Class 10
Subject- Hindi
Holiday Homework

1 अनुच्छेद लेखन

विषय-**1** प्लास्टिक की दुनिया

*प्लास्टिक का विस्तार

*प्लास्टिक के नुकसान

*सीमाएं

2 किसी ऐतिहासिक स्थल की यात्रा

*स्थल का नाम

*ऐतिहासिक महत्व

* व्यक्तिगत अनुभव

2 सूरदास के पदों की सबसे बड़ी विशेषता है गोपियों की 'वाक्चातुर्य'। आपने ऐसे और चरित्र के बारे में पढ़ा या सुना होगा जिन्होंने अपने वाक् चातुर्य के आधार पर अपनी एक विशिष्ठ पहचान बनाई जैसे बीरबल तेनाली रमन गोपाल भांड मुल्ला नसरुद्दीन आदि अपने किसी मनपसंद चरित्र के कुछ किस्से संकलित कर एक अलबम तैयार करें। **(**लगभग दो पृष्ठ**)**

3, आप अपने इलाके के चौराहे पर जिस महान व्यक्तित्व की मूर्ति स्थापित करवाना चाहते हैं, उनके व्यक्तित्व और कृतित्व का उल्लेख **(**लगभग **100** शब्दों**)** में करते हुए एक आकर्षक चित्र बनाइए।

4 कोई एक कविता, कहानी, लेख ,तुकबंदी, आदि लिखिए।

अथवा

किसी समसामयिक विषय पर पोस्टर अथवा रेखा चित्र **(Sketch)** बनाइए।

नोट- रचना स्वरचित हो।

रचना लिखते समय भाषा और वर्तनी की
शुद्धता का ध्यान रखें।
रचना अच्छी होने पर उसका चयन स्कूल
मैगज़ीन के लिए किया जाएगा।

*उपर्युक्त रचनात्मक क्रियाकलाप के लिए एक आकर्षक हस्त निर्मित फाइल **(hand made file)** बनाएं। जिसमें रंगीन पेपर पर विषय की अभिव्यक्ति चित्रात्मक रूप से करें ।चित्रों को पृष्ठ के बाएं ओर **(left side)**चिपकाएं।

Holiday Home Work

English

Class 10

Prepare an AIP comparing and contrasting the food and festivals of Arunachal Pradesh and Meghalaya.

The project should be submitted in a cardboard file covered with red paper with atleast 15 sheets including

Cover page,

Acknowledgment

Certificate

Index

Bibliography

Draw and paste pictures supporting the content.

It should be beautifully decorated and

neatly presented with your details on the cover page.

Submit the project when the school reopens.

HOLIDAY HOMEWORK 2025-26

CLASS 10

SUB SOCIAL SCIENCE

Prepare a detailed project on ANYONE of the following

PROJECT 1. CONSUMER RIGHTS

- **Different types of consumer rights that you have as a consumer**
- **COPRA**
- **Role of courts in implementation of consumer rights**
- **How can you spread consumer Awareness**
- **Case study (reference Economics last chapter – Consumer Rights)**

PROJECT 2. SOCIAL ISSUES

Student may take anyone of the social issues related to the following topics

- **Gender issue**
- **Caste issue**
- **Religious Diversity**
- **Economic Disparity(Political Science)**

PROJECT 3. SUSTAINABLE DEVELOPMENT

- **Meaning of Sustainable Development**
- **Meetings/ Reports/ Summits related to S u stainable Development**
- **Importance of Sustainable Development**
- **Different ways to achieve Sustainable Development in different fields**
- **Current status of development (Geography and Economics)**

<u>GUIDELINES(to prepare project)</u>

Use interleaved sheets(one side line)

Don’t use colourful sheets
Cover page can be decorated or painted depicting glimpse of your topic
Name ,class ,Roll no. must be written on the cover page itself
No use of stickers and glitters
No extra drawing apart from the topic
CREATIVITY COUNTS(depicting information by various forms like use of graphs,maps,colourful pics,diagrams etc
No.of pages to be used 10-15

ASSESSMENT CRITERION

- Content accuracy and originality
- Presentation and creativity
- Punctuality

Holiday Homework
Class-X
Artificial Intelligence

Assignment -1:

Output Based Questions (Do in notebook):

a)
```
a = 10
b = 3
print(a // b)
print(a / b)
print(a % b)
print(a > b)
print(a < b)
```

b)
```
x = 8
if x % 2 == 0:
    print("Even")
else:
    print("Odd")
```

c)
```
a = 9
b = 2
print("Addition:", a + b)
print("Power:", a ** b)
print("Floor Division:", a // b)
```

d)
```
x = 8
if x % 2 == 0:
    print("Even")
else:
    print("Odd")
```

e)
```
for i in range(1, 6):
    print(i * i, end=" ")
```

f)
```
x = 1
while x < 5:
    print(x, end=" ")
    x += 1
```

g)
```
x = 15
y = 10
print(x > y)
print(x == y)
print(x != y)
```

h)
```
colors = ["red", "green", "blue"]
print("green" in colors)
print("yellow" not in colors)
```

i)
```
numbers = [10, 20, 30, 40]
print(numbers[0])
print(numbers[-1])
```

j)
```
letters = ['a', 'b', 'c', 'd', 'e']
print(letters[1:4])
```

k)
```
animals = ["dog", "cat", "rabbit"]
for animal in animals:
        print(animal)
```

Assignment -2:

Error Based Questions (Do in your notebook):

a)
```
1st_number = 5
second_number = 10
print(1st_number + second_number)
```

b)
```
a = 10
b = 5
c = a +ab
print(c)
```

c)
```
x = 7
y = 3
print("The result is: " + x - y)
```

d)
```
age = 16
if age > 13 and < 18:
        print("Teenager")
```

e)
```
for i in 1 to 5:
         print(i)
```

f)
```
while x < 5
  print(x)
  x = x + 1
```

g)
```
fruits = ["apple", "banana", "mango")
print(fruits[1])
```

h)
```
numbers = [10, 20, 30, 40]
print(numbers[4])
```

Assignment -3:

Maintain a Lab manual and write python programs given below:

1. **Write a menu-driven program to perform the following operations:**

- Addition
- Subtraction
- Multiplication
- Division
- exit

Let the user choose the operation and enter two numbers

2. **Write a menu-driven program to calculate area of:**

- Circle
- Rectangle
- Triangle
- Square
- exit

Use appropriate formulas based on user input.

