Kailash Vidya Vihar: Nimbahera

(ISO 9001 : 2015)

Summer Vacation Assignments: 2019-20

Class IX **Subject: Mathematics**

ASSIGNMENT(chapter 1)

Q.1 Evaluate $\sqrt[3]{(343)^{-2}}$

Q.2 Represent $\sqrt{5}$ on the number line.

Q.3 Locate $\sqrt{4.7}$ on the number line.

Q.4 Find the value of a and b if: $\frac{7+3\sqrt{5}}{3+\sqrt{5}} - \frac{7-3\sqrt{5}}{3-\sqrt{5}} = a + \sqrt{5}\,b$.

Q.5 If $a = 7 - 4\sqrt{3}$,find the value of $\sqrt{a} + \frac{1}{\sqrt{a}}$.

Q.6 Simplify: $(3 + \sqrt{3})(2 + \sqrt{2})^2$.

Q.7 Simplify $\sqrt[4]{\sqrt[3]{x^2}}$ and express the result in the exponential form of x .

Q.8 Simplify $\frac{7\sqrt{3}-5\sqrt{2}}{\sqrt{48}+\sqrt{18}}$.

Q.9 If $\frac{\sqrt{3}-1}{\sqrt{3}+1} = a + b\sqrt{3}$ find the value of a and b.

Q.10 Express $15.7\overline{12}$ in the form $\frac{p}{q}$ where p and q are integers and $q \neq 0$.

Q.11 If $x + \frac{1}{x} = 7$ then find the value of $x^3 + \frac{1}{x^3}$.

Q.12 If $x + \frac{1}{x} = 3$ then find the value of $x^3 - \frac{1}{x^3}$.

Q.13 Find the value of 'p' if $5^{p-3} \times 3^{2p-8} = 225$.

Q.14 Simplify $\left(\frac{81}{16}\right)^{\frac{-3}{4}}\left[\left(\frac{25}{9}\right)^{\frac{-3}{2}} \div \left(\frac{5}{2}\right)^{-3}\right]$.

Q.15 Express $3.42\overline{5}$ in the form $\frac{p}{q}$ where p and q are integers and $q \neq 0$.

Q.16 Simplify $\frac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3}$.

Q.17 If $x = 2 + \sqrt{3}$ then finds the value of $x^2 + \frac{1}{x^2}$.

Q.18 Evaluate using suitable identity$(998)^3$.

Q.19 If $a = \frac{3-\sqrt{5}}{3+\sqrt{5}}$ and $b = \frac{3+\sqrt{5}}{3-\sqrt{5}}$, find $a^2 - b^2$.

Q.20 Simplify $\frac{3}{4\sqrt{5}-\sqrt{3}} + \frac{2}{4\sqrt{5}+\sqrt{3}}$.

Q.21 Find the value of x of the following: $\left(\frac{3}{4}\right)^3\left(\frac{4}{3}\right)^{-7} = \left(\frac{3}{4}\right)^{2x}$.

Q.22 If $a = \frac{3+\sqrt{7}}{2}$ then finds the value of $a^2 + \frac{1}{a^2}$.

Q.23 Simplify $\frac{(25)^{\frac{3}{2}} \times (343)^{\frac{3}{5}}}{(16)^{\frac{5}{4}} \times (8)^{\frac{4}{3}} \times (7)^{\frac{2}{3}}}$.

Q.24 Find 4 rational number between $\frac{1}{3}$ and $\frac{4}{5}$.

Q.25 Show that: $(x^{a-b})^{a+b} . (x^{b-c})^{b+c} . (x^{c-a})^{c+a} = 1$.

Q.26 If $-2y = 11$ *and* $xy = 8$, find the value $x^3 - 8y^3$.

Q.27 Simplify: $\frac{\sqrt{6}}{\sqrt{2}+\sqrt{3}} + \frac{3\sqrt{2}}{\sqrt{6}+\sqrt{3}} - \frac{4\sqrt{3}}{\sqrt{6}+\sqrt{2}}$.

