Mother's International Academy

Affiliated to CBSE Delhi (10+2)

A Place To Grow

Holiday – Homework (Session – 2025 – 2026)

Std.: X

Dear parents,

Summer Vacation for the session 2025-26 is going to commence on 26th May. The school will reopen on 26th June as its usual time.

The holiday home work has been uploaded in school Website. The points are to note.

The home work has been arranged as the latest update of the curriculum This is not just for a formality but very much needful for a student to mug up each subject from the grass root level.

Guidelines of submission of Holiday Homework.

- **All the answers will be written neatly in A4 size paper.**
- **Stick file is recommend for each subject.**
- **Students are requested to send the PPt of the chapters in**
- **miaprincipalteachers@gmail.com**
- **Last date of submission of holiday is 30th June, 2025.**

Students are requested to adhere the deadline strictly.

English

1. A Letter to God – Extract-Based MCQs

Extract 1:

"The house – the only one in the entire valley – sat on the crest of a low hill. From this height, one could see the river and the field of ripe corn dotted with the flowers that always promised a good harvest."

1. **Where was Lencho's house situated?**
   a) In the middle of the valley
   b) On the crest of a low hill
   c) Near the river
   d) Beside the cornfield
2. **What did the flowers in the field signify?**
   a) A poor harvest
   b) An impending storm
   c) A good harvest
   d) A need for rain

Extract 2:

"It was during the meal that, as Lencho had predicted, big drops of rain began to fall. In the northeast huge mountains of clouds could be seen approaching. The air was fresh and sweet."

3. **What did Lencho predict?**
   a) A hailstorm
   b) A drought
   c) Rainfall
   d) Strong winds

4. **What does the phrase 'mountains of clouds' refer to?**
   a) Actual mountains
   b) Large, dense clouds
   c) Smoke from a fire
   d) Dust storms

Extract 3:
"It's during the meal that, as Lencho had predicted, big drops of rain began to fall. In the northeast huge mountains of clouds could be seen approaching."

5. **From which direction were the clouds approaching?**
   a) Southwest
   b) Southeast
   c) Northeast
   d) Northwest

   What was Lencho's reaction to the approaching clouds?
   a) He was fearful
   b) He was indifferent
   c) He was hopeful
   d) He was angry

❄ Dust of Snow – Extract-Based MCQs

Extract:
"The way a crow
Shook down on me
The dust of snow
From a hemlock tree"

7. **What is the significance of the crow in the poem?**
   a) It represents sadness
   b) It symbolizes bad luck
   c) It brings about a positive change
   d) It indicates danger

8. **What does the 'dust of snow' refer to?**
   a) Actual dust particles
   b) Snowflakes
   c) Pollen from the tree
   d) Rain droplets

Extract:
"Has given my heart
A change of mood
And saved some part
Of a day I had rued."

9. **What change did the poet experience?**
   a) From happiness to sadness
   b) From indifference to anger
   c) From sadness to joy
   d) From excitement to boredom

10. **What does the word 'rued' mean in the context of the poem?**
    a) Celebrated
    b) Regretted
    c) Forgotten
    d) Remembered

Fire and Ice – Extract-Based MCQs

Extract:
"Some say the world will end in fire,
Some say in ice."

11. **What do 'fire' and 'ice' symbolize in the poem?**
    a) Fire symbolizes desire, and ice symbolizes hatred
    b) Fire symbolizes love, and ice symbolizes peace
    c) Fire symbolizes anger, and ice symbolizes indifference
    d) Fire symbolizes passion, and ice symbolizes coldness

12. **What is the central theme of the poem?**
    a) The beauty of nature
    b) The end of the world
    c) The cycle of seasons
    d) The power of emotions

Extract:
"From what I've tasted of desire
I hold with those who favor fire."

13. **What does the poet associate with 'fire'?**
    a) Hatred
    b) Desire
    c) Anger
    d) Love

14. **What does the poet mean by 'tasted of desire'?**
    a) He has experienced desire
    b) He has heard about desire
    c) He has seen others' desires
    d) He has read about desire

A Tiger in the Zoo – Extract-Based MCQs

Extract:
"He stalks in his vivid stripes
The few steps of his cage,
On pads of velvet quiet,
In his quiet rage."

15. **What does the phrase 'pads of velvet quiet' suggest?**
    a) The tiger's paws are soft and silent
    b) The tiger is wearing velvet
    c) The cage is lined with velvet
    d) The tiger moves loudly

16. **What emotion is depicted by 'quiet rage'?**
    a) Contentment
    b) Suppressed anger
    c) Joy
    d) Fear

Extract:
"He should be lurking in shadow,
Sliding through long grass
Near the water hole
Where plump deer pass."

17. **Where does the poet believe the tiger should be?**
    a) In the zoo
    b) In the jungle
    c) In a circus
    d) In a sanctuary

18. **What is the tiger's natural behavior as described in the extract?**
    a) Sleeping under trees
    b) Hunting deer
    c) Playing with other animals
    d) Roaming in the village

Extract:
"But he's locked in a concrete cell,
His strength behind bars,
Stalking the length of his cage,
Ignoring visitors."

19. **What does 'his strength behind bars' imply?**
    a) The tiger is weak
    b) The tiger's power is confined
    c) The tiger is sleeping
    d) The tiger is playing
    Answer: b) The tiger's power is confined
20. **How does the tiger react to the visitors?**
    a) He roars at them
    b) He ignores them
    c) He tries to attack them
    d) He plays with them

2. Answer the following questions in brief.

1. How does the tiger walk in the cage?
2. Where should the tiger hide to himself?
3. How does the caged tiger react to the visitors?
4. What sound does the tiger hear at night?
5. How do the eyes of the tiger look?

3. Answer the following questions in detail.

1. *Examine Lencho's unwavering faith in God throughout the story. How does his belief influence his actions, and what does this reveal about his character and the broader theme of faith?*

2. Analyze the themes of hope and disillusionment in "A Letter to God." How does the story portray the complexities of faith when confronted with unexpected outcomes?

