L.R.S INTERNATIONAL ACADEMY, RAIPUR SADAT
HOLIDAY HOME-WORK (2025-26)
CLASS- XII
_____ (Science/Commerce/Humanities) _____

Dear Parents,

Summer is the time of Scorching heat but these vacations provide you an opportunity to make a better understanding with your ward. We suggest you to form a basic sketch for your ward to spend the day to avoid last minute hassles for the completion of Home Work. Kindly act as a helping hand to your ward in terms of giving practical help in finishing projects and assignments.

Thanks…..

English:-

Prepare the project portfolio on the following topic:

Lesson: (I) INDIGO

Or

LOST SPRING   ~~Flamingo

Note:-Use the format given below to create the above project~~

(I) Cover page: Student's information and year

(II) Index: List of content

(III) Acknowledgment and preface

(IV) Introduction

(V)Topic/Heading page

(VI) List of activities and planning done to gather information about the project

(VII) Script/written material about the topic

(VIII) Conclusion

(IX) Photograph wherever necessary

(X) Teacher's remark and signature

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Physics:-

Q-1. Make a project report on any of the topic of your choice for Board examination.

Q-2. Do all the problems of the NCERT exercise of Ch-0, 1, 2, 3 in a separate note book?

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Chemistry:-

1. Explain as to why haloarenes are much less reactive than halo alkanes towards nucleophilic reaction.

2. Which of the following pairs under go, S_N1 substitution reaction faster and why?

i)

ii)
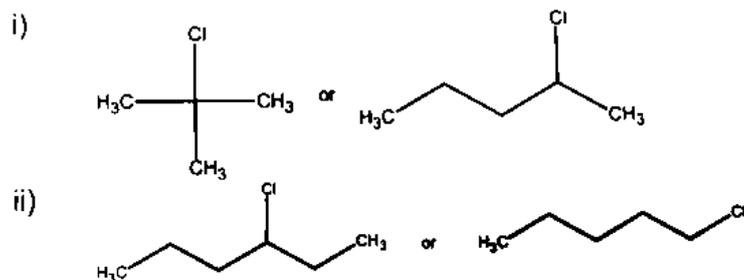
3. How would you differentiate between S_N1 and S_N2 mechanism of substitution reaction? Give one example of each.

4. a) State one use each of DDT and iodoform.

b) Which compound in the following couples will react faster in S_N2 displacement and why?

    i) 1-bromopentane or 2-bromopentane

    ii) 1- bromo-2-methylbutane or 20brome-methylbutane.

5. Iodoform test is given by (MEQ).

    a) Ethanol

    b) Benzophenone
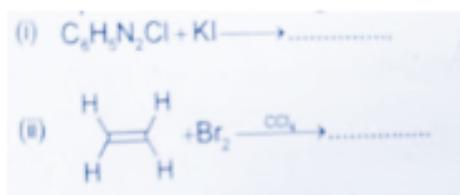
    c) Ethanal

    d) Acetophenone

6. Identify the indicate the presence of the centre of chirality, if any, in the following molecules.

How many stereoisomers are possible for those containing chiral centre?

    a) 1, 2-Dichloropropane

    b) 3-brome-pent-1-ene

7. Complete the following reactions.

8. What would be the value of Van't hoff factor for a dilute solution of K_2SO_4 in water?

9. State the formula relating pressure of a gas with its mole fraction in a liquid solution in contact with it.

10. Give reason when 30ml of ethyl alcohol and 30ml of water are mixed, the volume of resulting solution is more than 60ml.

11. Of 0.1 molal solution of glucose and sodium chloride, respectively which one will have a higher boiling point?

12. What is expected value of Van't hoff factor for K_3 [Fe $(CN)_6$] in dilute solution?

13. Define mole fraction of a substance in a solution.

14. The liquids A and B boil at $145°$ C and $190°$ C, respectively which of them has a higher vapour pressure at $80°$ C.

15. Identify which liquid will have a higher vapour pressure at $90°C$ if the boiling points of two liquid A and B are $140°$ C and $180°$ C , respectively .

Project work:-

Project work and lab manual and PYQ of chapter-1 and 2 from organic chemistry.

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Applied Mathematics:-

Q1. Show that all the diagonal elements of a skew symmetric matrix are zero.

