



MATA JAI KAUR PUBLIC SCHOOL
HOLIDAYS HOMEWORK / CLASS – XI / SCIENCE

ENGLISH

- Read the novel The Canterville Ghost by Oscar Wilde
- Revise The Ailing Planet: The Green Movement's Role, 'Father to Son', 'Tale of a Melon City' and Birth for your Annual Examination.

PHYSICS

- Complete NCERT back exercises of all the chapters covered in the H.W. register.
- Complete the practical files and submit them on the first day after vacations.
- Prepare the viva questions for each experiment also.

CHEMISTRY

- Solve NCERT back exercise Questions from
 1. Organic chemistry some basic principles
 2. Hydrocarbon

BIOLOGY

SECTION - A

1. Name the smallest living cell that completely lacks a cell wall and can survive without oxygen. 1
2. What are viroids? 1
3. In some plant species roots come out of the ground and grow vertically upwards to get oxygen for respiration. What are such roots called? 1
4. What are the components of blood? 1
5. What is a peptide bond? 1

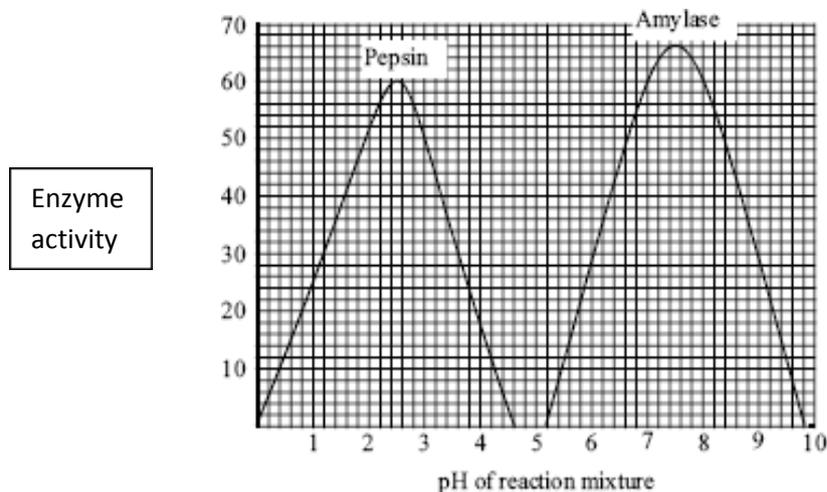
SECTION - B

1. Differentiate between action spectrum and absorption spectrum with respect to photosynthesis. 2
2. What do you understand by "Binomial Nomenclature"? Name the scientist who had proposed this system. 1+1=2
3. State the cell theory as understood today. 1+1=2
4. Based on the position of centromere, the chromosomes can be classified into four types. What are they? $\frac{1}{2} \times 4 = 2$
5. How are secondary metabolites useful to human welfare? Give two examples of it. 2
6. What do you understand by alternation of generation? Explain with any one pattern of plant life cycle? 2

SECTION - C

1. Draw a well labeled diagram of a sectional view of chloroplast and label the sites for light reactions and dark reactions. 2+1/2+1/2= 3
2. Mention the criteria for essentiality of an element. Give one example of an essential element. 3
3. Differentiate between skeletal muscles, smooth muscle, and cardiac muscle (at least two points in each) (1/2 × 2) × 3=3
4. Explain the structure of plasma membrane as proposed by Singer and Nicolson (1972). With diagram 3
5. Cnidarians exhibit two basic body forms. What are they? How do they differ from each other? Give one example in each. 3
6. Algae are divided into three main classes. What are the three classes? Differentiate them on the basis of photosynthetic pigment and stored food. 3
7. Flowers can be classified into three types on the basis of position of ovary with respect to other floral parts. What are they? Explain with example. 3
8. Vascular bundles are often referred sometimes as closed /conjoint / radial. Explain the three terms, where do we notice such condition. 3
9. What is the significance of meiosis? How does meiosis differ from mitosis? 3
10. What are the sub stages of prophase I of Meiosis I? Explain briefly. 3
11. What is facilitated diffusion? How symport transport is different from antiport transport 3
12. Discuss the factors responsible for ascent of xylem sap in plants. 3
13. Experiments were carried out to investigate the effect of different pH values on enzyme activities. (Time and temperature was kept constant) 1+2=3
14. What interpretation can you draw from the graph?
15. What happens to the pepsin reaction between pH 4 and 5? Why?

a. Observe the given graph and answer:-



SECTION D (Value Based Question)

1. Swathi is a member of NGO. She wants to have a campaign in nearby slum areas.
 - A) What awareness about personal hygiene should be given?
 - B) What sanitation measures for maintaining social and public hygiene in their areas should be given?2+2=4

SECTION-E

1. Draw a well labeled diagram showing the alimentary canal of cockroach (label at least six parts). Why cockroaches are called “**uricotelic**” insect? $(6 \times \frac{1}{2}) = 3 + 2 = 5$
2. Classify simple epithelium tissue on the basis of structural modification of the cells. Where do we find ciliated epithelium in human body. Differentiate between Endocrine gland and Exocrine gland. $3 + 2 = 5$
3. Mention the phylum along with one example with reference to the distinctive features mentioned below $(\frac{1}{2} + \frac{1}{2}) = 1 \times 5 = 5$
 - A. Water vascular system :
 - B. Malpighian tubule :
 - C. Cnidoblasts present:
 - D. Triploblastic Acoelomate animals:
 - E. Bioluminescence and comb plates:
4. Differentiate between chordates and Non-Chordates; give an outline of classification of the **sub - phylum** Vertebrata up to **class** level $2 + 3 = 5$
5. Explain how **Nitrification** is different from **Nitrogen fixation**. Mention the role of Thiobacillus in nitrogen cycle? What do you understand by **biological Nitrogen fixation**? $2 + 1 + 2 = 5$
6. Name the technique of growing plants in soil free, nutrient solution? What is the basic purpose of the experiment? Name one sulphur containing amino acids. State the role of Mg^{2+} in plants. Name one free living nitrogen fixing cyanobacteria. $1 + 2 + \frac{1}{2} + 1 + \frac{1}{2} = 5$

