THE GYAN BHAIRAV GLOBAL SCHOOL

(Affiliated to **CBSE**)

GRADE XII

SESSION- 2026-27

Summer Enrichment Journey

"Cultivating Holistic Growth with NEP 2020: Explore, Learn, Grow"

Dear Grade XII Students,

As we step into the vibrant and exciting months of summer, we present to you the Summer Enrichment Journey 2025. This holiday homework is not just a set of assignments, but a thoughtfully designed program aimed at fostering holistic growth, in alignment with the visionary principles of the National Education Policy 2020.

The NEP 2020 emphasizes a comprehensive approach to education, focusing on the intellectual, emotional, social, and physical development of students. In line with this philosophy, your holiday homework is crafted to inspire curiosity, encourage creativity, and promote critical thinking. It encompasses a variety of activities

that go beyond traditional learning, integrating arts, physical activities, and real-world applications to make your learning experience enriching and enjoyable.

Through this program, you will explore new subjects, engage in hands-on projects, and reflect on your learning journey. These activities are designed to help you develop essential skills such as problem-solving, effective communication, and teamwork, which are crucial for your overall development and future success.

We believe that education is not confined to the classroom, and the summer break is a perfect time to expand your horizons and discover the joy of learning in diverse and innovative ways. Embrace this opportunity to explore your interests, challenge yourself, and grow into well-rounded individuals.

We are excited to see the amazing projects and insights you will bring back after the holidays. Remember, this is your journey towards becoming not just academically proficient, but also emotionally intelligent, socially responsible, and physically healthy individuals.

Wishing you a productive and joyful summer!

Instructions

Dear Students,

Please take note of the following instructions to ensure that your Summer Enrichment Assignment is completed in an organized and efficient manner:

1. **Assignments in Notebooks:**
    - **All written assignments should be neatly done in your respective subject notebooks.**
    - **Ensure that each assignment is clearly labeled with the subject name, assignment title, and date of completion.**
    - **Follow the guidelines provided by your subject teachers regarding the format and length of your assignments.**
2. **Projects in Project Files:**
    - **All project work should be compiled in designated project files.**
    - **Each project file should have a cover page with your name, class, section, subject, and project title.**
    - **Include a table of contents at the beginning of your project file to organize your work effectively.**
    - **Ensure that all project work is well-researched, creatively presented, and includes visuals where applicable.**
3. **Presentation and Neatness:**
    - **Maintain a high standard of neatness and presentation in both your notebooks and project files.**

- **Use appropriate headings, subheadings, and bullet points to organize your work clearly.**
- **Draw diagrams, charts, and graphs where necessary to illustrate your points effectively.**

4. **Time Management:**
    - **Plan your schedule to allocate sufficient time for each assignment and project.**
    - **Avoid last-minute rushes by setting weekly goals to complete parts of your homework.**
5. **Originality and Creativity:**
    - **Ensure that all work submitted is your original effort. Plagiarism will not be tolerated.**
    - **Be creative in your presentations and think outside the box to make your projects interesting and engaging.**
6. **Parental Guidance:**
    - **Ensure that your parents are aware of your progress and can assist you if needed.**
7. **Submission Deadlines:**
    - **All holiday homework must be submitted on the third day of school after the summer break.**
    - **Ensure that your work is complete and reviewed for any errors before submission.**
8. **Review and Revise:**
    - **Use this time to review the entire syllabus covered so far and prepare for the upcoming assessments.**
    - **Revise important concepts and practice questions to strengthen your understanding.**

ENGLISH

ASSIGNMENT

Read the given passages and answer the questions that follow:

But I got mixed up on the first words and stood there, holding on to my desk, my heart beating, and not daring to look up.

Question 1: Why did he stand holding the desk?

(a) He was surprised at the question

(b) He had not prepared his lesson

(c) He was absent the previous day

(d) He did not listen the question clearly

Question 2: What was asked in the class from 'I'?

(a) Rule of grammar

(b) Addition rule

(c) Multiplication table of 18

(d) Essay on 'The Language'

Question 3: Why would 'I' never see him again?

(a) He was leaving the school.

(b) He was shifted to another class.

(c) He was promoted to next school.

(d) All of these.

Question 4: Who is 'I' here?

(a) Franz

(b) Village Head

(c) Mr. Hamel

(d) School Principal

Question 5: Which districts had come under Prussian rule?

(a) Alsace

(b) Lorraine

(c) Both a and b (d)

(d) none of these Option

Question 6: Whom is he addressing to?

(a) Franz and his classmates

(b) Village seniors

(c) Chief Guest

(d) Everyone in the class

Question 7: What change did 'I' find in teacher's appearance?