3. Reflect on the significance of the inauguration ceremony held on May 10, 1994. How did this event symbolize the transition from apartheid to a democratic nation, and what emotions did Mandela express during this pivotal moment?

4. Nelson Mandela describes apartheid as "an extraordinary human disaster." Analyze how this system impacted both the oppressors and the oppressed, and discuss Mandela's vision for a democratic South Africa.

5. Discuss the symbolic significance of the tiger's gaze at the stars in the poem. What does this imagery represent in the context of the tiger's captivity?

Topics to make PPT

Group of students	Topics
Group A	1. A Letter to God
Group B	2. Long Walk to Freedom
Group C	3. Tiger in the Zoo
Group D	4. Dust of Snow and Fire and Ice
Group E	5. Determiners
Group F	6. Tenses
Group G	7. A Triumph of Surgery

Hindi

1. 'बड़े भाई साहब' तथा 'कबीर के साखी' पर आधारित 10-10 बहुवैकल्पिक प्रश्नोत्तर अपनी कॉपी में तैयार करें।
2. 'डायरी का एक पन्ना' तथा 'बड़े भाई साहब' पाठ से दो-दो लघुउत्तरीय प्रश्नोत्तर और 'साखी' से एक लघुउत्तरीय प्रश्नोत्तर अपनी कॉपी में लिखें।
3. पाठ्यपुस्तक संचयन के 'हरीहर काका' पाठ से दो दीर्घउत्तरीय प्रश्नोत्तर अपनी कॉपी में तैयार करें।
4. हिन्दी व्याकरण में 'पदबंध' पर आधारित सचित्र पी. पी. टी तैयार करें।
5. कथन और कारण पर आधारित 'बड़े भाई साहब' तथा 'हरिहर काका' पाठ से पाँच प्रश्नोत्तर तैयार करें।
6. 'मीरा के पद संख्या-2 से पठित पद्यांश पर आधारित पाँच बहुवैकल्पिक प्रश्नोत्तर अपनी कॉपी में लिखें।

Maths

MCQ

1.) Let a and b be two positive integers such that HCF(a,b)=d. If $a=dq_1$ and $b=dq_2$, where q_1 and q_2 are co- prime, then what is the LCM(a,b)?

(a) dq_1q_2 (b) $d_2q_1q_2$ (c) q_1q_2 (d) $d(q_1+q_2)$

2.) Consider the number $n=2^x\cdot3^y\cdot5^z$, where x,y,z are positive integers. How many factors does n have?

(a) xyz (b) (x+1)(y+1)(z+1) (c) $2^x\cdot3^y\cdot5^z$ (d) x+y+z+1

3.) The product of three consecutive positive integers is always divisible by which of the following numbers?

(a) 2 (b) 3 (c) 6 (d) 12

4.) Let p be a prime number. If p divides a^2 for some positive integer a, then which of the following must be true?

(a) p divides a^3 (b) p^2 divides a (c) a divides p (d) p divides a

5.) There are two containers with 252 liters and 154 liters of milk respectively. What is the capacity of the largest container that can measure the milk in both containers an exact number of times?

(a) 2 liters (b) 7 liters (c) 14 liters (d) 28 liters

6.) If α and β are the zeros of the quadratic polynomial $p(x)=ax^2+bx+c$, and $\alpha^2+\beta^2=6$, while $\alpha+\beta=2$, then the value of αβ is:

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

7.) A quadratic polynomial whose zeros are $\frac{3+\sqrt{5}}{2}$ and $\frac{3-\sqrt{5}}{2}$ is:

(a) x^2-3x+1 (b) x^2+3x+1 (c) x^2-3x-1 (d) x^2+3x-1

8.) If the polynomial $p(x)=x^4-6x^3+16x^2-25x+10$ is divided by another polynomial x^2-2x+k, the remainder comes out to be $x+a$. Then the value of k and a are respectively:

(a) k=5, a=−5 (b) k=5, a=5 (c) k=−5, a=5 (d) k=−5, a=−5

9.) The sum of the zeros of the quadratic polynomial ax^2+bx+c is equal to the product of its zeros, then:

(a) a=c (b) b=c (c) a+b=c (d) b+c=a

10.) If α and β are the zeros of the polynomial x^2-5x+k such that $\alpha-\beta=1$, then the value of k is:

(a) 6 (b) 5 (c) 4 (d) -6

11.) The system of linear equations: kx+y=5 and 3x−2y=10 has a unique solution if:

(a) k=−3/2 (b) k≠−3/2 (c) k=3/2 (d) k≠3/2

12.) The system of linear equations: 2x+3y=7 and (a−1)x+(a+1)y=3a−1 has infinitely many solutions if the value of a is:

(a) 5 (b) 4 (c) 3 (d) 2

13.) The ages of two friends Ani and Biju differ by 3 years. Ani's father Dharam is twice as old as Ani and Biju is twice as old as his sister Cathy. The age of Dharam and Cathy differ by 30 years. Find the ages of Ani and Biju. (Consider both possibilities for the difference in their ages).

(a) Ani = 19 years, Biju = 16 years or Ani = 21 years, Biju = 24 years

(b) Ani = 16 years, Biju = 19 years or Ani = 24 years, Biju = 21 years

(c) Ani = 19 years, Biju = 22 years or Ani = 22 years, Biju = 19 years

(d) Ani = 16 years, Biju = 13 years or Ani = 24 years, Biju = 27 years

14.) A two-digit number is such that the product of its digits is 14. If 45 is added to the number, the digits interchange their places. Find the number.

(a) 27 (b) 72 (c) 35 (d) 53

15.) If the fixed charge is ₹ a and the charge per kilometer is ₹ b, which of the following equations represents the charge for a 10 km journey?

(a) 10a+b=75 (b) a+10b=75 (c) a−10b=75 (d) 10(a+b) =75

16.) If the sum of the roots of the quadratic equation $kx^2-3x+5=0$ is 1, then the value of k is:

(a) 3 (b) -3 (c) 5 (d) -5

17.) If the equation $x^2-kx+1=0$ has distinct real roots, then the values of k are:

(a) k>2 (b) k<−2 (c) |k|>2 (d) |k|<2

18.) The perimeter of a rectangle is 40 cm, and its area is 96 sq cm. If the length of the rectangle is l and the breadth is b, then which of the following quadratic equations can be used to find the dimensions of the rectangle?