3. **Write a menu-driven program to create a Temperature Converter**

- Convert Celsius to Fahrenheit
- Convert Fahrenheit to Celsius
- Exit

4. **Write a menu-driven program to create a Basic Banking System**

Menu options:

- Deposit money
- Withdraw money
- Check balance
- Exit

Assume initial balance is 0.

5. **Write a menu-driven program to create a Unit Converter**

Menu options:

- Convert kilometers to miles
- Convert kilograms to pounds
- Convert inches to centimeters
- Exit

6. **Write a menu-driven program to create a Marks Management System**

Menu-driven options:

- Enter marks for 5 subjects
- Calculate total marks
- Calculate average
- Find grade (A/B/C/Fail based on average)
- Exit

7. **Write a menu-driven program to create Number Operations 1**

Menu-driven options:

- Check whether a number is even or odd
- Check whether a number is positive or negative
- exit

8. **Write a menu-driven program to create Number Operations 2**

Menu-driven options

- Check if the number is prime
- Find factorial
- Exit

9. **Write a menu-driven program to create a Simple List Manager**

Menu options:

- Add element to list
- Remove element from list
- Display all elements
- Display largest and smallest number in list

10. **Write a menu-driven program to create a Student Record System**

Menu options:

- Add student name and marks
- Display all student records
- Search for a student by name
- Display students who scored above 90

11. **Write a menu-driven program to create a Math Series Generator**

Menu-driven options:

- Print Fibonacci series up to n terms
- Print sum of first n natural numbers
- Print squares of first n numbers

12. **Write a menu-driven program to create a Quiz Program**

Menu-driven quiz:

- Start quiz (3–5 simple questions)
- View score
- Exit

13. **Write a menu-driven program to create a Grade Calculator for Multiple Students**

Menu options:

- Enter marks for a student
- Calculate and display grade
- Display all students and their grades
- exit

14. **Write a program to** check that a given no is '''Armstrong number '' or "Palindrome Number''.
    Armstrong number is a number that is equal to the sum of cubes of its digits.
    For example 0, 1, 153, 370, 371 and 407 are the Armstrong numbers
    Palindrome number is a number that is equal to reverse of its all digits.
    For example 121, 313, 444 are the Palindrome numbers'''