(a) Teaching uninterrupted

(b) Speaking rudely

(c) Dressed for special occasion

(d) Looking old and tired Option

Question 8: 'I had got over a little over my fright' means :

(a) A bit afraid

(b) A bit settled

(c) Being cautious

(d) All of these Option

Question 9: What usual things happened every day at school?

(a) Great bustle and noise

(b) Proper discipline

(c) Attendance

(d) Morning assembly

Question 10: Who is the teacher referred to here?

(a) Mr. Hamel

(b) Mr. Chris

(c) Mr. Franz

(d) none of these

Question 11: Why was Franz in great dread?

(a) He had not prepared for his grammar lesson.

(b) He had bunked the class the previous day.

(c) He had not brought his notebook.

(d) none of these Option

Question 12: "I was amazed to see how well I understood it." Select the option that does NOT explain why Franz found the grammar lesson "easy".

(a) Franz was paying careful attention in class this time.

(b) M. Hamel was being extremely patient and calm in his teaching.

(c) Franz was inspired and had found a new meaning and purpose to learning.

(d) Franz had realized that French was the clearest and most logical language.

Question 13: Choose the option that might raise a question about M. Hamel's "faithful service".

(a) When Franz came late, M. Hamel told him that he was about to begin class without him.

(b) Franz mentioned how cranky M. Hamel was and his "great ruler rapping on the table".

(c) M. Hamel often sent students to water his flowers, and gave a holiday when he wanted to go fishing.

(d) M. Hamel permitted villagers put their children "to work on a farm or at the mills" for some extra money.

Question 14: Which of the following can be attributed to M. Hamel's declaration about the French language?

(a) Subject expertise

(b) nostalgic pride

(c) Factual accuracy

(d) Patriotic magnification

Question 15: Read the quotes given below.

(I) Those who know nothing of foreign languages, know nothing of their own. – Johann Wolfgang von Goethe

(II) Language is the road map of a culture. It tells you where its people come from and where they are going. – Rita Mae Brown

(III) A poor man is like a foreigner in his own country. – Ali Ibn Abi Talib

(IV) The greatest propaganda in the world is our mother tongue, that is what we learn as children, and which we learn unconsciously. That shapes our perceptions for life. – Marshal McLuhan Choose the option that might best describe M. Hamel's viewpoint.

(a) Option (I)

(b) Option (II)

(c) Option (III)

(d) Option (IV)

Writing Skills: 1. You are Josely Mathew, the President of the school book club. The club is organising a drive for promoting reuse of study materials and books. Draft a notice in about 50 words, for the school notice board, addressing students of classes X-XII, informing them about this drive and urging them to contribute to the endeavour. Mention how the donated books would would benefit a charitable cause.

2. You are Minu Sen, an intern in a software company in Hyderabad. You feel that the growing relationship of companies with non-profit organisations have made Corporate Social Responsibility (CSR) the buzzword today. Your own involvement in one such project for your company has convinced you that CSR looks beyond the company profits and focuses on benefiting the greater community. Write a letter to the editor of a national daily in about 120-150 words sharing your opinion about CSR and its advantages and provide suggestions to make it an integral part of every organisation. Use the given cues along with your own ideas to compose this letter.

PROJECTS

(Do any one from the given chapter)

"Mother at Sixty-Six"

Introduction

The poem "Mother at Sixty-Six" by Kamala Das explores themes of aging, familial bonds, and the inevitable passage of time. Students will delve into these themes, analyze the poem's structure and language, and reflect on the personal and universal experiences of aging and loss.

Objectives

To develop a deeper understanding of the poem's themes and literary devices.

To encourage personal reflection on the themes of aging and family.

To enhance analytical and creative skills through various project-based activities.

Project Tasks

1. Poem Analysis (Written Assignment)

Theme Exploration: Write an essay (200-300 words) discussing the main themes of the poem. Reflect on how the poet uses imagery and symbolism to convey the emotions associated with aging and separation.

Literary Devices: Identify and analyze at least five literary devices used in the poem. Explain how each device contributes to the overall impact of the poem.

2. Creative Writing (Personal Reflection)

Letter to the Poet: Write a letter (100-200 words) to Kamala Das expressing your thoughts and feelings after reading "Mother at Sixty-Six." Share any personal experiences or memories that the poem brought to mind.

Alternate Ending: Imagine an alternate ending to the poem. Write a new stanza that changes the tone or message of the poem. Explain your choices in a short paragraph (100-200 words).

3. Visual Interpretation (Artistic Expression)

Illustration: Create an illustration or a series of illustrations that depict the scenes and emotions described in the poem. Use any medium (drawing, painting, digital art) and provide a brief description (50-100 words) of your artwork.