(a) $l^2-20l+96=0$ (b) $l^2+20l+96=0$ (c) $l^2-40l+96=0$ (d) $l^2+40l-96=0$

19.) The product of the ages (in years) of two friends is 77. The difference in their ages is 4 years. If the age of the younger friend is x years, then which quadratic equation can be formed to find their ages?

(a) $x(x-4)=77$ (b) $x(x+4)=77$ (c) $x^2+4x-77=0$ (d) $x^2-4x+77=0$

20.) If a2+b2+ab=84 and a+b=12, then what is the value of ab?

(a) 16 (b) 28 (c) 36 (d) 48

Short Answer Questions

21.) Three pieces of timber of lengths 42 m, 49 m, and 63 m respectively have to be divided into planks of the same length. What is the greatest possible length of each plank?

22.) If one zero of the polynomial $p(x)=3x^2-kx+6$ is twice the other, find the value of k.

23.) Determine if the system of equations 3x+2y=5 and 6x−4y=10 is consistent or inconsistent. Justify your answer.

24.) If the quadratic equation $(a-b)x^2+(b-c)x+(c-a)=0$ has equal roots, prove that a+c =2b.

25.) Solve the quadratic equation $\sqrt{3}x^2 - 2\sqrt{2}x - 2\sqrt{3} = 0$ for x.

Long Answer Questions

26.) A merchant has three different types of grains: 403 kg of the first type, 465 kg of the second type, and 496 kg of the third type. He wants to store them in bags of equal weight. Find the greatest possible weight of each bag so that the grains can be stored exactly without any remainder. What will be the total number of bags required?

27.) In a school, there are two sections - A and B - of Class X. There are 48 students in Section A and 60 students in Section B. The school wants to arrange a farewell party for these students. The principal wants to divide the students into groups such that each group has the same number of students, and the students from both sections are included in these groups. What is the maximum number of students that can be in each group? What will be the number of groups formed?

28.) To celebrate Environment Day, students planted saplings. The number of saplings planted by students of classes VI, VII, and VIII are 30, 36, and 48 respectively. If the saplings in each row are of the same class and the number of saplings in each row is the same, what is the minimum number of rows required?

29.) How can you predict the characteristics of graph for quadratic polynomial $p(x)=ax^2+bx+c$ without actually plotting the graph?

30.) Find the values of a and b if the polynomial $x^4+ax^3+2x^2-3x+b$ is divisible by x^2-1.

31.) Show that $\sqrt{3}$ is an irrational number.

32.) Solve the following system of linear equations graphically and find the vertices of the triangle formed by these lines and [1] the y-axis: 2x−3y+6=0 and 2x+y−10=0

33.) The sum of the digits of a two-digit number is 13. If the number obtained by interchanging the digits is 45 more than the original number, find the original number. Also, find how many such two-digit numbers exist with this property.

34.) The sum of the ages of a father and his son is 45 years. Five years ago, the product of their ages was 124. Find their present ages.

35.) In a class test, the sum of Shefali's marks in Mathematics and Science is 30. If she had got 2 marks more in Mathematics and 3 marks less in science, the product of her marks would have been 210. Find her marks in the two subjects.

Assertion & Reason Type Questions

Instructions: For each of the following questions, two statements are given- one is Assertion (A) and the other is Reason (R). Select the correct answer from the options given below:

(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.

36.) Assertion (A): To distribute 144 apples, 180 bananas, and 192 oranges equally among the maximum number of students, each student will get 12 apples, 15 bananas, and 16 oranges.
Reason (R): The maximum number of students is the HCF of 144, 180, and 192.

37.) Assertion (A): Three runners starting from the same point on a circular track of 360 m and running at speeds of 12m/min, 15 m/min, and 18 m/min will meet again at the starting point after 40 minutes.
Reason (R): The time taken for them to meet again at the starting point is the LCM of the time taken by each runner to complete one round.

38.) Assertion (A): The length of the longest rod that can measure exactly the dimensions of a room 825 cm, 675 cm, and 450 cm is 75 cm.
Reason (R): The longest rod that can measure the dimensions exactly is the HCF of the dimensions.

39.) Assertion (A): A quadratic polynomial can have at most two zeros.
Reason (R): The graph of a quadratic polynomial is always a parabola.

40.) Assertion (A): If the zeros of a quadratic polynomial are 3 and −5, then the polynomial can be $x^2+2x-15$.
Reason (R): A quadratic polynomial with zeros α and β can be written as $k(x-\alpha)(x-\beta)$, where k is a non-zero constant. Here, $(x-3)(x+5)=x2+2x-15$.

41.) Assertion (A): The lines $3x-2y+5=0$ and $-6x+4y-10=0$ are coincident.
Reason (R): If one linear equation is a non-zero scalar multiple of the other, then the lines are coincident.

42.) Assertion (A): The point $(3,-2)$ is a solution of the equation $2x-3y=0$.
Reason (R): If a point (p,q) is a solution of a linear equation $ax+by=c$, then $ap+bq=c$.

43.) Assertion (A): If the roots of the quadratic equation $x^2-6x+5=0$ are α and β, then $\alpha+\beta=6$ and $\alpha\beta=5$.
Reason (R): For a quadratic equation $ax^2+bx+c=0$, the sum of the roots is $-b/a$ and the product of the roots is c/a.

44.) Assertion (A): If the quadratic equation $ax2+bx+c=0$ has real and distinct roots, then the graph of $y=ax2+bx+c$ intersects the x-axis at two distinct points.
Reason (R): Real and distinct roots of the quadratic equation correspond to the x-intercepts of the graph of the corresponding quadratic function.