Q.28 If $x^2 + \frac{1}{x^2} = 51$, find (i) $x - \frac{1}{x}$ (ii) $x^3 - \frac{1}{x^3}$.

Q.29 If $x = 3 + 2\sqrt{2}$ find$\sqrt{x} + \frac{1}{\sqrt{x}}$.

Q.30 If $x + \frac{1}{x} = 5$ then evaluates $x^6 - \frac{1}{x^6}$.

Q.31 If $2x + 3y = 8$ and $xy = 4$ then find the value of $4x^2 + 9y^2$.

Q.32 Show that $\frac{x^{a(b-c)}}{x^{b(a-c)}} \div \left(\frac{x^b}{x^a}\right)^c = 1$.

Q.33 Find the product of $\left(x - \frac{1}{x}\right), \left(x + \frac{1}{x}\right), \left(x^2 + \frac{1}{x^2}\right)$ *and* $\left(x^4 + \frac{1}{x^4}\right)$.

Q.34 If $(5)^{x-3} \times (3)^{2x-8} = 225$ then find the value of$x$.

Q.35 Prove that $\frac{1}{1+x^{a-b}} + \frac{1}{1+x^{b-a}} = 1$.

Q.36 Represent $3 + \sqrt{2}$ on the number line.

Q.37 Prove that $\left(3 - \sqrt{7}\right)^2$ is an irrational number.

Q.38 Find the value of x of the following $2^{2x} - 2^{x+3} + 2^4 = 0$

Q.39 If $10^x = 64$, what is the value of $10^{\frac{x}{2}+1}$?

Q.40 Prove that $\sqrt{n}$ id not a rational number, if n is not a perfect square.

Q.41 If $4^x - 4^{x-1} = 24$, then find the value of $(2x)^x$?

ASSINGMENT (chapter 2)

Q.1 Factories:

1. $7\sqrt{2}x^2 - 10x - 4\sqrt{2}$
2. $(x-3y)^3 + (3y-7z)^3 + (7z-x)^3$
3. $2\sqrt{2}a^3 + 8b^3 - 27c^3 + 18\sqrt{2}abc$
4. $(ax+by)^2 + (ay-bx)^2$
5. $a^7 + ab^6$
6. $x^2 + \frac{1}{x^2} + 2 - 2x - \frac{2}{x}$
7. $x^3 - 6x^2 + 11x - 6$
8. $x^2 + 3\sqrt{3}x + 6$
9. $x^4 + 4x^2 + 3$
10. $x^6 - y^6$
11. $a^{12}y^4 - a^4y^{12}.$
12. $(x+1)^3 - (x-1)^3$
13. $a^3 - b^3 + 1 + 3ab.$
14. $x^2 + \frac{x}{4} - \frac{1}{8}$
15. $27a^3 + 8b^3 + 54a^2b + 36ab^2$
16. $x^3 - 3x^2 - 10x + 24$
17. $9(x-2y)^2 - 4(x-2y) - 13$
18. $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$
19. $64x^3 + 125y^3 - 64z^3 + 240xyz$
20. $2x^3 + 7x^2 - 3x - 18$
21. $(x^2-2x)^2 - 2(x^2-2x) - 3$
22. $2x^3 + 9x^2 + 10x + 3$
23. $x^3 + 6x^2 + 11x + 6$
24. $2x^3 - 3x^2 - 17x + 30$
25. $x^3 - 23x^2 + 142x - 120$
26. $x^3 - 3x^2 - 9x - 5$
27. $x^3 + 13x^2 + 32x + 20$
28. $8 - 27x^3 + 54x^2 - 36x$
29. $x^4 + 2x^3 - 7x^2 - 8x + 12$
30. $9x^4 + 26x^2 - 3$
31. $2y^3 + y^2 - 2y - 1$

Q.2 If $a+b+c = 7$ and $ab + bc + ca = 20$, find the value of $a^2 + b^2 + c^2$

Q.3 Find the value of $x^3 - 8y^3 - 36xy - 216$ *when* $x = 2y + 6$

Q.4 Find the value$64x^3 + 125z^3$, if $4x + 5z = 19$ and $xz = 5$.