Photo Essay: Compile a photo essay that captures the essence of the poem's themes. Include at least five photographs with captions that explain how each image relates to the poem.

4. Research Project (Contextual Understanding)

Author Study: Research the life and works of Kamala Das. Prepare a presentation (5-7 slides) or a detailed report on her contributions to literature and how her personal experiences influenced her writing.

Cultural Context: Investigate the cultural and social context of the poem. Write an article (100-200 words) discussing how the poem reflects the societal attitudes towards aging and family in India.

Submission Guidelines

Format: All written assignments should be typed and compiled into a single document. Visual projects should be neatly presented and labeled.

Portfolio: Assemble all your work into a portfolio, including a table of contents, title page, and any necessary labels or descriptions.

Deadline: The portfolio is due on the third day of school after the holidays.

HINDI

कार्य पत्रिका -१

प्रश्न १ ' कला एकीकरण ' के अंतर्गत केरल और गुजरात में अंतर बताते हुए किन्हीं तीन विषयों पर एक प्रोजेक्ट तैयार करें।

संकेत बिंदु भाषा :-*संस्कृति , *भोजन , *त्यौहार , *नृत्य और इतिहास

प्रश्न २ ' शिक्षा सबका अधिकार है 'विषय पर **120-150** शब्दों में रचनात्मक लेख लिखें ।

प्रश्न ३ जल है तो कल है :- विषय पर लगभग **200** शब्दों में एक लेख लिखें।

प्रश्न ४ आधुनिक जीवन शैली बना रही बीमार :- विषय पर एक **150-200** शब्दों में फीचर लिखें।

प्रश्न५ निम्नलिखित में से किसी एक के व्यक्तित्व पर प्रकाश डालते हुए प्रोजेक्ट तैयार करें।

1. हरिवंश राय बच्चन

2.डॉ भीमराव अंबेडकर

3. महादेवी वर्मा

4.सूर्यकांत त्रिपाठी निराला ।

प्रश्न ६ नीचे दिए गए विषयों पर **120 - 150** शब्दों में आलेख लिखिए -

1. खेलों का गिरता स्तर

2. फ़ैशन की अंधी होड़

3. प्रकृति से बढ़ती दूरी

4. युवाओं में बहती नकारात्मक प्रवृत्ति

5. महिलाओं की दोहरी भूमिका

प्रश्न ७ - अपने विद्यालय और मुहल्ले के आसपास की समस्याओं पर नजर डालें; जैसे पानी की कमी, बिजली की कटौती, खराब सड़कें, सफाई की दुर्व्यवस्था। इनमें से किन्हीं दो विषयों पर रिपोर्ट तैयार करें और अपने शहर के अखबार में भेजें।

कार्य पत्रिका -२

प्रश्न-१ संसार में कष्टो को सहते हुए खुशी और मस्ती का माहौल कैसे पैदा किया जा सकता है लिखो।

प्रश्न २ भाषा को सहूलियत से बरतने का क्या अभिप्राय है

प्रश्न ३ अपाहिज कैमरे के सामने क्यों रो पड़ता है?

प्रश्न ४ बाजार किनको आमंत्रित करता है और कैसे?

प्रश्न ५ आसमान में रंग बिरंगी पतंगों को देखकर आपके मन में कैसे ख्याल आते हैं, लिखिए।

प्रश्न ६ लेखिका ने भक्तिन के सेवा धर्म की तुलना किससे की है और क्यों?

प्रश्न ७ बात और भाषा परस्पर जूडे होते हैं किंतु कभी -कभी भाषा के चक्कर में सीधी बात भी टेढ़ी हो जाती है कैसे।

प्रश्न ८ कहानी के किस किस मोड़ पर लुट्टन के जीवन में क्या - क्या परिवर्तन आए ?

प्रश्न ९ ' कैमरा दिखाओ इसे बड़ा - बड़ा दिखाने का क्या कारण है ?

प्रश्न १० पहलवान की ढोलक के आधार पर ग्रामीणों की गरीबी और असहायता पर टिप्पणी कीजिए।

कार्यपत्रिका ३

अभिव्यक्ति और माध्यम

निम्नलिखित प्रश्नों के उत्तर एक-दो पंक्तियों में दीजिए-

प्रश्न **1.** नई वेब भाषा को क्या कहते हैं?

प्रश्न **2.** भारत की प्रमुख वेबसाइटें कौन-सी हैं?

प्रश्न **3.** हिंदी की सर्वश्रेष्ठ इंटरनेट पत्रकारिता की साइट कौन-सी है?

प्रश्न **4.** इंटरनेट पर उपलब्ध हिंदी का वह कौन-सा समाचार-पत्र है जो प्रिंट रूप में नहीं है?