45.) Assertion (A): If the difference between the roots of the quadratic equation $x^2-7x+k=0$ is 3, then $k=10$.
Reason (R): If the roots are α and β, then $(\alpha-\beta)^2=(\alpha+\beta)^2-4\alpha\beta$. Here, $(\alpha-\beta)^2=32=9$, $(\alpha+\beta)^2=(-(-7)/1)2=49$, and $4\alpha\beta=4k$. So, $9=49-4k\Longrightarrow 4k=40\Longrightarrow k=10$.

Case Based Questions

46.) Case Study 1: The Number Line Game

Three friends, Anya, Ben, and Carol, are playing a game on a very long number line.

- Anya starts at a point represented by $\sqrt{2}$.
- Ben starts at a point represented by $\sqrt{8}$.
- Carol starts at a point represented by $\sqrt{18}$.

They can only move by adding or subtracting integer distances.

(i) What is the smallest positive integer distance Anya needs to move to reach a rational number?

(ii) Can Ben ever reach an integer position on the number line? If yes, what is the smallest distance he needs to move?

(iii) If Anya and Carol move towards each other, and meet at a point after Anya has moved a distance of dA and Carol has moved a distance of dC, is it possible for their meeting point to be a rational number? Justify your answer.

(iv) Suppose Ben moves a distance of k (an integer) to the right, and Carol moves a distance of m (an integer) to the left. For what integer values of k and m will the distance between their final positions be an integer?

47.) Case Study 2: The Tile Factory

A tile factory produces three types of square tiles with side lengths that are integers. A quality control inspector checks the dimensions of the tiles. On a particular day, three batches of tiles have side lengths p, q, and r cm, where p, q, and r are prime numbers.

A customer wants to create a square floor using only one type of tile from these batches.

(i) What is the smallest square floor area that can be exactly covered using tiles from any of the three batches individually? Express your answer in terms of p, q, and r.

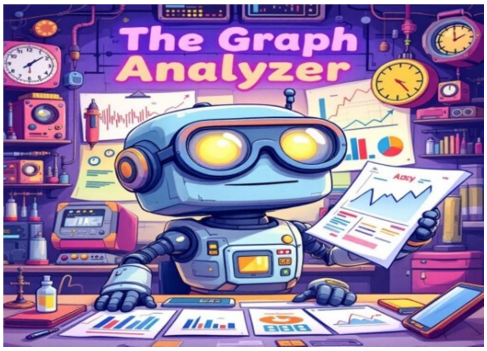
(ii) If the customer decides to use a combination of two types of tiles (say, from batches with side lengths p and q) to create a rectangular area, can the area of this rectangle ever be a perfect square? Explain your reasoning.

(iii) The factory also produces rectangular tiles with integer side lengths. A special order requires rectangular tiles with an area of 77 sq cm. What are the possible integer dimensions of these tiles? Which of these dimensions involve prime numbers?

(iv) Consider the prime factorization of the number of tiles used to cover a square floor of side length L cm using square tiles of side length s cm (where L is a multiple of s). If s is a prime number, what can you say about the prime factors of the number of tiles used?

48.) Case Study 3: The Graph Analyzer

The graph of a quadratic polynomial $y=ax^2+bx+c$ is shown below (imagine a parabola opening downwards,



intersecting the x-axis at $x=-1$ and $x=3$, and having a vertex above the x-axis).

(i) What is the sign of the leading coefficient a? Justify your answer.
(ii) What are the zeros of the polynomial?
(iii) What is the sign of the product of the zeros?
(iv) What can you say about the sign of the discriminant b2−4ac? Justify your answer.

49.) Case Study 6: The Geometric Puzzle

A rectangle has its length increased by 10 units and its width decreased by 4 units. The new area is the same as the original area. If the original length is l and the original width is w:

(i) Formulate a linear equation relating the original length and width based on the change in dimensions and area.

The same original rectangle has its length decreased by 5 units and its width increased by 6 units. Again, the area remains the same.

(ii) Formulate another linear equation relating the original length and width based on this second change in dimensions and area.

(iii) Solve the system of the two linear equations obtained in parts (i) and (ii) to find the original dimensions (length and width) of the rectangle.

(iv) What was the original area of the rectangle?

50.) Case Study 5: The Ladder and the Wall

A ladder of length 13 meters leans against a vertical wall. The foot of the ladder is x meters away from the base of the wall.

(i) Using the Pythagorean theorem, express the height of the top of the ladder from the ground in terms of x.

(ii) If the foot of the ladder is moved 3 meters away from the wall, the top of the ladder slides down by a certain distance. Let the new distance of the foot from the wall be (x+3) meters. Write an expression for the new height of the top of the ladder from the ground.

(iii) If the top of the ladder slides down by 2 meters when the foot is moved 3 meters away, form a quadratic equation in x based on the original and new heights.

(iv) Solve the quadratic equation to find the initial distance of the foot of the ladder from the base of the wall.

Science

Section:A_Physics

MCQ

1. An object is placed at a distance of 0.25 m in front of a plane mirror. The distance between the object and image will be

(a) 0.25 m (b) 1.0 m (c) 0.5 m (d) 0.125 m

2. The nature of the image formed by concave mirror when the object is placed between the focus (F) and center of curvature (C) of the mirror observed by us is:

(a) real, inverted and diminished (b) virtual, erect and smaller in size
(c) real, inverted and enlarged (d) virtual, upright and enlarged

3. If a man's face is 25 cm in front of concave shaving mirror producing erect image 1.5 times the size of face, focal length of the mirror would be

(a) 75 cm (b) 25 cm (c) 15 cm (d) 60 cm

4. The refractive index of transparent medium is greater than one because

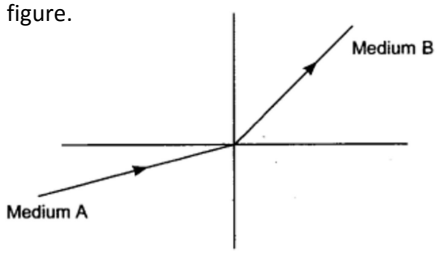
(a) Speed of light in vacuum < speed of light in transparent medium
(b) Speed of light in vacuum > speed of light in transparent medium
(c) Speed flight in vacuum = speed of light in transparent medium
(d) Frequency of light wave changes when it moves from rarer to denser Medium

5. A divergent lens will produce

(a) always real image (b) always virtual image (c) both real and virtual image (d) none of these

6. A light ray enters from medium A to medium B as shown in figure.
The refractive index of medium B relative to A will be

(a) greater than unity
(b) less than unity
(c) equal to unity
(d) zero



Short Answer Question

7. When a ray of light entering from air is incident on the surface of a glass slab at an angle of 90°, what will be the measure of angle of refraction. Why does a ray change its path when it passes from one medium to another medium?

