24 d) 720	1	K2	CO3

22.	The number of 3-digit numbers using digits 1,2,3,4 without repetition is: a) 24 b) 64 c) 12 d) 36	1	K3	CO3
23.	Number of ways of arranging the letters of the word "LEVEL": a) 60 b) 30 c) 20 d) 10	1	K3	CO3
24.	Number of ways to arrange the letters of "SUCCESS": a) 420 b) 210 c) 360 d) 630	1	K3	CO3
25.	How many 4-digit numbers can be formed from digits 1,2,3,4,5 if no digit repeats? a) 120 b) 100 c) 60 d) 80	1	K3	CO3
26.	Number of ways to arrange 6 people around a circular table: a) 720 b) 120 c) 5040 d) 7200	1	K3	CO3

27.	Number of ways to select 4 items from 10 distinct items: a) 210 b) 120 c) 90 d) 105	1	K3	CO3
28.	Number of ways of selecting 4 out of 6 boys and 4 out of 5 girls: a) 150 b) 100 c) 200 d) 75	1	K3	CO3
29.	In how many different ways can the letters of the word 'LEADING' be arranged in such a way that the vowels always come together? a) 360 b) 480 c) 720 d) 5040	1	K3	CO3
30.	How many 3-digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9, which are divisible by 5 and none of the digits is repeated? a) 5 b) 10 c) 15 d) 20	1	K3	CO3

31.	What will be the output of the C program?
	#include<stdio.h>
	int main()
	{
	int i = 0;
	printf("Hello");
	char s[4] = {'\b', '\t', '\r', '\n'};
	
	for(i = 0;i<4;i++){
	printf("%c", s[i]);
	}
	return 0;
	}
		1	K3	CO4

a) Hello

b) Hel

c) Hell

d) ell

32. What will be the output of the C program? 1 K3 CO4

```
#include<stdio.h>
int function();
main()
{
int i; i = function(); printf("%d", i); return 0;
}
int function() {
int a; a = 250; return 0;
}
```

a) 0

b) 1

c) 2

d) 3

33. What will be the output of the C program? 1 K4 CO4

```
#include <stdio.h>
int fun(int n)
{
int i, j, sum = 0;
for(i = 1;i<=n;i++)
for(j=i;j<=i;j++)
sum=sum+j;
return(sum);
}
int main()
{
printf(%d, fun(15));
return 0;
}
```

a) 110

b) 120

c) 210

d) 300

34. What will be the output in C Program 1 K3 CO4

```
#include<stdio.h>
int main()
{
char *s[] = { knowledge,is,power};
char **p;
p = s;
printf(%s , ++*p);
printf(%s , *p++);
printf(%s , ++*p);
return 0;
}
```

a) knowledge,is,power

b) knowledge,is

c) is,power

d) knowledge

35. What will be the output of the following program? 1 K3 CO4

```
class Bricks
{
  public static void main(String[] args)
  {
try  {  System.out.println(1/0);  }
catch(ArithmeticException e)
     {
       System.out.println(e.getMessage());
     }  }  }
```

a) By zero

b) Null

c) By one

d) Arithmetic Exception

36. What is the output of following program? 1 K3 CO4

```
// filename Main.java
class Task {
   protected int x, y;
}
class Main {
   public static void main(String args[]) {
      Task t = new Task();
      System.out.println(t.x + " " + t.y);
   } }
```

a) 0 0

b) 0 1

c) 1 1

d) 100

37. Predict the output of following Java Programs. 1 K3 CO4

```
// Main.java
public class Main
{
   public static void njk(String s)
   {
      System.out.println("String");
   }
   public static void njk(Object o)
   {
      System.out.println("Object");
   }

   public static void main(String args[])
   {
      njk(null);
   }
} //end class
```

a) String

b) Object

c) String Object

d) None of these

38. What is the output of the following program? 1 K3 CO4

```
public class Calculate1
{
  int no = 100;
  public void calc(int no)
{ this.no = no * 10; }
  public void printNum()
{ System.out.println(no); }
  public static void main(String[] args)
  {
    Calculate1 obj = new Calculate1();
obj.calc(2);
obj.printNum();
  } }
```

a) 20

b) 100

c) 1000

d) None of these

39. What is the output of the following program? 1 K3 CO4

```
class Derived
{
  public void getDetails()
  {
    System.out.printf("Derived class ");
  } }
public class Task extends Derived
{
  public void getDetails()
  {
    System.out.printf("Task class ");
super.getDetails();
  }
  public static void main(String[] args)
  {
    Derived obj = new Task();
obj.getDetails();
  }
}
```

a) Task class Derived class
b) Derived class Task class
c) Compilation error
d) Runtime error