प्रश्न **5.** पत्रकार कितने प्रकार के होते हैं?

प्रश्न **6.** अखबार/पत्रिका के पत्रकार को लिखते समय क्या याद रखना चाहिए?

प्रश्न **7.** समाचार-पत्रों में छपने वाले फ़ीचरों की शब्द संख्या कितनी होती है**?**

प्रश्न **8.** एक अच्छे और रोचक फ़ीचर के साथ क्या होना आवश्यक है**?**

प्रश्न **9.** समाचार-पत्र कैसा माध्यम है**?**

प्रश्न **10.** जनसंचार के आधुनिक माध्यमों में सबसे पुराना माध्यम कौन-सा है**?**

प्रश्न **11.** समाचार लेखन के छह ककार कौन से हैं**?**

प्रश्न **12.** मुद्रित माध्यमों की सबसे बड़ी विशेषता क्या है**?**

प्रश्न **13.** मुद्रित माध्यम के अंतर्गत समाचार-पत्र में क्या कमियाँ हैं**?**

प्रश्न **13.**बीट किसे कहते हैं**?**

प्रश्न **14.** कारोबारी जगत की खबरें किस शैली में लिखी जाती हैं **?**

प्रश्न **15.** सीधा प्रसारण (लाइव) कैसा होता है**?**

प्रश्न **16.** समाचार-पत्रों की क्या विशेषताएँ हैं**?**

प्रश्न **17.** संपादक के नाम पत्र कौन लिखता है**?**

प्रश्न **18.** समाचार-पत्र में साक्षात्कार का क्या महत्व है**?**

प्रश्न **19.**मुद्रित माध्यमों की सबसे बड़ी विशेषता क्या है**?**

प्रश्न **20.** समाचार लेखन के छह कंकार कौन से हैं**?**

MATHS

ASSIGNMENT-1

Q-1 Find the principal value of the following:

(i) $\sin^{-1}(-\sqrt{3}/2)$ (ii) $\sin^{-1}(\tan 5\pi/4)$

Q-2 Find the principal value of each of the following:

(i) **$\sec^{-1}(-\sqrt{2})$ (ii) $\sec^{-1}(2\sin(3\pi/4))$ (iii) $\sec^{-1}(2\tan(3\pi/4))$**

Q-3 Evaluate each of the following:

(i) **$\sin^{-1}(\sin 7\pi/6)$ (ii) $\sin^{-1}(\sin 13\pi/7)$**

Q-4 Evaluate:

(i) **Cos $\{\sin^{-1}(-7/25)\}$**
(ii) **Cot $\{\sec^{-1}(-13/5)\}$**

Q-5 Construct a 2 ×3 matrix A = $[a_{j\,j}]$ whose elements $a_{j\,j}$ are given by:

(i) $a_{ij} = 2i - j$ (ii) $a_{ij} = (i + j)^2/2$

Q-6 Find x, y, a and b if

$$\begin{bmatrix} 3x+4y & 2 & x-2y \\ a+b & 2a-b & -1 \end{bmatrix} = \begin{bmatrix} 2 & 2 & 4 \\ 5 & -5 & -1 \end{bmatrix}$$

Q-7 Find the values of a, b, c and d from the following equations

$$\begin{bmatrix} 2a+b & a-2b \\ 5c-d & 4c+d \end{bmatrix} = \begin{bmatrix} 4 & -3 \\ 11 & 24 \end{bmatrix}$$

Q-8 Find each of the following

Let $A=\begin{bmatrix} 2 & 4 \\ 3 & 2 \end{bmatrix}$, $B=\begin{bmatrix} 1 & 3 \\ -2 & 5 \end{bmatrix}$ **and** $C=\begin{bmatrix} -2 & 5 \\ 3 & 4 \end{bmatrix}$

(i) **2A – 3B**
(ii) **3A – 2B + 3C**

Q-9 If A = diag (2 -5 9), B = diag (1 1 -4) and C = diag (-6 3 4), find

(i) **A – 2B**
(ii) **B + C – 2A**
(iii) **2A + 3B – 5C**

Q-10 if A= $\begin{bmatrix} cos2a & sin2a \\ -sin2a & cos2a \end{bmatrix}$ **, Find A^2**

Q-11 For the following matrices verify the distributivity of matrix multiplication over matrix addition i.e. A (B + C) = AB + AC

A= $\begin{bmatrix} 1 & -1 \\ 0 & 2 \end{bmatrix}$ **, B=** $\begin{bmatrix} -1 & 0 \\ 2 & -1 \end{bmatrix}$ **and C=** $\begin{bmatrix} 0 & 1 \\ 1 & -1 \end{bmatrix}$