8. If the speed of light in water is 2.25 × 10^8 m/s and the speed in vacuum is 3×108m/s. Calculate the refractive index of water.

PYQ

9. Draw formation of the images by concave mirror in all the six cases and write the characteristics of the image formed.
10. Draw formation of the images by convex lens in all the six cases and write the characteristics of the image formed.
11. An object of 2 cm high is placed at a distance of 64 cm from a white screen on placing a convex lens at a distance of 32 cm from the object it is found that a distant image of the object is formed on the screen. What is the focal length of the convex lens and size of the image formed on the screen? Draw a ray diagram to show the formation of the image in this position of the object with respect to the lens.

Assertion Reason Type Questions

Choose the appropriate response from the given options:
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

12. Assertion: If a ray of light is incident on a convex mirror along its principal axis, then the angle of incidence as well as the angle of reflection for a ray of light will be zero.
Reason: A ray of light going towards the centre of curvature of a convex mirror is reflected back along the same path.
13. Assertion (A): A real image formed by a lens can be obtained on a screen.
Reason (R): Real images are formed by diverging light rays.
14. Assertion (A): The image formed by a plane mirror is always virtual and erect.
Reason (R): The image formed by a plane mirror is behind the mirror and cannot be projected on a screen.
15. Assertion (A): The image formed by a convex lens of an object placed between the optical centre and the focus is magnified and virtual.
Reason (R): The image is formed on the same side as the object.

Case Based Questions

16. Ravi wanted to fix the rear-view mirror of his scooter. He knows that rear-view mirror is an essential safety device in the vehicle and allows him to see objects at the backside of his vehicle. He bought two mirrors M, and M2, out of which M_1 is curved inwards and M2 is curved outwards.
Read the above passage carefully and give the answer of the following questions:
a.). Based on the given situation, which mirror should Ravi need to fix as his rear-view mirror and why?
b.) Ravi did some preliminary experiment with mirror M_1 and found that magnification of the real image of an object placed at 10 cm in front of it is 3, at what distance is the image located?
c.) What is the formula for magnification obtained with a mirror?
d.) An object is placed at the centre of curvature of M_1. Find the distance between its image and pole. Q5. An object is placed 60 cm in front of M_2. The image formed by the mirror is located 30 cm behind the mirror. What is the object's magnification?

17. While dealing with the reflection of light by spherical mirror set of sign convention is followed. In this convention, the pole (P) of the mirror is taken as the origin. The object is placed to the left of the mirror. All distance measured to the right of the origin is taken positively. Distance to the left is measured negative. All distance parallel to the principle is measured from the pole.
a.) Comment about the linear magnification produced by a concave mirror ?
b.) Magnification produced by a plane mirror is always_____.
c.) If the magnification of -1 is to be obtained by using a converging mirror, then the object has to be placed_____.
d.) The ratio of the height of an image to the height of an object known as_____.
e.) If the magnification has a plus sign then the image is _____ and _____.

Section:B_Chemistry

MCQ

1. Some crystal s of copper sulphate were dissolved in water. The colour of the solution obtained would be

(a) Green (b) Red (c) Blue (d) Brown

2. When dilute HCl is added to zinc pieces taken in a test tube

(a) No change take place (b) The colour of the solution becomes yellow

(c) A pungent smelling gas gets liberated (d) A small bubbles of H2 gas appear on the surface of zinc pieces.

3. PbS reacts with Ozone (O_3) and forms $PbSO_4$. As per the balanced equation, molecues of ozone required for every one molecule of PbS is/are

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

4. Copper displaces which of the following metals from its salt solution:

(a) $ZnSO_4$ (b) $FeSO_4$ (c) $AgNO_3$ (d) $NiSO_4$

5.The reaction between lead nitrate and potassium iodide present in aqueous solution is an example of

(a) Decomposition reaction (b) Displacement reation

(c) Double displacement reaction (d) Neutralization reaction

6.In the decomposition of lead (II) nitrate to give lead (II) oxide, nitrogen dioxide and oxygen gas, the coefficient of nitrogen dioxide (in the balanced equation) is

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

Short Answer Question

7. Which products will be obtained when lead nitrate is heated simply? Write balanced chemical equation for the reaction? State the type of chemical reaction that occur in the change.

8. What is meant by skeletal type chemical equation? What does it represent? Using the equation for electrolytic decomposition of water, differentiate between a skeletal chemical equation and a balanced chemical equation..

PYQ

9. On heating blue coloured powder of copper (II) nitrate in a boiling tube , copper oxide (black), oxygen gas and a brown gas X is formed.

(a) Write a balanced chemical equation of the reaction

(b) Identify the brown gas x evolved.

(c) Identify the type of reaction

(d) What could be the pH range of aqueous solution of the gas x?

10. (a) Write one example for each of decomposition reaction carried out with help of

(i) Electricity (ii) Heat (iii) Light

(b) Which of the following statements is correct and why copper can displace silver from silver nitrate and silver can displace copper from copper sulphate solution.

11. (a) Explain two ways by which food industries prevent rancidity.

(b) Discuss the importance of decomposition reaction in metal industry with three points.

Assertion Reason Type Questions

Choose the appropriate response from the given options:

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

12. Assertion (A): Magnesium ribbon burns with a dazzling white flame in air.
Reason (R): Magnesium reacts with oxygen present in air to form magnesium oxide.