15. Write a program to to print following patterns

a)
```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

b)
```
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5
```

Section A

1. HCF of $5^2 \times 3^2$ and $3^5 \times 5^3$ is:
   (a) $5^3 \times 3^5$ (b) 5×3^3 (c) $5^3 \times 3^2$ (d) $5^2 \times 3^2$
2. 4 Bells toll together at 9.00 am. They toll after 7, 8, 11 and 12 seconds respectively. How many times will they toll together again in the next 3 hours ?
   (a) 3 (b) 4 (c) 5 (d) 6
3. If n is a natural number, then $9^{2n} - 4^{2n}$ is always divisible by
   (a) 11 (b) 4 (c) 5 (d) 9
4. If n is any natural number, then $9^n - 5^n$ ends with
   (a) 3 (b) 6 (c) 5 (d) 8
5. If p is prime, then HCF and LCM of p and $p + 1$ would be
   (a) HCF = p, LCM = $p + 1$
   (b) HCF = $p(p + 1)$, LCM = 1
   (c) HCF = 1, LCM = $p(p + 1)$
   (d) None of these
6. Two numbers are in the ratio of 15:11. If their H.C.F. is 13, then numbers will be
   (a) 195 and 143 (b) 190 and 140
   (c) 185 and 163 (d) 185 and 143
7. The total number of factors of a prime number is
   (a) 1 (b) 0 (c) 2 (d) 3
   [CBSE 2020]
8. Given that LCM (91, 26) = 182, then HCF (91, 26) is
   (a) 11 (b) 26 (c) 13 (d) 91

Real Numbers

9. Can we have any $n \in N$, where 4^n ends with the digit zero?
10. The LCM of two numbers is 14 times their HCF. The sum of LCM and HCF is 600. If one number is 280, then find the other number. **[CBSE 2012]**
11. Find the largest number that divides 2053 and 967 and leaves a remainder of 5 and 7 respectively.
12. Show that 21^n can not end with the digits 0, 2, 4, 6 and 8 for any natural number n. **[CBSE 2014]**
13. If HCF of 144 and 180 is expressed in the form $13m - 3$, find the value of m. **[CBSE 2014]**
14. Determine the values of p and q so that the prime factorisation of 2520 is expressible as $2^3 \times 3^p \times q \times 7$. **[CBSE 2014]**
15. The HCF of two numbers is 145 and their LCM is 2175. If one number is 725, then find the other number.
16. The HCF and LCM of two numbers are 9 and 360 respectively. If one number is 45, write the other number.
17. The HCF of 45 and 105 is 15. Write their LCM.
18. Find the least number which when divided by 16, leaves a remainder 6, when divided by 19 leaves a remainder 9 and when divided by 21 leaves a remainder 11.
19. Find pairs of natural numbers whose least common multiple is 78 and the greatest divisor is 13.

20. Two equilateral triangles have the sides of lengths 34 cm and 85 cm respectively. Find the greatest length of tape that can measure the sides of both of them exactly.

21. P is a prime and Q is a positive integer such that P + Q = 1696. If P and Q are co-prime and their LCM is 21879, then find P and Q.

22. If x is an even number, then what is the LCM of $4x$, $2x^2$ and x^3.

23. Find the HCF and LCM of 288, 360 and 384 by prime factorisation method.

24. Prove that $3 + \sqrt{2}$ is irrational number, given that $\sqrt{2}$ is an irrational number.

25. Let d be the HCF of 24 and 36. Find two numbers a and b, such that $d = 24a + 36b$. **[CBSE 2014]**

26. There is a circular path around a sports field. Kamal takes 32 minutes to drive one round of the field while Indu takes 24 minutes for the same. Suppose they both start at the same point, and go in the same direction. After how many minutes they meet again at the starting point?

27. The length, breadth and height of a room are 8 m 25 cm, 6 m 75 cm and 4 m 50 cm respectively. Determine the length of the longest rod which can measure the three dimensions of the room exactly.

28. On a morning walk three persons step off together and their steps measure 40 cm, 42 cm, 45 cm, what is the minimum distance each should walk so that each can cover the same distance in complete steps?

29. P is LCM of 2, 4, 6, 8, 10; Q is LCM of 1, 3, 5, 7, 9 and L is LCM of P and Q. Evaluate L – 21P.

Real Numbers
Section B

1. What will be the least possible number of the planks, if three pieces of timber 42 m, 49 m and 63 m long have to be divided into planks of the same length?
   (*a*) 5 (*b*) 6
   (*c*) 7 (*d*) None of these

2. What is the greatest possible speed at which a man can walk 52 m and 91 m in an exact number of minutes?
   (*a*) 17 m/min (*b*) 7 m/min
   (*c*) 13 m/min (*d*) 26 m/min

3. The HCF and LCM of two numbers are 33 and 264 respectively. When the first number is divided by 2 the quotient is 33. The other number is
   (*a*) 66 (*b*) 130 (*c*) 132 (*d*) 196

4. The greatest number of 5 digits, that will give us remainder of 5, when divided by 8 and 9 respectively is
   (*a*) 99921 (*b*) 99931 (*c*) 99941 (*d*) 99951

5. HCF of $(2^3 \times 3^3 \times 5)$, $(2^2 \times 3^2 \times 5^2)$ and $(2^5 \times 3 \times 5^3 \times 7)$ is
   (*a*) 30 (*b*) 60 (*c*) 105 (*d*) 210

6. If x and y are positive integers such that $x = a^2b^3$ and $y = a^3b^2$, where a, b are prime numbers, then LCM of (x, y) =
   (*a*) a^2b^3 (*b*) a^3b^2 (*c*) a^3b^3 (*d*) a^2b^2

7. If LCM of 24 and 48 is $10m + 8$ then value of m is
   (*a*) 4 (*b*) 8 (*c*) 2 (*d*) 1

8. If x and y are coprime then x^3 and y^3 are