Q-12 if $[\,x \quad 4 \quad 1]\begin{bmatrix} 2 & 1 & 2 \\ 1 & 0 & 2 \\ 0 & 2 & -4 \end{bmatrix}\begin{matrix} x \\ 4 \\ -1 \end{matrix} = 0$ **find x**

Q-13 if A = $\begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ **show that A^2- 5A + 7I_2=0**

Q-14 if A = $\begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$ **find k such that A^2 -8A +kI =0**

Q-15 $A=\begin{bmatrix} 3 & 2 & 7 \\ 1 & 4 & 3 \\ -2 & 5 & 8 \end{bmatrix}$, **Find matrices X and Y such that X + Y = A, where X is a symmetric and y is a skew-symmetric matrix.**

Q-16 Evaluate the following determinants

(i) $\begin{vmatrix} x & -7 \\ x & 5x+1 \end{vmatrix}$

(ii) $\begin{vmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{vmatrix}$

Q-17 Find the area of the triangle with vertices at the points

(i) **(3, 8), (-4, 2) and (5, -1)**

(ii) (-1, -8), (-2, -3) and (3, 2)

Q-18 If the points (a, 0), (0, b) and (1, 1) are collinear, prove that a + b = ab

Q-19 Find the value of λ so that the points (1, -5), (-4, 5) and (λ, 7) are collinear

Q-20 Find the value of x if the area of Δ is 35 square cms with vertices (x, 4), (2, -6) and (5, 4)

Q-21 . Find the inverse of each of the following matrices

$\begin{bmatrix} 1 & 2 & 3 \\ 2 & 3 & 1 \\ 3 & 1 & 2 \end{bmatrix}$

Q-22 Find the inverse of each of the following matrices and verify that $A^{-1}A = I_3$.

$\begin{bmatrix} 1 & 3 & 3 \\ 1 & 4 & 3 \\ 1 & 3 & 4 \end{bmatrix}$

Q-23 **Solve the following system of equations by matrix method:**

(i) $5x + 7y + 2 = 0$

$4x + 6y + 3 = 0$

(ii) $3x + y = 7$

$5x + 3y = 12$

Q-24 **Solve the following system of equations by matrix method:**

(iii) $x + y + z = 3$

$2x - y + z = -1$

$2x + y - 3z = -9$

(iii) $8x + 4y + 3z = 18$

$2x + y + z = 5$

$x + 2y + z = 5$

Q-25 **The sum of three numbers is 2. If twice the second number is added to the sum of first and third, the sum is 1. By adding second and third number to five times the first number, we get 6. Find the three numbers by using matrices.**

Q-26 . An amount ofRs 10,000 is put into three investments at the rate of 10, 12 and 15% per annum. The combined incomes are Rs 1310 and the combined income of first and second investment is Show that f (x) = |x – 3| is continuous but not differentiable at x = 3. Rs 190 short of the income from the third. Find the investment in each using matrix method.

Q-27 Solve the following systems of homogeneous linear equations by matrix method:

1. $2x - y + z = 0$

$3x + 2y - z = 0$

$x + 4y + 3z = 0$

Q-28 find the angle between the vectors $a=\hat{i}-\hat{j}+\hat{k}$ and $b=\hat{i}+\hat{j}-\hat{k}$

Q-29 The vector $a \quad 3\hat{i} \quad \hat{k}$, $b \quad \hat{i} \quad 2\hat{j}$ are adjacent sides of a parallelogram. Find the area .

Q-30 if a,b, and c are three vectors of magnitudes 3 ,4 and 5 respectively, such that each one is perpendicular to the sum of the other two vectors. Prove that: $|a+b+c| = 5\sqrt{2}$.

Q-31 Minimise and Maximise $Z=3x+9y$, subject to constraints, $x+3y \leq 60$, $x+y \geq 10$, $x \leq y$, $x,y \geq 0$.

Q-32 **Find the shortest distance between the lines**

$r = (i+2j+k) + \lambda (i - j + k)$

$r = (2i - j - k) + \beta (2i + j + 2k)$

PROJECT BASED ACTIVITIES

Chapter: Vector Algebra

Project Title: Exploring Vector Algebra in Real-World Applications

Objective:

To understand the concepts of vector algebra through real-world applications and to enhance problem-solving and analytical skills.

Instructions:

Introduction to Vector Algebra:

- Define vectors and explain their significance in mathematics and real-world applications.
- Differentiate between scalar and vector quantities with examples.
- Describe vector operations such as addition, subtraction, and multiplication (dot product and cross product).
- Applications of Vector Algebra:
- Research and explain at least three real-world applications of vector algebra. Examples can include physics (force, velocity, and acceleration), computer graphics, engineering (mechanics and statics), and navigation.