Q2. If $2\begin{bmatrix} 3 & 4 \\ 5 & x \end{bmatrix} + \begin{bmatrix} 1 & y \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 7 & 0 \\ 10 & 5 \end{bmatrix}$ find $(x - y)$.

Q3. If A and B are square matrices of order 3 such that $|A| = -1, |B| = 3$ then find the value of $|2AB|$.

Q4. For what value of x, following matrix is singular?
$$\begin{bmatrix} 3 - 2x & x + 1 \\ 2 & 4 \end{bmatrix}$$

Q5. Find the second derivative of $x^3 \log x$

Q6. If $x = at^2, y = 2at$ then find $\frac{d^2y}{dx^2}$

Q7. If $A = \begin{bmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{bmatrix}$ and $B^{-1} = \begin{bmatrix} 3 & -1 & 1 \\ -15 & 6 & -5 \\ 5 & -2 & 2 \end{bmatrix}$ find $(AB)^{-1}$.

Q8. If $y = sin(m \, sin^{-1} x)$, then prove that $(1 - x^2)\frac{d^2y}{dx^2} - x\frac{dy}{dx} + my^2 = 0$.

Q9. Using property of determinant, prove $\begin{vmatrix} 1 & 1 & 1 \\ \alpha & \beta & \gamma \\ \beta\gamma & \gamma\alpha & \alpha\beta \end{vmatrix} = (\alpha - \beta)(\beta - \gamma)(\gamma - \alpha)$

Q10. If $= \begin{bmatrix} 2 & -3 & 5 \\ 3 & 2 & -4 \\ 1 & 1 & -2 \end{bmatrix}$, find A^{-1}. Using this inverse solve the system of following equations

$2x - 3y + 5z = 11, \quad 3x + 2y - 4z = -5, \quad x + y - 2z = -3$

Q11. If $y = \log(x + \sqrt{x^2 + a^2})$, then prove that $n(x^2 + a^2)y_2 + xy_1 = 0$

Q12. $A = \begin{bmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{bmatrix}$ find $A^2 - 5A + 4I$ and hence find a matrix X such that $A^2 - 5A + 4I + X = 0$.

Q13. How many matrices are possible of order 3×3 with each entry 2 or 0.

Q14. If A is a square matrix of order 3, such that $A(adjA) = 10I$, then find the value of $|adj\ A|$.

Q15. Find the differential coefficient of $\sin (\cos x^2)$ with respect to x.

Q16. Find the Derivative of x^x with respect to x.

Q17. Using the Cremer's rule solve the system

$2x - 3y + 5z = 11, \quad 3x + 2y - 4z = -5, \quad x + y - 2z = -3$

Q18. Find the ad joint of matrix $A = \begin{bmatrix} -1 & -2 & -2 \\ 2 & 1 & -2 \\ 2 & -2 & 1 \end{bmatrix}$ and hence show that $A(adj\ A) = |A|I_3$.

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Mathematics:-

Q1. Write the smallest and largest equivalence relation on the set A = {1, 2, 3}

Q2. Let R = {(a, a³) : a is a prime number less than 5} be a relation. Find the range of R.

Q3. Let Z be the set of all integers and Z_0 be the set of all non-zero integers. Let a relation R on $Z \times Z_0$ be

defined as follows : (a, b) R (c, d) $\Leftrightarrow$ ad = bc for all (a, b), (c, d) $\in Z \times Z_0$

Prove that R is an equivalence relation on $Z \times Z_0$

Q4. Show that the relation R, defined on the set A of all polygons as

R = {(P₁, P₂) : P₁ and P₂ have same number of sides}, is an equivalence relation. What is the set of all

elements in A related to the right angle triangle T with sides 3, 4 and 5?

Q5. Prove that the function f : N → N, defined by f(x) = x² + x + 1 is one – one but not onto.

Q6. Classify the functions as injection, surjection or bijection: f : R → R, defined by f(x) = |x|

Q7. Classify the following functions as injection, surjection or bijection:

f: Q – {3} → Q, defined by $f(x) = \frac{2x+3}{x-3}$

Q8. Classify the following functions as injection, surjection or bijection:

f: R → R, defined by $f(x) = \frac{x}{x^2+1}$

Q9. Let $A = \{3, 5\}$, then find number of reflexive relations on A.