   (*a*) even (*b*) odd
   (*c*) co-prime (*d*) not coprime

9. The LCM and HCF of two non-zero positive numbers are equal, then the numbers must be
   (*a*) composite (*b*) prime
   (*c*) co-prime (*d*) equal

10. The least number which when divided by 18, 24, 30 and 42 will leave same remainder 1, would be
    (*a*) 2520 (*b*) 2519 (*c*) 2521 (*d*) 2522

11. In a school there are two sections, section A and section B of class X. There are 45 students in section A and 36 students in section B. The minimum numbers of books required for their class library so that they can be distributed equally among the students of section A or section B are
    (*a*) 280 (*b*) 180 (*c*) 90 (*d*) 120

12. The largest number which divides 71 and 126 leaving remainder 6 and 9 respectively is
    (*a*) 65 (*b*) 875 (*c*) 13 (*d*) 1750

13. The smallest number, which when increased by 14 is exactly divisible by 165 and 770, is
    (*a*) 2297 (*b*) 2310 (*c*) 2296 (*d*) 2295

14. The exponent of 2 in prime factorisation of 288 is
    (*a*) 2 (*b*) 3 (*c*) 4 (*d*) 5

Polynomials

If $p(x) = ax + b$, then zero of $p(x)$ is

(a) a (b) b

(c) $\frac{-a}{b}$ (d) $\frac{-b}{a}$

Graph of a quadratic polynomial is a

(a) straight line (b) circle

(c) parabola (d) ellipse

A quadratic polynomial whose one zero is 6 and sum of the zeroes is 0, is

(a) $x^2 - 6x + 2$ (b) $x^2 - 36$

(c) $x^2 - 6$ (d) $x^2 - 3$

A quadratic polynomial whose one zero is 5 and product of zeroes is 0, is

(a) $x^2 - 5$ (b) $x^2 - 5x$

(c) $5x^2 + 1$ (d) $x^2 + 5x$

A quadratic polynomial, the product and sum of whose zeroes are 5 and 8 respectively is

(a) $k[x^2 - 8x + 5]$ (b) $k[x^2 + 8x + 5]$

(c) $k[x^2 - 5x + 8]$ (d) $k[x^2 + 5x + 8]$

If the sum of the zeroes of the quadratic polynomial $kx^2 + 4x + 3k$ is equal to their product, then the value of k is

(a) $-\frac{3}{4}$ (b) $\frac{3}{4}$

(c) $\frac{4}{3}$ (d) $-\frac{4}{3}$

The zeroes of the quadratic polynomial $x^2 + 25x + 156$ are

(a) both positive

(b) both negative

(c) one positive and one negative

(d) can't be determined

8. If α, β are the zeroes of $f(x) = 2x^2 + 8x - 8$, then

(a) $\alpha + \beta = \alpha\beta$ (b) $\alpha + \beta > \alpha\beta$

(c) $\alpha + \beta < \alpha\beta$ (d) $\alpha + \beta + \alpha\beta = 0$

9. If the sum of the zeroes of the polynomial $P(x) = (p^2 - 23)x^2 - 2x - 12$ is 1, then p takes the value (s)

(a) $\sqrt{23}$ (b) -23

(c) 2 (d) ± 5

10. The zeroes of the polynomial $x^3 - x$ are

(a) $0, \pm 2$ (b) $0, \pm 1$

(c) $0, \pm 3$ (d) $0, \pm 4$

11. If α, β are the zeroes of the polynomial $x^2 + 5x + c$ and $\alpha - \beta = 3$, then $c =$

(a) 0 (b) 1

(c) 4 (d) 5

12. If α, β are the zeroes of the polynomial $f(x) = x^2 - p(x + 1) - q$, then $(\alpha + 1)(\beta + 1) =$

(a) $q - 1$ (b) $1 - q$

(c) q (d) $1 + q$

13. The zeroes of the polynomial $f(x) = x^2 - 2\sqrt{2}x - 16$ are

(a) $\sqrt{2}, -\sqrt{2}$ (b) $4\sqrt{2}, -2\sqrt{2}$

(c) $-4\sqrt{2}, 2\sqrt{2}$ (d) $4\sqrt{2}, 2\sqrt{2}$

14. The zeroes of the polynomial $f(x) = x^2 + x - \frac{3}{4}$ are

(a) $-\frac{1}{2}, \frac{3}{2}$ (b) $\frac{1}{2}, -\frac{3}{2}$

(c) $1, -\frac{3}{2}$ (d) $1, \frac{\sqrt{3}}{2}$

15. If one of the zeroes of the quadratic polynomial $(k - 1)x^2 + kx + 1$ is -3, then the value of k is

(a) $\frac{4}{3}$ (b) $\frac{-4}{3}$

(c) $\frac{2}{3}$ (d) $\frac{-2}{3}$

16. If the zeroes of the quadratic polynomial $x^2 + (a + 1)x + b$ are 2 and –3, then

(a) $a = -7, b = -1$ (b) $a = 5, b = -1$

(c) $a = 2, b = -6$ (d) $a = 0, b = -6$

17. If the zeroes of the quadratic polynomial $ax^2 + bx + c, c \neq 0$ are equal then

(a) c and a have opposite signs

(b) c and b have opposite signs

(c) c and a have the same sign

(d) c and b have the same sign

18. If one zero of the quadratic polynomial $2x^2 - 8x - m$ is $\frac{5}{2}$, then the other zero is

(a) $\frac{2}{3}$ (b) $-\frac{2}{3}$

(c) $\frac{3}{2}$ (d) $\frac{-15}{2}$

19. The value of k such that the quadratic polynomial $x^2 - (k + 6)x + 2(2k + 1)$ has sum of the zeroes as half of their product, is

(a) 2 (b) 3 (c) –5 (d) 5

20. If one zero of the polynomial $f(x) = (k^2 + 4)x^2 + 13x + 4k$ is reciprocal of the other, then k is equal to

(a) 2 (b) –2 (c) 1 (d) –1

21. The graph of $y = x^3 - 4x$ cuts x-axis at (–2, 0), (0, 0) and (2, 0). The zeroes of $x^3 - 4x$ are

(a) 0, 0, 0 (b) –2, 2, 2

(c) –2, 0, 2 (d) –2, –2, 2

22. If sum of zeroes, $\alpha + \beta = -8$ and product of zeroes, $\alpha\beta = 6$, then a polynomial whose zeroes are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$ is

(a) $6x^2 + 8x + 1$ (b) $6x^2 - 8x - 1$

(c) $6x^2 - 4x + 6$ (d) $6x^2 - 8x + 1$

23. Twice the product of the zeroes of the polynomial $23x^2 - 26x + 161$ is $14p$. The value of p is

(a) 1 (b) 2

(c) 4 (d) 3

24. Zeroes of a quadratic polynomial are in the ratio 2 : 3 and their sum is 15. The product of zeroes of this polynomial is

(a) 36 (b) 48

(c) 54 (d) 60

25. If the graph of a polynomial $p(x)$ cuts the x-axis at 3 points and touches it at the three points, then the number of zeroes of $p(x)$ is/are

(a) 1 (b) 3

(c) 2 (d) 6