Illustrate these applications with diagrams and real-life scenarios.

Practical Activity:

Design a simple experiment or activity that involves vectors. For example, you can create a simulation of forces acting on an object, or a vector-based animation in computer graphics.

Record the steps, observations, and outcomes of the experiment/activity.

Include diagrams, charts, or screenshots to support your explanation.

Project Structure:

- Title Page:
- Title of the project
- Student's name

- Class and section
- Roll number
- School’s name
- Table of Contents
- Introduction to Vector Algebra:
- Definitions and basic concepts
- Vector operations
- Applications of Vector Algebra:
- Real-world applications
- Diagrams and scenarios

Additional Resources

PHYSICS

WORKSHEET-1 (CURRENT ELECTRICITY)

1)A wire carries a current of 2.0 A, when a potential difference of 3.0 V is applied across it. What is its conductance ? If the wire is of length 3 m and area of cross-section 5.4 x 10-6 m², calculate its conductivity.

2)The resistance of a conductor is 6 ohm at 500 °C and 7 ohm at 100°C. Calculate the mean temperature Coefficient of resistance of the material. Find the resistance of the conductor at O°C.

3)In a meter bridge, the null point is found at a distance of 40 cm from A. If a resistance of 12 ohm is Connected in parallel with S, the null point occurs at 50.0 cm from A,. Determine the values of R and S.

4)Two bulbs rated 25 W – 220 V and 100 W – 220V are connected in series to a 440 V supply. Show with Necessary calculations which bulb if any will fuse?(b) What should happen if the two bulbs were Connected in parallel to the same supply?

5) Conductor of length L is connected to a dc source of emf &. If this conductor is replaced by another conductor of same material and same area of cross-section but of length 3 L, how will the drift velocity change ?

6)A uniform copper wire of length 1 m and cross sectional area 5 x 10-7 m² carries a current of 1 A. Assuming that there are 8 × 1028 free electrons per m^{23} in copper, how long will an electron take to drift from one end of the wire to the other. Charge on an electron = 1·6 × 10-^{19} C.

7)How much electrical energy in kilowatt hours is consumed in operating ten 5 watt bulbs for 10 hours per day in a month (30 days)

8)What is the e.m.f. of a cell ? State the factors on which its value depends. Derive a relation between e.m.f. E, contact potential V, internal resistance r of a cell and external resistance R. Prove that e.m.f. is more than potential difference

WORKSHEET-2 (CURRENT ELECTRICITY)

1. Two electric bulbs A and B are marked 220V, 40 W and 220V, 60 W respectively. Which one has a higher resistance?

2. Define the term 'Mobility' of charge carriers in a conductor. Write its S.I. unit.

3. A 5 V battery of negligible internal resistance is connected across a 200 V battery and a resistance of 39 Ω as shown in the figure. Find the value of the current

4 what are ohmic and non ohmic conductors

5 how resistance and resistivity of conductors depends on temperature and graphical representation

6 Do the numericals of combination of resistors in series and parallel

7 what are the Kirchhoff's first and second law ,write which conservation law they holds

8 Potential difference V is applied across the ends of copper wire of length (l) and diameter D. What is the effect on drift velocity of electrons if

(1) V tripled

(2) L is halved

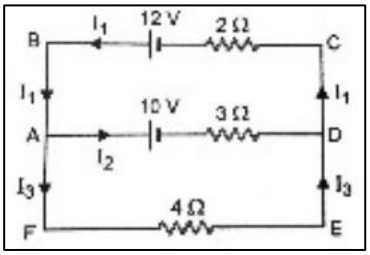
(3) D is doubled

9 What is Microscopic Ohm's law

10 Write the derivation between drift velocity and electric field

11 In a meter bridge, two unknown resistances R and S when connected in the two gaps, give a null point at 40 cm from one end. What is the ratio of R and S?

12 Find the value of I1,I2,I3 in the given figure



PROJECT WORK

INVESTIGATORY PROJECT:Students are required to work on a CBSE investigatory project based on any relevant topic of Physics. The project report/ project file/case study should be an original idea and not copied from any website. The final draft of the project write up must be hand written and presented in spiral binding. Spiral binding of the handwritten content to be done only after approval by the mentor.