Q.5 The polynomial $p(x) = x^4 - 2x^3 + 3x^2 - ax + 3a - 7$ when divided by $(x+1)$ leaves the remainder 19. Find the value of a. Also find the remainder, when $p(x)$ is divided by$(x+2)$.

Q.6 Find the value of a and b so that $(x+1)$and $(x-1)$ are factors of $x^4 + ax^3 - 3x^2 + 2x + b$.

Q.7 If $a^2 + b^2 + c^2 = 250$ and $ab + bc + ca = 3$, find $a + b + c$.

Q.8 For what value of the polynomial $2x^3 + ax^2 + 11x + a + 3$ is exactly divisible by $2x - 1$.

Q.9 Without actual division prove that $x^4 + 2x^3 - 2x^2 + 2x - 3$ is exactly divided by $x^2 + 2x - 3$.

Q.10 If $a + b = 12$ and $ab = 27$, find the value of $a^3 + b^3$.

Q.11 If both $x - 2$ and $x - \frac{1}{2}$ are factors of $px^2 + 5x + r$, show that $p = r$.

Q.12 If $p = 4 - q$, prove that $p^3 + q^3 + 12pq = 64$

Q.13 If $a + b + c = 0$, then prove that $x^3 + y^3 + z^3 = 3xyz$.

Q.14 Find the value $x^3 + y^3 - 12xy + 64$, when $x + y = -4$

Q.15 If $a + b + c = 1, ab + bc + ca = -1$and $xyz = -1$find the value of $x^3 + y^3 + z^3$

Q.16 The polynomial $ax^3 - 3x^2 + 4$ and $2x^3 - 5x + a$ when divided by $(x - 2)$ leave the remainder p and q respectively. If $p - 2q = 4$, find the value of a

Q.17 show that $y - 1$ is a factor of $y^{20} - 1$ and also $y^{21} - 1$

Q.18 Find the value k so that $2x - 1$ be a factor of $8x^4 + 4x^3 - 16x^2 + 10x + k$

Q.19 Simplify $(x + y + z)^2 - (x - y + z)^2$.

Q.20 Find the value of $(x - a)^3 + (x - b)^3 + (x - c)^3 - 3(x - a)(x - b)(x - c)$, if $a + b + c = 3x$

Q.21 If $a + b = 10$ and $a^2 + b^2 = 58$ find the value of $a^3 + b^3$.

Q.22 The polynomial $kx^3 + 3x^2 - 8$ and $3x^3 - 5x + k$ are divided by $(x + 2)$. If the remainder in each case is the sa find the value of k

Q.23 Verify $x^3 + y^3 + z^3 - 3xyz = \frac{1}{2}(x + y + z)[(x - y)^2 + (y - z)^2 + (z - x)^2]$

Q.24 Simplify by factorization method: $\frac{9-2\sqrt{3}x-x^2}{3-x^2}$

Q.25 Evaluate using suitable identity $(999)^3$

Class IX **Subject: Hindi**

- क्षितिज पाठ्यपुस्तक और व्याकरण के विषय पर एक पी.पी.टी तैयार करना।
- पत्र :
    1. महिलाओं की बढ़ती असुरक्षा के संबंध में चिन्ता प्रकट करते हुए समाचार पत्र के सम्पादक महोदय को पत्र लिखिए।
    2. ए.टी.एम व चेक बुक खो जाने पर बैंक प्रबन्धक को नए ए.टी.एम एवं चेक बुक के लिए पत्र लिखिए।
- निबंध :
    1. आतंकवाद : समस्या व समाधान
    2. विद्यार्थी और फैशन
- पढ़े हुए पाठों का दोहरान करें।