26. The graph of a polynomial $p(x)$ does not intersect the x-axis but intersects y-axis at one point. Find the number of zeroes of $p(x)$.

27. If α and β are the zeroes of the quadratic polynomial $f(x) = x^2 - px + q$, then find the value of $\alpha^2 + \beta^2$.

28. If α and β are the zeroes of the quadratic polynomial $f(x) = ax^2 + bx + c$, find the value of $\frac{1}{\alpha} + \frac{1}{\beta}$.

29. If α, β are the zeroes of the polynomial $p(x) = x^2 - p(x + 1) - c$ such that $(\alpha + 1)(\beta + 1) = 0$. What is the value of c?

30. Find the zeroes of the quadratic polynomial $p(y) = 4\sqrt{3}y^2 + 5y - 2\sqrt{3}$ and verify the relationship between the zeroes and their coefficients.

31. Find a quadratic polynomial whose zeroes are $3 + \sqrt{5}$ and $3 - \sqrt{5}$.

32. Find a quadratic polynomial whose one zero is -8 and sum of zeroes is 0.

33. Find a quadratic polynomial whose one zero is –5 and product of zeroes is 0.

34. If α and β are the zeroes of the quadratic polynomial $f(x) = x^2 - x - 4$, find the value of $\frac{1}{\alpha} + \frac{1}{\beta} - \alpha\beta$.

35. If the zeroes of the polynomial $x^2 + px + q$ are double in value to the zeroes of $2x^2 - 5x - 3$, find the value of p and q. **[CBSE 2012]**

36. Form a quadratic polynomial, one of whose zero is $2 + \sqrt{5}$ and the sum of zeroes is 4.

37. Find the quadratic polynomial sum of whose zeroes is 8 and their product is 12. Hence, find the zeroes of polynomial.

38. If one zero of the polynomial $(a^2 + 9)x^2 + 13x + 6a$ is reciprocal of the other, then find the value of a.

39. If the product of zeroes of the polynomial $ax^2 - 6x - 6$ is 4, then find the value of a.

40. Write a quadratic polynomial whose one zero is $3 - \sqrt{5}$ and product of zeroes is 4.

41. Form a quadratic polynomial whose zeroes are $\frac{3-\sqrt{3}}{5}$ and $\frac{3+\sqrt{3}}{5}$.

42. α, β are zeroes of the quadratic polynomial $x^2 - (k + 6)x + 2(2k - 1)$. Find the value of k if $\alpha + \beta = \frac{1}{2}\alpha\beta$.

43. m, n are zeroes of $ax^2 - 5x + c$. Find the value of a and c if $m + n = m.n = 10$.

44. If α and $\frac{1}{\alpha}$ are zeroes of polynomial $4x^2 - 2x + (k - 4)$, find the value of k.

45. If α, β are zeroes of $x^2 + 5x + 5$, find the value of $\alpha^{-1} + \beta^{-1}$.

46. If α, β are zeroes of the $x^2 + 7x + 7$, find the value of $\frac{1}{\alpha} + \frac{1}{\beta} - 2\alpha\beta$.

Polynomials

☆ Do Holiday HW in a separate notebook.

In the following questions, a statement of assertion (*A*) is followed by a statement of Reason (*R*). Choose the correct answer out of the following choices.

(*a*) Both *A* and *R* are true and *R* is the correct explanation of *A*.

(*b*) Both *A* and *R* are true but *R* is not the correct explanation of *A*.

(*c*) *A* is true but *R* is false.

(*d*) *A* is false but *R* is true.

1. **Assertion (*A*):** $5x + 2$ is a linear polynomial.
   Reason (*R*): A polynomial of degree 1 is a linear polynomial.
2. **Assertion (*A*):** $f(x) = 2x^4 - 3x + 7$ is a polynomial in the variable x of degree 4.
   Reason (*R*): The highest power of x in a polynomial $f(x)$ is called the degree of the polynomial $f(x)$.
3. **Assertion (*A*):** A quadratic polynomial having 5 and -3 as zeroes is $x^2 - 2x - 15$.
   Reason (*R*): The quadratic polynomial having α and β as zeroes is given by $p(x) = x^2 - (\alpha + \beta)x + \alpha\beta$.

Linear equations in two variables

1. One equation of a pair of dependent linear equations is $-5x + 7y = 2$, the second equation can be:

   (a) $10x + 14y + 4 = 0$ (b) $-10x - 14y + 4 = 0$

   (c) $-10x + 14y + 4 = 0$ (d) $10x - 14y = -4$

2. The pair of linear equations $2x - 3y = 1$ and $3x - 2y = 4$ has:

   (a) One solution (b) Two solutions

   (c) No solution (d) Many solutions

3. Two lines are given to be parallel. The equation of one of the lines is $4x + 3y = 14$. The equation of the second line can be

   (a) $3x + 4y = 14$ (b) $8x + 6y = 28$

   (c) $12x + 9y = 42$ (d) $-12x = 9y$

4. Match the Column:

(1)	$2x + 5y = 7$ $3x + 4y = 7$	(A)	Inconsistent pair of equations
(2)	$2x + 5y = 7$ $4x + 10y = 7$	(B)	Consistent pair of equations
(3)	$2x + 5y = 7$ $4x + 10y = 14$	(C)	Dependent consistent pair of equations

   (a) 1 – A, 2 – C, 3 – B (b) 1 – B, 2 – C, 3 – A

   (c) 1 – B, 2 – A, 3 – C (d) 1 – C, 2 – A, 3 – B

5. $y = a + \frac{b}{x}$ where a, b are real numbers, if $y = 1$ when $x = -1$ and $y = 5$ when $x = -5$, then $a + b$ equals

   (a) -1 (b) 0 (c) 11 (d) 10

6. For what value of k, the pair of equations $2x + 3y + 5 = 0$ and $kx + 4y = 10$, has a unique solution?

   (a) $k = \frac{8}{3}$ (b) $k \neq \frac{8}{3}$ (c) $k = 3$ (d) $k \neq 3$

7. The value of a the following pair of linear equations $ax - 3y = 1, -12x + ay = 2$ has infinitely many solution is

   (a) 6 (b) –6 (c) ±6 (d) 36

8. The values of x and y satisfying the two equations $32x + 33y = 34$, $33x + 32y = 31$ respectively are:

   (a) $-1, 2$ (b) $-1, 4$ (c) $1, -2$ (d) $-1, -4$

9. For what value of k the following pair of linear equations has unique solution?

   $7x + 8y = k$