The following sequence needs to be followed for writing the project:

Total number of pages: 10-15

1.Cover Page (School Name, Topic, Name of the Learner, Class, Section) :1Page

2.Certificate : 1 Page

3.Acknowledgement: 1 Page

4.Index: 1 Page

5.Aim : 1 Page

6.Introduction: 1 Page

7.Theory: 1-2 Page

8.Apparatus required : 1Page

9.Procedure: 3-4 Pages

10.Observations : 2-3 Pages

11.Result & discussion: 2-3 Pages

12.Conclusion: 1 Page

13.Bibliography : 1 Page

CHEMISTRY

Assignment-1

1 How will the rate of the reaction be affected when

(a) Surface area of the reactant is reduced,

(b) Catalyst is added in a reversible reaction, and

(c) Temperature of the reaction is increased?

(d) None of these

2.For a reaction $P + Q \rightarrow 2\ R + S$, the incorrect statement is

(a) Rate of disappearance of P = Rate of appearance of S

(b) Rate of disappearance of Q = 2 x Rate of appearance of R

(c) Rate of disappearance of Q = Rate of disappearance of P

(d) Rate of disappearance of Q = 1⁄2 x Rate of appearance of R

3.In a reaction, $2X \rightarrow Y$, the concentration of X decreases from 0.50 M to 0.38 M in 10 min. What is the rate of reaction in Ms^{-1} during this interval?

(a) 2×10^{-4}
(b) 4×10^{-2}
(c) 2×10^{-2}
(d) 1×10^{-2}

4.Instantaneous rate of a chemical reaction is

(a) rate of reaction in the beginning
(b) rate of reaction at the end
(c) rate of reaction at a given instant
(d) rate of reaction between two specific time intervals

5.A first order reaction has a rate constant $1.15 \times 10^{-3}s^{-1}$. Time taken for 5 g of this reactant to reduce to 3 g is

(a) 444 s
(b) 400 s
(c) 528 s
(d) 669 s

6.For the reaction A + 2B → C, rate is given by R = [A] $[B]^2$ then the order of the reaction is

(a) 3
(b) 6
(c) 5
(d) 7

7.Order of reaction is decided by

(a) temperature
(b) mechanism of reaction as well as relative concentration of reactants
(c) molecularity
(d) pressure

8.A plot is shown below between concentration and time t. Which of the given orders is indicated by the gra

(a) Zero Order
(b) Second Order
(c) First Order
(d) Fractional Order

9.A zero order reaction is one whose rate is independent of

(a) the concentration of the reactants
(b) the temperature of reaction
(c) the concentration of the product
(d) the material of the vessel in which reaction is carried out

10.A catalyst increases the reaction rate by:

(a) decreasing enthalpy
(b) increasing internal energy
(c) decreasing activation enthalpy
(d) increasing activation enthalpy

11.Consider the reaction A —> B. The concentration of both the reactants and the products varies exponentially with time. Which of the following figures correctly describes the change in concentration of reactants and products with time?

12.A first order reaction takes 40 min for 30% decomposition. $t_{1/2}$ will be

(a) 77.7 min

(b) 52.5 min
(c) 46.2 min
(d) 22.7 min

INVESTIGATORY PROJECT:

Students are required to work on a CBSE investigatory project. The project-work should be experimental, result-driven with innovative content about discoveries with sufficient supporting materials including observation tables, graphs, pictures, surveys, case-studies, results etc. Project work should be hand-written with blue and black pen only. Use light coloured, thick A-4 interleaf pages (one side ruled, another side blank).Spiral binding of the handwritten content to be done only after approval by the mentor.

- Choose a topic that interests you and justifies the link with the subject, is original in content and experimentally possible. All project-topics/objectives should be reported and verified by respective subject teachers to avoid repetition.
- It is important to perform the experiments for results and observations. Diversify the conclusions with map-works, survey activities, graphical studies etc. All the procedures and results should be supported by evidences in the form of pictures.
- Learners can perform the experiments under the supervision of the subject-teacher, once the school re-opens. Chemicals unavailable in school's lab needed for the investigatory project need to be arranged by the respective student.

The following sequence needs to be adhered to for writing the project-report:

1) Front page/cover page -Coloured print-out (uniform format will be provided)
2) Certificate (uniform format will be provided).
3) Acknowledgment (uniform format will be provided).
4) Index with page numbers.
5) Aim (Main subject line/topic of the project).
6) Objective (Enlist all learning outcomes by giving bullet points).
7) Requirements (materials, chemicals and glass ware requirements).
8) Theory (three-four pages).
9) Procedure of the experiment.
10) Observation.
11) Interpretation/analysis/ discussion.
12) Conclusion.
13) Bibliography (references).

- All the above-mentioned headings should start from a new page.
- Format for front page, certificate and acknowledgment will be provided through portal.
- Except cover page, all other content should be hand-written with clean and neat hand writing to create a positive impression.

- Minimum no. of pages -20 pages.