13. **Assertion(A):** Photosynthesis is considered a chemical change.
Reason (R): New substances like glucose and oxygen are formed during photosynthesis.

14. **Assertion (A):** A white precipitate is formed when barium chloride is added to sodium sulphate solution.
Reason (R): It is a displacement reaction.

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15. **Assertion (A):** A chemical equation is always balanced to satisfy the law of conservation of mass.
Reason (R): The number of atoms of each element must be equal on both sides of a chemical equation.

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Case Based Questions

16. When the fats and oil present in the food material get oxidized by the oxygen (of air), their oxidation products have unpleasant smells and tastes. Due to this taste of food material containing fats and oil change and become very unpleasant. The condition produced by aerial oxidation of fats and oils in food marked by unpleasant smell and taste is called rancidity. Rancidity spoils the food material prepared in the fats and oils which have been kept for a considerable time and makes them unfit for eating.
The development of rancidity in food can be prevented in the following ways-

a. Rancidity can be prevented by adding an antioxidant to foods containing fats and oils.
b. Rancidity can be prevented by packaging fat and oil-containing food in Nitrogen gas.
c. Rancidity can be prevented by keeping food in a refrigerator.

i. What do you understand by oxidation?
ii. How does the food become rancid?
iii. How can we prevent the rancidity of food?
iv. Which type of food material gets spoiled by the phenomenon of rancidity?

17. Zinc granules are added to a test tube containing dilute sulphuric acid. The mixture starts bubbling, and hydrogen gas is evolved. The test tube becomes warm. A salt named zinc sulphate is also formed.
i) What type of reaction takes place between zinc and sulphuric acid?
ii) The gas evolved in this reaction is……
iii) The reaction is ……..
iv) Write the balanced chemical equation for the reaction

Section:C_Biology

MCQ

1. Which of the following statements about the autotrophs is incorrect?

(a) They synthesise carbohydrates from carbon dioxide and water in the presence of sunlight and chlorophyll

(b) They store carbohydrates in the form of starch

(c) They convert carbon dioxide and water into carbohydrates in the absence of sunlight

(d) They constitute the first trophic level in food chains

2. In which of the following groups of organisms, food material is broken down outside the body and absorbed?

(a) Mushroom, green plants, Amoeba (b) Yeast, mushroom, bread mould

(c) Paramecium, Amoeba, Cuscuta (d) Cuscuta, lice, tapeworm

3. The inner lining of stomach is protected by one of the following from hydrochloric acid. Choose the correct one

(a) Pepsin (b) Mucus (c) Salivary amylase (d) Bile

4. Select the correct statement
(a) Heterotrophs do not synthesise their own food
(b) Heterotrophs utilise solar energy for photosynthesis
(c) Heterotrophs synthesise their own food
(d) Heterotrophs are capable of converting carbon dioxide and water into carbohydrates

5. Which is the correct sequence of parts in human alimentary canal?
(a) Mouth → stomach → small intestine → oesophagus → large intestine
(b) Mouth →oesophagus → stomach → large intestine → small intestine
(c) Mouth → stomach → oesophagus → small intestine → large intestine
(d) Mouth → oesophagus → stomach → small intestine → large intestine

6. If salivary amylase is lacking in the saliva, which of the following events in the mouth cavity will be affected?

(a) Proteins breaking down into amino acids (b) Starch breaking down into sugars

(c) Fats breaking down into fatty acids and glycerol (d) Absorption of vitamins

7. Which part of alimentary canal receives bile from the liver?

(a) Stomach (b) Small intestine (c) Large intestine (d) Oesophagus

8. In which part of the alimentary canal food is finally digested?

(a) Stomach (b) Mouth cavity (c) Large intestine (d) Small intestine

Short Answer Question

9. List two vital functions of the human kidney. Draw a labeled diagram of an artificial kidney.

PYQ

10. Explain the three pathways of breakdown of glucose in living organisms.

i) Complete the labels on the parts of the diagram of a light microscope.

ii) Choose the part of the microscope that light first passes through:

11. (a) Draw a schematic representation of transport and exchange of oxygen and carbon dioxide during transportation of blood in human beings and label on it:

Lung capillaries, Pulmonary artery to lungs, Aorta to body, Pulmonary veins from lungs.

(b) What is the advantage of separate channels in mammals and birds for oxygenated and deoxygenated blood?

12. How do carbohydrates, proteins and fats get digested in human beings?

13. State the functions of the following components of transport system:

a. Blood b. Lymph

Assertion Reason Type Questions

Choose the appropriate response from the given options:

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

13. **Assertion (A):** *The energy derived from food is used to carry out various life processes in living organisms.*

Reason (R): *Respiration is the process by which energy is released from food inside cells.*

14. Assertion (A): Photosynthesis occurs only in the presence of sunlight.

Reason (R): Sunlight is the source of energy for splitting water molecules during photosynthesis.

Case Based Questions

15. Ravi conducted an experiment to observe the process of photosynthesis in plants. He took a healthy potted plant and kept it in the dark for 48 hours to de-starch the leaves. After that, he covered one of the leaves with black paper in the middle, exposing the edges. He then kept the plant in sunlight for 6 hours. Later, he plucked the leaf, boiled it in alcohol to remove chlorophyll, and tested it with iodine solution. He observed that the part of the leaf exposed to sunlight turned blue-black, while the part covered with black paper did not.

Questions:

1. What was the purpose of keeping the plant in the dark for 48 hours before the experiment?

2. Why did only the uncovered parts of the leaf turn blue-black?

3. Which component of the leaf reacts with iodine to give a blue-black colour?

4. What conclusion can be drawn from this experiment about photosynthesis?

5. Which gas is released during photosynthesis?

Social Science

(I).MCQ - 20

1. Choose the correct matched pair.

a. Lord Byron- Spanish poet

b. Johann Gottfried Herder - French Philospher

c. Friedrich Bismarck - King of Belgium.

d. Otto Von Bismarck - Unification of Germany.