   $9x - 4y = 12$

   (a) 9 (b) 6

   (c) 8 (d) any value of k

10. For what value of k the following pair of linear equation has unique solution?

    $kx + 3y = 3$

    $12x + ky = 6$

    (a) 6 (b) -6 (c) ±6 (d) 36

11. Find whether the following pair of equations has no solution, unique solution or infinitely many solutions.

    $5x - 8y + 1 = 0$;

    $3x - \frac{24}{5}y + \frac{3}{5} = 0$

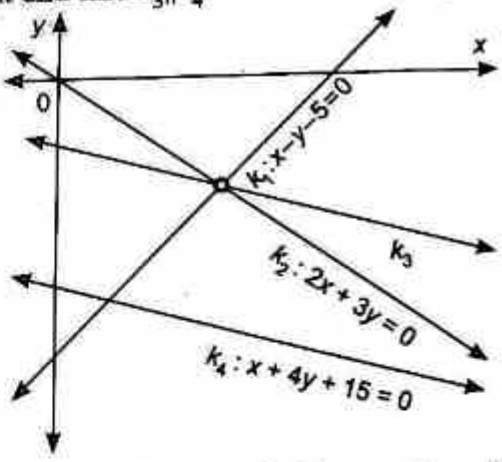
    (a) No solution

    (b) unique solution

    (c) infinitely many solution

    (d) None of these

12. Shown below is a graph with four straight lines. It is given that lines k_1, k_2 and k_3 intersect at exactly one point and line $k_3 \| k_4$. [CFPQ, CBSE]



    Which of the following is the equation of line k_3?

    (a) $x + y - 1 = 0$ (b) $x + 4y + 5 = 0$

    (c) $x - 4y - 11 = 0$ (d) $2x + 8y + 35 = 0$

13. Harsh correctly solved a pair of linear equations in two variables and found their only point of Intersection as (3, –2). One of the lines was $x - y = 5$.

    Which of the following could have been the other line? [CFPQ, CBSE]

    I. $3x - 3y = 15$ II. $2x - 3y = 12$

    III. $2x - 3y = 14$

    (a) only I (b) only II

    (c) only I and II (d) only II and III

14. Two linear equations in variables x and y are given below.

$a_1x + b_1y + c = 0$

$a_2x + b_2y + c = 0$

Which of the following pieces of information is independently sufficient to determine if a solution exists or not for this pair of linear equations? **[CFPQ, CBSE]**

I. $\frac{a_1}{b_1} = \frac{a_2}{b_2} = 1$ II. $\frac{a_1}{a_2} = \frac{b_1}{b_2}$

III. $\frac{a_1}{a_2} = \frac{a_1}{b_1} \neq 1$ IV. $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$

(*a*) IV (*b*) I and IV

(*c*) II and IV (*d*) I and III

15. The ratio of a two-digit number and the sum of its digits is 7:1. How many such two-digit numbers are possible? **[CFPQ, CBSE]**

(*a*) 1 (*b*) 4

(*c*) 9 (*d*) (infinitely many)

16. $x = 3, y = 4$ is a solution of the linear equation.

(*a*) $2x + 3y - 17 = 0$ (*b*) $3x + 2y - 17 = 0$

(*c*) $2x - 3y + 17 = 0$ (*d*) $2x + 3y + 17 = 0$

17. Find the conditions to be satisfied by coefficients for which the following pair of equations $ax + by + c = 0$, $dx + ey + f = 0$ represent coincident lines.

(*a*) $ab = ed$; $bf = ce$ (*b*) $ae = bd$; $bc = ef$

(*c*) $ad = bc$; $bf = ce$ (*d*) $ae = bd$; $bf = ce$

18. In a ΔABC, if $\angle C = 50°$ and $\angle A$ exceeds $\angle B$ by 44°, then $\angle A =$

(*a*) 43° (*b*) 40° (*c*) 67° (*d*) 87°

19. If $3^{x-y} = 9$ and $x - 2y = 6$ represent a system of the equations, then the value of $x + y$ is

(*a*) –2 (*b*) –6

(*c*) –4 (*d*) None of these

20. The value of y. when $\frac{1}{y} + \frac{1}{x} = 3$ and $\frac{1}{y} - \frac{1}{x} = 7$, is

(*a*) $\frac{1}{5}$ (*b*) $-\frac{1}{3}$ (*c*) $-\frac{1}{5}$ (*d*) $\frac{1}{3}$

21. If $x = a$ and $y = b$ is the solution of the equations $x - y = 2$ and $x + y = 4$, then the values of a and b are respectively

(*a*) 3 and 5 (*b*) 5 and 3

(*c*) 3 and 1 (*d*) – 1 and –3

22. Aruna has only ₹ 1 and ₹ 2 coins with her. If the total number of coins that she has is 50 and the amount of money with her is ₹ 75, then the number of ₹ 1 and ₹ 2 coins are, respectively.

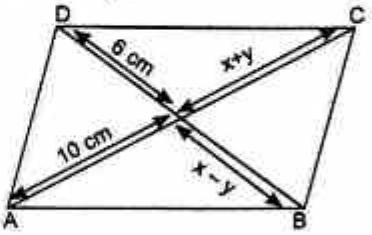
(*a*) 35 and 15 (*b*) 35 and 20

(*c*) 15 and 35 (*d*) 25 and 25

23. The father's is age is six times his son's age. Four years hence, the age of the father will be four times his son's age. The present age, (in years) of the son is

(*a*) 4 (*b*) 5 (*c*) 6 (*d*) 3

24. In the given figure, ABCD is a parallelogram. Find the value of $x + y$.



(*a*) 2 (*b*) 1 (*c*) 3 (*d*) 4

25. If $x + 4y = 27$, $x + 2y = 21$ then the value of $x - y$ is

(*a*) 5 (*b*) 2 (*c*) 12 (*d*) 18

26. Graphically the pair of equations $6x - 3y + 10 = 0$, $2x - y + 9 = 0$ represent two lines which are

(*a*) intersecting exactly at one point

(*b*) intersecting exactly at two point

(*c*) coincident

(*d*) parallel

27. It is give that there is no solution to the system of equations $x + 2y = 3$, $ax + by = 4$.

Which one of the following is true?

(*a*) a has a unique value

(*b*) b has a unique value

(*c*) a can have more than one value

(*d*) a has exactly two different values

28. Solve the following equations for x and y:

$mx - ny = m^2 + n^2$

$x + y = 2m$

29. Find the value of k for which the system of equations $x + 2y = 5$ and $3x + ky + 15 = 0$ has no solution.

30. Solve: $99x + 101y = 499$

$101x + 99y = 501$

31. Show that the system of equations is consistent and dependent:

$x - 5y = 6$, $2x - 10y = 12$.

32. Find whether the following pair of linear equations is consistent or inconsistent:

$x + 3y = 5$; $2x + 6y = 8$ **[CBSE 2015]**

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33. Use a single graph paper and draw the graph of the following equations:

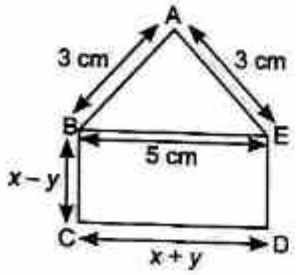
$$2y - x = 8\ ;\ 5y - x = 14;\ y - 2x = 1$$

Obtain the vertices of the triangle so obtained.

34. Solve the following system of equations graphically: Also find the points where the lines represented by the given equations intersect the x-axis.