40. What is the output of the following program? 1 K3 CO4

```
public class Task
{
   public int getData() //
   {
      return 0;
   }
   public long getData() //
   {
      return 1;
   }
   public static void main(String[] args)
   {
Task obj = new Task();
      System.out.println(obj.getData());
   }}
```

a) 1
b) 0
c) Runtime error
d) Compilation error

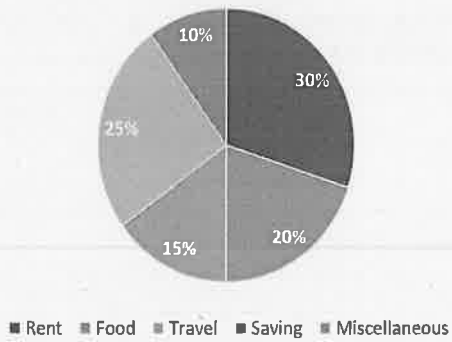
41. The day on 5th March of a year is the same day on what date of the same year? 1 K3 CO5

a) 5th August
b) 5th October
c) 5th November
d) 5th December

42. How many times the hour hand and the minute hand coincide in a clock between 10:00 a.m. and 2:00 p.m. (same day)? 1 K3 CO5

a) 3 times
b) 7 times
c) 4 times
d) 6 times

43.	At which one of the following times, do the hour hand and the minute hand of the clock make an angle of 180° with each other? a) At 7:00 hours b) Between 7:00 hours and 7:05 hours c) At 7:05 hours d) Between 7:05 hours and 7:10 hours	1	K3	CO5
44.	A clock is started at noon by 10 minutes past 5, the hour hand has turned through. a) 140° b) 145° c) 150° d) 155°	1	K3	CO5
45.	If it was Sunday on 06 September 2009, then what was the day on 03 November 2011 ? a) Thursday b) Wednesday c) Monday d) Friday	1	K4	CO5
46.	Nivedha monthly income is ₹60,000. Based on the pie chart, how much is she saving every month?	1	K4	CO5



a) 12000

b) 15000

c) 18000

d) 20000

47. Which day is 10th October, 2027? 1 K4 CO5

a) Sunday

b) Monday

c) Tuesday

d) Saturday

48. What time is shown in the mirror if real time is 8:45? 1 K3 CO5

a) 2:15

b) 3:15

c) 6.25

d) 7.15

49. If day before yesterday was Sunday, what will be the fourth day after today? 1 K3 CO5

a) Saturday

b) Friday

c) Monday

d) Wednesday

50. A watch gained 10 seconds in 5 minutes and was set right at 11 a.m. What time will it show at 11 p.m. on the same day? 1 K4 CO5

a) 11:24 p.m.

b) 11:30 p.m.

c) 11.24 a.m.

d) 01:24 p.m.

PART – B

Answer ALL Questions (5 x 4 = 20 marks)

Q.No.			Questions	Marks	KL	CO
51.	a)	i.	A certain quantity of water is mixed with milk priced at Rs 12 per litre. The price of mixture is Rs 8 per litre. Find out the ratio of water and milk in the new mixture. Assuming the price of water is Rs. 0 per litre.	2	K3	CO2
		ii.	A drum contains forty liters of whisky. Four liters of whisky is taken out and replaced by soda. This process is carried out twice further. How much whisky is now contained by the container?	2		
			(OR)			
	b)	i.	There are 7 purple clips and 5 brown clips. Two clips are selected one by one without replacement. Find the probability that the first is brown and the second is purple.	2	K3	CO2
		ii.	Find the probability of getting a sum of 8 when two dice are thrown.	2		
52.	a)	i.	Out of 8 boys and 10 girls, how many groups of 5 boys and 6 girls can be formed?	2	K3	CO3
		ii.	In how many different ways can the alphabets of the word 'SCORING' be arranged so that the vowels always come together?	2		
			(OR)			
	b)		Find the rank of the word RANDOM in dictionary order.	4	K3	CO3
53.	a)		A family has two children. find the probability that both the children are girls given that at least one of them is a girl?	4	K3	CO3
			(OR)			

b) **What will be the output and explain in details** 4 K3 CO4

```
#include <stdio.h>
int main()
{
static char *arr[] = { "apple", "mango", "grape",
"pear"};
char **ptr[] = {arr+3, arr+2, arr+1, arr};
char ***p;
p = ptr;
printf("%s\n", *p[0]);
printf("%s\n", *p[1]);
**++p;
printf("%s\n", *p[0]);
printf("%s\n", *p[1]);
printf("%s\n", *--*++p + 2);
printf("%s\n", ***p[0]);
return 0;
}
```