Q10. Show that f : R → R, given by $f(x) = x - [x]$, is neither one – one nor onto.

Q11. How many equivalence relations on the set {1,2,3} containing (1,2) and (2,1) are there in all? Justify your answer.

Q12. Write the range of $sin^{-1}x$ also draw the graph according range.

Q13. Write the element a_{23} of a 3×3 Matrix $A = [a_{ij}]$, whose element aij are given by $a_{ij} = \frac{|i-j|}{2}$

Q14. If A is a non singular matrix of order 3 such that $A^2 = 2A$, then find the value of $|2A|$.

Q15. Find the value of x, if $\begin{vmatrix} 3x & 7 \\ -2 & 4 \end{vmatrix} = \begin{vmatrix} 8 & 7 \\ 6 & 4 \end{vmatrix}$

Q16. Find the domain of $y = sin^{-1}(x^2 - 4)$.

Q17. Evaluate $\sin^{-1}\left(\sin\frac{3\pi}{4}\right) + \cos^{-1}\left(\cos\frac{3\pi}{4}\right) + tan^{-1} 1$

Q18. Show that $\sin^{-1}\left(2x\sqrt{1-x^2}\right) = 2\cos^{-1} x, \quad \frac{1}{\sqrt{2}} \le x \le 1$.

Q19. Show that the function f in $A = R - \left\{\frac{2}{3}\right\}$ define as $f(x) = \frac{4x+3}{6x-4}$ is one-one and onto.

Q20. If N denotes the set of all natural numbers and R be the relation on $N \times N$ defined by $(a,b)R(c,d)$, if $ad(b+c) = bc(a+d)$. show that R is an equivalence relation.

Q21. Solve the system of following equations

$2x - 3y + 5z = 11, \quad 3x + 2y - 4z = -5, \quad x + y - 2z = -3$

Q23. If x, y, z are non zero real numbers then find the inverse of the matrix $A = \begin{bmatrix} x & 0 & 0 \\ 0 & y & 0 \\ 0 & 0 & z \end{bmatrix}$

Q24. How many equivalency relations can exist if $n(A) = 4$.

Q25. If A is a matrix of order 3×3, such that, $A(adj A) = 10I$, then find the value of $|adj A|$.

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Biology:-

1 – Make a investigatory project on the topics present in NCERT on A4 size sheets. (**Content-** Front page , Certificate, acknowledgement, introduction, Content of the topic, diagrams, bibliography, maximum pages15 to 20 .)

2- Write and learn all the NCERT questions and answers on separate notebook.(chapter of Unit 1)

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Physical Education:-
Practical-1: Fitness tests administration. (SAI Khelo India Test)
Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease.
Practical-3: Anyone one IOA recognised Sport/Game of choice. Labelled diagram of Field & Equipment. Also mention its Rules, Terminologies & Skills.
PREPARE THESE TOPICS:-
1- Special Olympics
2- Paralympics
3- Deaflympics
4- Balanced Diet
5- Macro and Micro Nutrients.

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Fine Art:-
1. Kindly sketch a still life and colour it with the help of oil postal/ water colour.
2. All the students will bring a painting of sunrise or sun set with the help of oil postal /water colour.

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History:-

Prepare a project file on _____.
01. Mahabharata
02. Hrappan Civilisation.

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Political Science:-
Make an Assignment file in these topics…
01. Challenges of National Building.
02. Contemporary Central Power.

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Business Studies-

Students are supposed to select one unit out of Four and are required to make Only ONE
Project from the selected unit.
1. Principles of Management
2. Elements of Business Environment.
3. Stock Exchange
4. Marketing

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ACCOUNTANCY:-

Chapter- Partnership Firm Fundamental
A. Matching question 1 to 10
B. Assertions and Reasons 1 to 10
C. Examples 38-44
D. Fill in the blanks (01 to 15)
Ch- Change in Profit Sharing Ratio
A. Example No- 3 to 9, 11, 12, 15, 16,18,19,20 33,34,35,37,38,41,45
B. Multiple questions [01 to 10]
C. Assertion and Reasons [01 to 10]
Ch- Admission of a Partner
A. Example No- 47 to 58.

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Geography:-
1. Find out one liner /MCQ from chapter -3 and chapter-4 from course book.
2. Prepare a project on Natural hazards and disasters.