2. Who among the following formed the secret society called “Young Italy”?

a. Otto Von Bismarck b. Giuseppe Mazzini c. Mettrnich d. Gottfried Herder

3. Elle, the measuring unit of Germany was used to measure:

a. Cloth b. Thread c. Land d. Height

4. Who were the “Junkers”?

a. Soldiers b. Large Land Owners c. Aristocracy d. Weavers

5. Zollevrein started in Prussia refers to a:

a. Trade Union b. Customs Union c. Labour Union d. Farmer’s Union.

6. Which of the following best describes the concept of power sharing?

a) Concentration of all powers in one hand.

b) Division of powers among different organs of government.

c) Power held by the military.

d) Power residing with the head of the state only.

7. In which country did the Tamils feel alienated due to the preferential policies towards the Sinhala community?

a) India b) Sri Lanka c) Belgium d) Nepal

8. What was the main problem faced by the government in Belgium regarding its diverse population?

a) Religious conflicts between Catholics and Protestants.

b) Linguistic differences between the Dutch and French-speaking communities.

c) Economic disparities between the urban and rural populations.

d) Border disputes with neighboring countries.

9. Accommodation in Belgium involved which of the following measures?

a) Abolishing regional differences.

b) Giving equal representation to different linguistic groups in the central government.

c) Prioritizing the majority community's interests.

d) Ignoring the needs of minority groups.

10.Why is power sharing desirable?

a) It always leads to political instability.

b) It reduces the possibility of conflicts between social groups.

c) It ensures the dominance of the majority community.

d) It slows down the decision-making process.

Economics - Development

11. Which of the following is NOT a common characteristic of developing countries?

a) High per capita income.

b) High levels of poverty.

c) Dependence on agriculture.

d) Low levels of literacy.

12. What is the full form of HDI, a key indicator of development?

a) Human Development Index

b) Human Dependency Indicator

c) Holistic Development Initiative

d) Harmonious Development Indicator

13. Which of the following factors is considered while calculating the Human Development Index (HDI)?

a) Population density, GDP growth rate, and literacy rate.

b) Life expectancy, per capita income, and education levels.

c) Availability of natural resources, industrial output, and health infrastructure.

d) Military strength, political stability, and cultural heritage.

14. Sustainable development aims to:

a) Meet the needs of the present without compromising the ability of future generations to meet their own needs.

b) Focus solely on economic growth regardless of environmental impact.

c) Utilize all natural resources as quickly as possible for maximum profit.

d) Prioritize the needs of developed countries over developing countries.

15. Which of the following is an example of a renewable resource?

a) Coal b) Petroleum c) Solar energy d) Natural gas

16. Which of the following is a biotic resource?

a) Minerals b) Land c) Animals d) Rocks

17. On the basis of origin, resources can be classified as:

a) Renewable and non-renewable. b) Potential and developed.

c) Biotic and abiotic. d) Individual and community-owned.

18. The process of transformation of things available in our environment that can be used to satisfy our needs is called:

a) Conservation b) Development c) Resource d) Technology

19. Which of the following is an example of an individual resource?

a) Roads b) Parks c) Plantations d) Canals

20. The Rio de Janeiro Earth Summit (1992) was organized for:

a) Assessing the damage caused by the ozone layer depletion.

b) Addressing urgent problems of environmental protection and socio-economic development at the global level.

c) Discussing the economic crisis faced by developing nations.

d) Promoting nuclear disarmament among nations.

(II) Short Answer Type Questions - 5

1.How did the idea of French Revolution spread to other parts of Europe?

2. Why do we need resource planning?

3.What is the ethnic composition of Belgium?

4. Mention the three causes for the civil war in Srilanka.

5.How are the three sectors of economy interdependent? Explain.

(III) PYQ - 10

1.What is sustainable development? Suggest any two ways in which resources can be used judiciously.

2. State any two goals of development other than income.

3. What are the main features of federalism?

4. Explain two achievements and two difficulties of Local Self Government in India.

5. Differentiate horizontal and vertical power sharing in modern democracies.

6. What led to the ethnic tension in Belgium? Why was it more acute in Brussels?

7. Describe the different steps of 'resource planning.'

8. Explain any three factors responsible for the formation of soil.

9. What was the main aim of the revolutionaries of Europe?

10. Who hosted 'Vienna Congress' in 1815? Analyse the main changes brought by the 'Vienna Treaty.'

(IV)PPT from the lesson "The Rise Of Nationalism in Europe" for class "Xth A&C"

1. Group - A- "The French Revolution and The Idea of the Nation."
2. Group -B- "The Making of Nationalism in Europe."
3. Group -C- "The Age Of Revolutions: 1830-1848."
4. Group -D- "The Making of Germany and Italy."
5. Group -E- "Visualising the Nation."

(V) PPT from the lesson "The Rise of Nationalism in Europe." for Class "Xth B"

1. Group -A- "The French Revolution and the Idea of the Nation."
2. Group -B- "The Making of Nationalism in Europe."
3. Group -C- "The Age of Revolutions: 1830-1848."
4. Group -D- "The Making of Germany and Italy."
5. Group -E- "Visualising the Nation."
6. Group -F- "Nationalism and Imperialism."
7. Group -G- "The Making of Germany and Italy."

(VI) Ten Questions of Assertion and Reason:

1. Assertion (A): Sustainable development aims to meet the needs of the present generation without compromising the ability of future generations to meet their own needs.

Reason (R): Resource depletion and environmental degradation caused by current development practices pose a threat to future generations.

2.Assertion (A): Belgium is a complex country with ethnic divisions between the Flemish and Walloons.

Reason (R): To accommodate these differences and prevent conflict, Belgium adopted a system of power sharing.

3.Assertion (A): Economic development solely focuses on an increase in national income.

Reason (R): Human Development Index (HDI) considers factors like health, education, and per capita income to measure development.

4.Assertion (A): Land is considered a finite and crucial natural resource.

Reason (R): Various human activities like deforestation and overgrazing can lead to land degradation.

5. Assertion (A): In a federal system of government, power is divided between different levels of government.

Reason (R): This division of power ensures that no single level of government becomes too dominant and accommodates regional diversity.