54. a) i. What will be the output of the following program in Java and explain it? 2 K3 CO4

```
class VCEW
{
  public static void main(String args[])
  {
    try
    {
      System.out.println("First statement of try
block");
      int no=45/3; System.out.println(no); }
catch(Exception e)
{System.out.println("Err1 caught Exception");
    }
    finally
{ System.out.println("finally block"); }
    System.out.println("Main method"); }
}
```

ii. Explain about AVL Tree with Examples. 2

(OR)

	b)	Explain the Working principles of Bubble Sort with Examples Unsorted Data – 45,15,79,90,10,55,12,20	4	K4	CO3
55.	a)	i. A watch loses 2 minutes in every 24 hours while another watch gains 2 minutes in every 24 hours. At a particular instant, the two watches showed an identical time. Which of the following statements is correct if 24 hours clock is followed?	4	K3	CO5
		ii. Megla visits the club on every 5th day; Kalai visits on every 24th day, while Hema visits on every 9th day. If all three of them met at the club on a Sunday, then on which day will all three of them meet again?			
		(OR)			
	b)	i. Picture a clock displaying the time 4:20. If you could freeze time and measure the angle formed between the hour hand and the minute hand, what would that angle be?	4	K3	CO5
		ii. Kavin celebrates his birthday on Sunday, 6 March 2004. When will he again celebrate his birthday on Sunday?			

PART – C

Answer ALL Questions (2 x 15 = 30 marks)

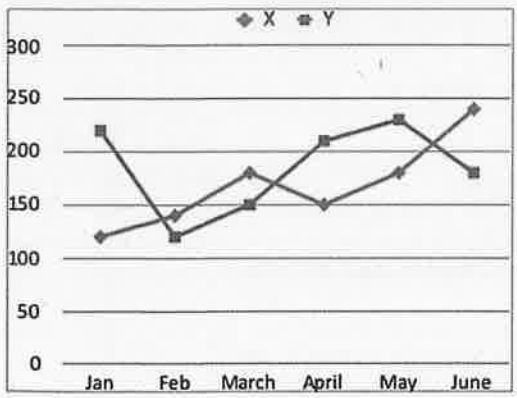
Q.No.		Questions	Marks	KL	CO
56.	a)	Write an essay in about 200 –250 words on the following topic: **"Describe a world where nature has taken back the cities."** **Instructions:** Your essay must clearly demonstrate your ability to use the following grammar concepts. You will be evaluated on both your content (ideas, structure, coherence) and your language use (based on the grammar areas listed below).	15	K2	CO1

Grammar Focus:
Parallelism
Pronoun–Antecedent Agreement
Comparisons
Redundancy
Conjunctions

(OR)

b) **Write a paragraph of about the following topics (not exceed 150–200 words) use correct tenses.** 15 K2 CO1
   a. How Technology Changes the Way We Communicate Today (Use Present & Present Continuous Tenses)
   b. The Day I Tried Something New for the First Time (Use Past & Past Continuous Tenses)
   c. My Dream Career and How I'll Achieve (Use Future Tenses)

57. a) **Direction: (1-5)** 15 K4 CO5
Refer to the graph and answer the given questions:
Number of watches of 'PQR' brand sold in Town X and Y in 6 different Months.



Town X	120	140	180	150	180	240
Town Y	220	120	150	210	230	180

i. What is the average number of watches sold in Town X in January, February, March and June?
ii. The number of watches sold in Town Y in April is what percent more than the number of watches sold in Town X in the same month?
iii. The number of watches sold in Town X in July was 10% more than the number of watches sold in the same town in May. What is the ratio of the number of watches sold in July to that sold in January in the same town?
iv. What is the difference between the total number of watches sold in both the towns together in June and the total number of watches sold in both the towns together in March?
v. The number of watches sold in Town Y increased by what percent from February to May?

(OR)

b) **Directions:(1-5)** 15 K4 CO5

A survey of film watching habits of people living in five cities P, Q, R, S and T is summarized below in a table. The column I in the table gives percentage of film-watchers in each city who see only one film a week. The column II gives the total number of film-watchers who see two or more films per week.

City	I	II
P	60	24,000
Q	20	30,000
R	85	24,000
S	55	27,000
T	75	80,000

i. How many film-watchers in city R see only one film in a week?
ii. Which city has the highest number of film watchers who see only one film in a week?
iii. A city with the lowest number of film-watchers is.
iv. The highest number of film-watchers in any given city is.
v. The total number of all film-watchers in the five cities who see only one film in a week.