Class IX **Subject: Science**

Biology

Chapter- 5, The Fundamental Unit of Life
Holiday Homework

1. *All living organisms are composed of fundamental unit called as…… .*
2. *Who discovered the nucleus in the cell?*
3. *Who saw the free living cells for the first time?*
4. *Write two differences between prokaryotes and eukaryotes.*
5. *What are the two types of ER?*
6. *What are the functions of Golgi Bodies?*
7. *Draw and label Animal cell & Plant cell.*
8. *What is ATP, expand the term.*
9. *Cellulose is a Fat (Mention, True/False).*
10. *Which cell organelle is synthesizing the enzymes for the Golgi Apparatus?*
11. *The flexibility of the cell membrane to engulf food and other material is known as …… .*
12. *Why the Plasma membrane is called as Selective Permeable Membrane?*
13. *Describe what is an isotonic solution?*
14. *What is Plasmolysis?*
15. *Write the name of any two parts of a Compound microscope.*
16. *Distinguish between Prokaryotic and Eukaryotic Cell.*
17. *Write a short note on structure and functions of Mitochondria.*
18. *Explain the concept of diffusion.*
19. *Draw the structure of a plant Cell and label it.*
20. *Write the differences between a plant and animal cell.*
21. *What are the postulates of cell theory?*
22. *Why cell is called as the unit of structure and function in a living organism?*
23. *How do the new cells arise from the pre existing cells?*
24. *What is the meaning of division of labour? Is it different from cell to cell?*
25. *What substances form cell membrane? What are the functions of cell membrane?*
26. *Write the composition & function of the cell wall.*
27. *Name the cell organelle that is found only in animal cell.*
28. *Draw the figure of various types of cells present in a human body.*
29. *How do substances like CO_2 and water move in and out of the cell?*
30. *How is cytoplasm different from nucleoplasm?*

Chemistry

Prepare question and answer on each activity of chapter -1

One mark question 1

Two mark question 1

Total activity 14

Total no. of questions = 14×2 =28

Physics (Mr. B.P. Sharma)

One Mark questions

1. Can displacement be zero even when distance is not zero?
2. Can the distance travelled by an object be smaller than magnitude of its displacement?
3. A particle is moving with uniform velocity. What is its acceleration?
4. How can you get speed of an object from its distance – time graph?
5. How can you get distance of an object from its speed – time graph?
6. A brick & an elephant are in free fall. What is common in their motion?
7. When an object is thrown vertically upwards. What is its velocity at the highest point?
8. Can velocity & acceleration point in opposite directions?
9. Define acceleration.
10. What is non-uniform motion?

Two Marks questions

1. Differentiate scalars & vectors?
2. What is retardation? How does it affect the speed?
3. Can speed of a body vary with its velocity constant? Explain.
4. Why is circular motion with constant speed called accelerated motion?
5. State the difference between distance & displacement.
6. What is the difference between speed & velocity?
7. What does a speedometer & odometer indicate?

Three Marks questions

1. If an object is thrown vertically upwards with speed 49 ms-1. How long does it take to complete upward journey? What maximum height does it achieve?
2. An object starting from rest covers 20 meters in first 2 seconds & 160 meters in next 4 seconds. What is its velocity after 7 seconds from the start?

Five Marks questions

1. Derive all the three equations of motion for uniform acceleration using graphical method.
2. A car a moving at rate of 72km/h and applies brakes which provide a retardation of 5ms-2.

(i) How much time does the car takes to stop.
(ii) How much distance does the car cover before coming to rest?
(iii) What would be the stopping distance needed if speed of the car is doubled?

Class IX Subject: English

a) Utilise your leisure time in reading English newspaper.

b) Complete unit **- 1-5 from workbook**, " **WORDS AND EXPRESSIONS"**. It will help you to enhance your reading, writing, grammar and thinking skills.

c) Read **1,2,3, and 4** of supplementary reader. d) Revise April syllabus.

Class IX — Subject: Social Science

(1)Project work on disaster management
(2) History, Civics, Geog,Eco Chapter-1 Frame at least 30 questions with answers

Class IX — Subject: Drawing

5 paintings of their own choice
5 sketches of their own choice