$$3x + 2y = 14,\ x - 4y = -7$$

35. In the figure below, ABCDE is a pentagon with BE ∥ CD and BC ∥ DE. BC is perpendicular to CD. If the perimeter of ABCDE is 21 cm, find the value of x and y. **[DoE]**



36. A man travels 600 km partly by train and partly by car. It takes 8 hours and 40 minutes if he travels 320 km by train and the rest by car. It would take 30 minutes more if he travels 200 km by train and the rest by car. Find the speed of the train and the car separately.

37. The age of a father is equal to the sum of the ages of his 5 children. After 15 years, sum of the ages of the children will be twice the age of the father. Find the age of father. **[HOTS]**

38. Find the four angles of a cyclic quadrilateral ABCD in which $\angle A = (2x - 1)°$, $\angle B = (y + 5)°$, $\angle C = (2y + 15)°$ and $\angle D = (4x - 7)°$.

39. A man starts his job with a certain monthly salary and earns a fixed increment every year. If his salary was ₹ 1500 after 4 years of service and ₹ 1800 after 10 years of service, what was his starting salary and what is the annual increment?

40. The incomes of X and Y are in the ratio of 8 : 7 and their expenditures are in the ratio of 19 : 16. If each saves ₹ 1250, find their income.

41. A bag contains 94 coins of 50 paise and 25 paise denominations. If the total worth of these coins be ₹ 29.75, find the number of coins of each kind.

42. A man travels 600 km partly by train and partly by car. If he covers 400 km by train and rest by car, it takes him 6 hours and 30 minutes. But if he travels 200 km by train and rest by car. He takes half an hour longer. Find the speed of the train and that of car.

43. Solve for x and y:

$$3x - \frac{y+7}{11} + 2 = 10,\ 2y + \frac{x+11}{7} = 10$$

44. Solve for x and y:

$$631x + 279y = 910$$
$$279x + 631y = 910$$

45. Solve for x and y:

$$254x + 309y = -55$$
$$309x + 254y = 55$$

46. Solve for x and y:

$$3x + 2y = 2x + y + 3 = 4x + 3y - 3$$ **[HOTS]**

47. Solve for x and y:

$$6x + 3y = 8x + 9y - 5 = 10x + 12y - 8$$ **[HOTS]**

48. Ratio between the girls and boys in a class of 40 students is 2 : 3. Five new students joined the class. How many of them must be boys so that the ratio between girls and boys becomes 4 : 5? **[HOTS]**

49. On selling a tea set at 5% loss and a lemon set at 15% gain, a crockery seller gains ₹ 7. If he sells the tea set at 5% gain and lemon set at 10% gain, he gains ₹ 13. Find the actual price of the tea set.

50. If you travel by an autorickshaw, the fare for the first kilometre is different from the rate per km for the remaining distance. The total fare for a distance of 20 km is ₹ 37.70 and that for a distance of 26 km is ₹ 48.50. Find the auto fare for the first kilometre and for each successive kilometre.

51. One kilogram of tea and 4 kg of sugar together cost ₹ 220. If the price of sugar increases by 50% and the price of tea increases by 10%, the cost would be ₹ 266. Find the original cost per kilogram of each.

52. If three times the larger of the two numbers is divided by the smaller one, we get 4 as quotient and 3 as remainder. Also, if seven times the smaller number is divided by the larger one, we get 5 as quotient and 1 as remainder. Find the numbers.

Science
Class X

General Instructions:

1. **Read the chapters taught**
2. **Do assignments in a comment sheet in a presentable format.**

Assignment Sheet1
Chemical reactions and equations

Assertion and Reasoning Questions

(Choose the correct option:)

a. Both A and R are true and R is the correct explanation of A.

b. Both A and R are true but R is not the correct explanation of A.

c. A is true but R is false.

d. A is false but R is true.

Q1.
Assertion (A): Rusting of iron is an example of a redox reaction.
Reason (R): During rusting, iron is oxidized and oxygen is reduced.

Q2.
Assertion (A): In a displacement reaction, a more reactive element displaces a less reactive one from its compound.
Reason (R): Zinc can displace copper from copper sulphate solution.

Q3.
Assertion (A): When calcium oxide reacts with water, it produces slaked lime.
Reason (R): The reaction between calcium oxide and water is endothermic.

Q4.
Assertion (A): Burning of magnesium ribbon is a combination reaction.
Reason (R): In this reaction, magnesium combines with oxygen to form magnesium oxide.

Q5.
Assertion (A): Lead nitrate and potassium iodide solution when mixed form a yellow precipitate.
Reason (R): It is an example of a double displacement reaction resulting in a precipitate formation.

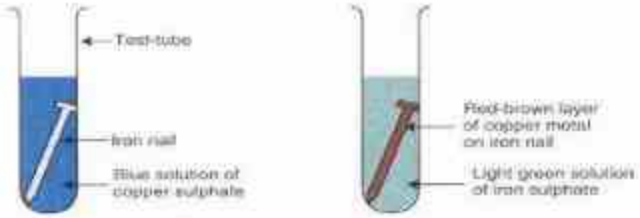
Q6.
Assertion (A): Heating of blue-colored copper sulphate crystals makes them colorless.
Reason (R): The color change occurs due to removal of water of crystallization.

Q7.
Assertion (A): Electrolysis of water results in decomposition of water into hydrogen and oxygen gases.
Reason (R): This is an example of a thermal decomposition reaction.

Q8 .
Assertion (A): Silver chloride turns grey in sunlight.
Reason (R): Decomposition of silver chloride is a photochemical reaction.

Case-Based Question