6. Assertion (A): Kerala has a higher Human Development Index compared to many other states in India despite having a lower per capita income.

Reason (R): Kerala has prioritized investments in education and healthcare, leading to better human development outcomes.

7. Assertion (A): Resource planning is essential for the judicious use of resources.

Reason (R): Without planning, resources can be overexploited, leading to their scarcity and environmental problems.

8. Assertion (A): Community governments, like the one in Belgium, are a way to handle the cultural and educational needs of different linguistic groups.

Reason (R): These governments have powers regarding cultural, educational, and language-related issues.

9. Assertion (A): The concept of development has evolved over time to include not just economic growth but also social progress and environmental sustainability.

Reason (R): Early approaches to development often overlooked the social and environmental costs of economic growth.

10. Assertion (A): The classification of resources as renewable and non-renewable is based on their availability after use.

Reason (R): Renewable resources can be replenished naturally within a certain period, while non-renewable resources take millions of years to form.

(VII). Case based questions - 5

Case 1: The Curious Case of Jharia

Jharia, a town in Jharkhand, is renowned for its rich coal deposits. For decades, mining activities have been the primary source of livelihood for a large section of its population. However, this has come at a

significant cost. Open-cast mining has led to widespread land degradation, deforestation, and air and water pollution, severely impacting the health of the residents and their traditional agricultural practices. Underground fires in the coalfields have also become a persistent hazard, causing land subsidence and making large areas uninhabitable. Despite these challenges, coal mining continues to be a major economic activity in the region.

(a) Identify the type of resource that coal represents in this case. What are the potential long-term environmental consequences of its extraction in Jharia?

(b) Considering the concept of sustainable development, suggest two measures that could be implemented in Jharia to balance economic development with environmental protection.

(c) How does this case highlight the potential conflict between resource utilization and the well-being of local communities?

Case 2: Belgium's Balancing Act

Belgium, a small European country, has a complex ethnic composition. The Flemish community, primarily residing in the Flanders region, speaks Dutch and constitutes about 59% of the population. The Walloon community, living in the Wallonia region, speaks French and makes up around 40%. The capital city, Brussels, presents a unique situation where the French-speaking minority forms the majority (80%), while the Dutch-speaking community is a minority (20%). This linguistic and regional diversity has, at times, led to tensions. However, through a series of constitutional amendments, Belgium has successfully accommodated these differences.

(a) What type of power sharing mechanism has Belgium adopted to manage its ethnic diversity? Describe one key feature of this arrangement.

(b) Why was it important for Belgium to find a power-sharing solution despite its relatively small size and population?

(c) Can you draw a parallel between Belgium's experience and the need for power sharing in a diverse country like India? Briefly explain.

Case 3: The Tale of Two Villages

Village A is located in a fertile river valley. Most of its inhabitants are engaged in agriculture, using traditional methods. They have limited access to modern technology, education, and healthcare facilities. Their income levels are generally low, and poverty is prevalent. Village B, situated near an industrial hub, has a more diverse economic base. Many residents work in factories and service industries. The village has better infrastructure, including schools, hospitals, and transportation networks. The average income is significantly higher, and the standard of living is considerably better compared to Village A.

(a) Based on the given information, which village would be considered more "developed"? Justify your answer by highlighting the key differences between the two villages.

(b) Identify two crucial factors that seem to have contributed to the difference in the development levels of Village A and Village B.

(c) What steps could the government or other agencies take to promote development in Village A and bridge the gap between the two villages?

Case 4: The Forest Rights Act in Bastar

The Bastar region in Chhattisgarh is known for its dense forests and a large tribal population that has traditionally depended on these forests for their livelihood, culture, and identity. Historically, these communities had limited legal rights over forest resources. However, the enactment of the Forest Rights Act (FRA) in 2006 aimed to recognize and vest the forest rights and occupation of forest land in forest-dwelling Scheduled Tribes and other traditional forest dwellers. The implementation of this act has been a complex process, facing challenges related to awareness, bureaucratic hurdles, and potential conflicts with existing forest management practices.

(a) How does the Forest Rights Act (FRA) relate to the concept of resource ownership and development for the tribal communities in Bastar?

(b) What potential social and economic benefits could the effective implementation of the FRA bring to the people of Bastar?

(c) What are some of the challenges that might hinder the successful implementation of such a law, and how could these be addressed?

Case 5: The Struggle for Clean Water in a Megacity

A large metropolitan city in India faces a severe water scarcity crisis. Rapid urbanization, industrial growth, and inadequate water management have led to the depletion of groundwater resources and the pollution of existing water bodies. Many low-income communities in the city struggle to access clean drinking water, often relying on expensive and unreliable private tankers. This situation has led to health problems, social unrest, and economic hardship for the affected populations. The government has initiated some projects to augment water supply, but their implementation has been slow and faced resistance from various stakeholders.

(a) Identify the type of resource that is under severe stress in this megacity. What are the primary reasons for this crisis?

(b) How does the lack of access to clean water disproportionately affect the development and well-being of different socio-economic groups in the city?

(c) Suggest two measures that the city authorities could take to ensure equitable and sustainable access to clean water for all its residents. Consider both supply-side and demand-side management strategies.

Urdu

1. نظم ''حمد'' اور انشائیہ ''بے تکلفی'' سے دس۔دس متبادل سوالات (MCQ) اپنی کاپی پر تحریر کریں۔
2. کہانی ''قول کا پاس'' اور نظم ''نیکی اور بدی'' سے پانچ۔پانچ مختصر سوالات اپنی کاپی پر تحریر کریں۔
3. غزل ہستی اپنی حباب کی سی ہے اور مضمون۔''پانی کی آلودگی'' پانچ تفصیل سوالات اپنی کاپی پر تحریر کریں۔
4. فعل ماضی، فعل حال اور فعل مستقبل اور فعل معروف و فعل مجہول مع تصاویر پیشکش (P.P.T) بنائیں۔
5. اسمٰعیل میرٹھی اور کنھیّا لال کپور کی سوانح عمری (Biography) اپنی کاپی پر تحریر کریں۔