- **Thoroughly revise the following chapters and practice the problems discussed in the class i) Solution ii) Chemical kinetics iii) Haloalkanes & Haloarenes .Revise PT.2 syllabus.(CH:3 Chemical kinetics and CH:6 Haloalkanes and halo-arenes)**
- **Complete all the experiments in the Chemistry Lab manual neatly along with the diagrams, as discussed in class.**

BIOLOGY

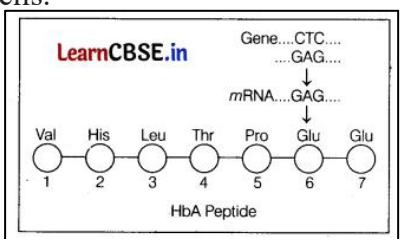
WORKSHEET-1
CH-1and 2

Q1. Explain double fertilisation and trace the post-fertilisation events in sequential order leading to seed formation in a typical dicotyledonous plant.
Q2. A flower of brinjal plant following the process of sexual reproduction produces 300 viable seeds.
Answer the following questions giving reasons
(i) How many ovules are minimally involved?
(ii) How many megaspore mother cells are involved?
(iii) What is the minimum number of pollen grains that must land on stigma for pollination?
(iv) How many male gametes are involved in the above case?
(v) How many microspore mother cells must have undergone reduction division prior to dehiscence of anther in the above case?
Q3. Explain the development of the zygote into an embryo and of the primary endospermic nucleus into an endosperm in a fertilised embryo sac of a dicot plant.
Q4.(i) Explain the different ways apomictic seeds can develop. Give an example of each.
(ii) Mention one advantage of apomictic seeds to farmers.
(iii) Draw a labelled mature stage of a dicotyledonous embryo.
Q5.With the help of an example of each explain the following: Apomixis, Parthenocarpy, Polyembryony.
Q6. Differentiate between perisperm and endosperm giving one example of each.
Q7. Write the location and functions of following in human testes: (i) Sertoli cells. (ii) Leydig cells
Q8. Draw a sectional view of human ovary showing the different stages of developing follicles, corpus luteum and ovulation.
Q9. Explain Spermatogenesis in males and oogenesis in females.
Q10. Explain the Menstrual cycle with the help of chart.

WORKSHEET-2
CH-3 and 4

Q1.Explain one application of each one of the following:
(a) Amniocentesis
(b) Lactational amenorrhea
(c) ZIFT
Q2. State any four methods to overcome infertility in human couples.
Q3. Explain the Zygote Intra Fallopian
Transfer Technique (ZIFT). How is Intra Uterine Transfer (IUT) Technique different from it?
Q4.(i) Name any two copper releasing IUDs.
(ii) Explain, how do they act as effective contraceptives in human females.
Q5.Describe the lactational amenorrhea method of birth control.
Q6.Explain the causes, inheritance pattern and symptoms of any two Mendelian genetic disorders.
Q7.(i) How does a chromosomal disorder differ from a Mendelian disorder?
(ii) Name any two chromosomal aberration-associated disorders.
(iii) List the characteristics of the disorders mentioned above that help in their diagnosis.
Q8.(i) Explain the mechanism of sex-determination in humans.
(ii) Differentiate between male heterogamety and female heterogamety with the help of an example of each.
Q9.Given below is the representation of a relevant part of amino acid composition of the ß-chain of haemoglobin,

related to the shape of human red blood cells.



(i) Is this representation of the sequence of amino acids indicating a normal human or a sufferer from a certain blood related genetic disease? Give reason in support of your answer.
(ii) Why is the disease referred to as a Mendelian disorder? Explain.
Q10.(i) Explain monohybrid cross taking seed coat colour as a trait in Pisum sativum. Work out the cross up to F_2-generation.
(ii) State the law of inheritance that can be derived from such a cross.
(iii) How is the phenotypic ratio of F_2-generation different in a dihybrid cross?

PROJECT

INVESTIGATORY PROJECT:Students are required to prepare an Investigatory Project on the allocated topic and record the well researched content in a spirally bound project file. Spiral binding of the handwritten or typed content to be done only after approval by the mentor.

The following sequence needs to be used in the project file.

1.Cover Page- must contain School Name and logo, Topic with an interesting Tag line and coloured picture relevant to the topic.

2.Certificate-As per the format that will be shared on portal.

3.Acknowledgement-As per the format that will be shared on portal.

4.Index-Topic/Subtopic wise

5.Content (Minimum-15 A-4 size, light coloured interleaf sheets)- History, theory, principle and must also include pictorial representations, graphs/some statistics on interleaf side and Case Studies to support your chosen topic. Learners to insert their pictures as evidence of being involved in investigating the project.

6.Bibliography

Minimum pages in the Project file -15-20