Q1. Below is a diagram showing iron nails dipped in a copper sulphate solution.



Question:

a. Identify reactants and products in the given diagram.

b. What changes would you observe in the solution and on the iron nail?

c. Write the balanced chemical equation for this reaction.

d. Name the type of reaction.

Q2. You're given a diagram of a test tube containing silver chloride being exposed to sunlight.

Question:

a. What color change will be observed and why?

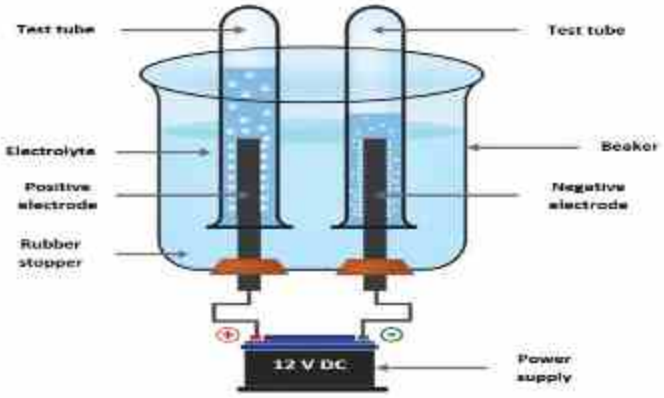
b. Write the balanced chemical reaction.

c. Identify the type of reaction.

d. What is the significance of light in this reaction?

Q3. Lab Setup for Electrolysis of Water

Diagram shows electrolysis apparatus with two test tubes collecting gases.



Question:

a. Label the gases collected at both electrodes.

b. Why is the volume of one gas double that of the other?

c. Write the balanced chemical equation for the decomposition of water.

d. What type of chemical reaction is this?

Q4.

Copper utensils get a green coating after a few days of exposure to air.

- a. Explain the reason for this change.
- b. What type of chemical reaction is responsible?
- c. Write the chemical equation involved, if possible.

Q5.

A student burns a small strip of magnesium ribbon and collects the product. She dissolves it in water and tests the solution with red and blue litmus papers.

- a. What observation will she make?
- b. What is the nature of the solution and why?
- c. Write both the reactions (burning and dissolving in water).

Q6.

During a reaction, the temperature of the container decreases.

- a. What does this indicate about the type of reaction?
- b. Give one example of such a reaction.
- c. How is energy involved in this reaction?

Q7.

In a chemical factory, a technician mixed two solutions and observed the formation of a yellow precipitate along with the release of gas.

- a. What characteristics of a chemical reaction are observed here?
- b. Why does formation of a precipitate confirm a chemical change?
- c. Mention any reaction where a gas and a precipitate are both formed.

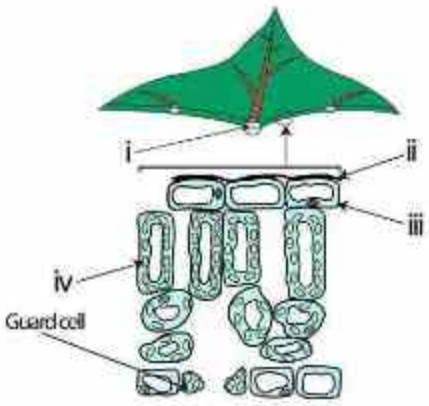
Q8.

Why do we write chemical equations in a balanced form? What could happen in real-life applications (like in industries or medicine) if unbalanced equations were used for calculations?

Assignment Sheet2
Nutrition

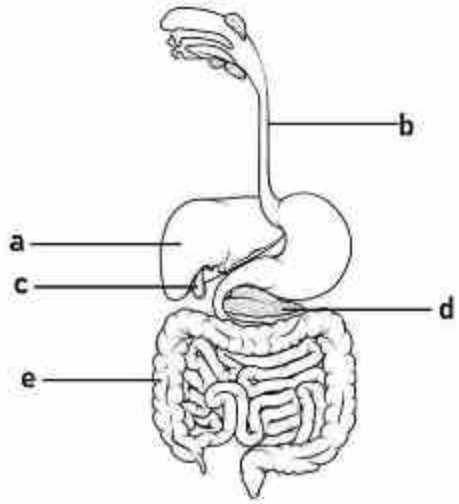
Case based question1.

1. Draw and label the parts of given diagram.



2. Identify the above diagram.
3. A student suggests that plants do not need food because they are always exposed to sunlight. Critically analyze and correct the misconception.

Case based question2.



1. Draw and labelled the given diagram.
2. If a person's liver is not functioning properly, how might it affect the digestion and absorption of nutrients?
3. Explain why small intestine is considered the most important site for digestion and absorption in humans.
4. How might damage to the villi in the small intestine affect a person's health over time?

Assignment Sheet 3
Reflection

Q1. Case-based Question

A concave mirror always forms a real and inverted image for different positions of the object. But if the object is placed between the focus and pole. the image formed is virtual and erect.

A convex mirror always forms a virtual, erect and diminished image. A concave mirror is used as doctor's head mirror to focus light on body parts like eyes, ears, nose etc., to be examined because it can form erect and magnified image of the object. The convex mirror is used as a rear-view mirrors in automobiles because it can form an small and erect image of an object.

1. What type of image is formed when an object is placed at the centre of curvature of a concave mirror also draw ray diagram to explain your answer.
2. A child is standing in front of a magic mirror. She finds the image of her head bigger, the middle portion of her body of the same size and that of the legs smaller. The following is the order of combinations for the magic mirror from the top. Choose the most appropriate answer.
   (a) Plane, convex and concave
   (b) Convex, concave and plane
   (c) Concave, plane and convex
   (d) Convex, plane and concave

3. 4.5 cm needle is placed 12 cm away from a convex mirror of focal length 15 cm. Give the location of image and magnification. Describe what happens to the image as the needle is moved farther from the mirror.

Q2. The image of a candle flame placed at a distance of 30 cm from a mirror is formed on a screen placed in front of the mirror at a distance of 60 cm from its pole. What is the nature of the mirror? Find its focal length. If the height of the flame is 2.4 cm, find the height of its image. State whether the image formed is erect or inverted.

Q3. "A ray of light incident on a rectangular glass slab immersed in any medium emerges parallel to itself." Draw a labelled ray diagram to justify the statement.

Q4. The refractive indices of glass and water with respect to air are 3/2 and 4/3 respectively. If speed of light in glass is 2×10^8 m/s, find the speed of light in water.