MATHEMATICS (PRACTICE PAPER)

GENERAL INSTRUCTIONS:

1. Q1 to Q7 are of 1 mark each. (Section A)
2. Q8 to Q19 are of 4 marks each. (Section B)
3. Q20 to Q26 are of 5 marks each. (Section C)
4. All Questions are compulsory.
5. Check that the question paper contains 3 printed sheets.

SECTION A

Q1 Write the set in roster form:

$$A = \{ x : x \text{ is a two-digit number such that sum of its digits is } 7 \}$$

Q2 Find the domain of the function

$$f(x) = \frac{x^2 + 3x + 5}{x^2 + 2x - 8}$$

Q3 Find the multiplicative inverse of $\sqrt{3} - 5i$

Q4 Show that the points (-2, 3, 5) (1, 2, 3) and (7, 0, -1) are collinear.

Q5 Find the ratio in which XY-plane divides the line segment formed by joining the points (-2, 4, -7) and (3, -5, 8)

Q6 Find the sum of 6 terms of the series 2, 6, 18,

Q7 The centroid of a ΔABC is at the point (1, 1, 1). If A is (3, -5, 7) and B is (-1, 7, -6) find point C.

SECTION B

Q8 (i) If $\lim_{x \rightarrow 3} \frac{x^n - 3^n}{x - 3} = 108$, find the positive integer n.

(ii) Find the derivative of $x^{-4}(3 - 4x^{-5})$

Q9 If $\cos A = \frac{-15}{17}$, $\sin B = \frac{-5}{13}$ where A & B both lie in third quadrant. Find the value of $\cos(A - B)$, $\sin(A + B)$

Q10 Prove that $n(n+1)(n+5)$ is a multiple of 3 by using the principle of mathematical induction for all $n \in \mathbb{N}$

Q11 Find the number of arrangements of the letters of the word INDEPENDENCE. In how many of these arrangements

- i. Do the words start with P
- ii. Do all the vowels always occur together
- iii. Do the vowels never occur together?

Q12 Find the equation of ellipse whose centre is at the origin, foci are (1, 0) and (-1, 0) and eccentricity is $\frac{1}{2}$

Q13 Find the direction in which a straight line must be drawn through the point (-1, 2) so that its point of intersection with the line $x + y = 4$ may be at a distance of 3 units from this point.

Q14 In the ΔABC with vertices A(2, 3) B(4, -1) and C(1, 2), find the equation and length of altitude from the vertex B.

Q15 Two students Anil and Ashima appeared in an examination. The probability that Anil will qualify the examination is 0.05 and that Ashima will qualify the examination is 0.10. The probability that both will qualify is 0.02. Find the probability that (i) both Anil and Ashima will not qualify the examination. (ii) atleast one of them will not qualify the examination.

Q16 A fair coin is tossed 4 times and a person wins Re1 for each head and loses Rs1.50 for each tail that turns up. Calculate how many different amounts of money you can have after 4 tosses and the probability of having each of these amounts.

Q17 If $y = \frac{(2x^3 + 3x^2 - 5)}{(3x + 2)}$ find $\frac{dy}{dx}$

Q18 If the sum of first p terms of an A.P is equal to the sum of first q terms, then find the sum of the first (p + q) terms.

Q19 Draw the graph of the function $f: \mathbb{R} \rightarrow \mathbb{R}$ defined by $f(x) = [x]$ where $[x]$ stands for greatest integer function. Also find its domain and range.

SECTION C

Q20 Convert the complex number $\frac{-16}{1+i\sqrt{3}}$ into polar form.

Q21 In a survey of 100 persons it was found that 28 read magazine A, 30 read magazine B, 42 read magazine C, 8 read magazines A and B, 10 read magazines A and C, 5 read magazines B and C and 3 read all three. Find how many read none of the 3 magazines and also find how many read magazine C only?

Q22 Solve the system of inequalities graphically:

$$x - 2y \leq 3$$

$$3x + 4y \geq 12$$

$$x \geq 0, y \geq 1$$

Q23 Find the mean, variance and standard deviation using shortcut method.

Height in cms	70-75	75-80	80-85	85-90	90-95	95-100	100-105	105-110	110-115
No. of children	3	4	7	7	15	9	6	6	3

Q24 The second, third and fourth terms in the binomial expansion $(x + a)^n$ are 240, 720 and 1080 respectively. Find x , a and n .

Q25 (i) Solve: $\cos 3x + \cos x - \cos 2x = 0$

(ii) Prove that $2 \cos \frac{\pi}{13} \cos \frac{9\pi}{13} + \cos \frac{3\pi}{13} + \cos \frac{5\pi}{13} = 0$

Q26 A committee of 8 has to be formed from 9 men and 4 women. In how many ways can this be done when committee consists of :

- i. Exactly 3 women
- ii. Atleast 3 women
- iii. Atmost 3 women

COMPUTER SCIENCE: Assignment 2D Arrays Programs

1. To find and display the row sums of a two dimensional array.
2. To find and display the column sums of a two dimensional array.
3. Print the product of each row of a two dimensional array passed as the arguments of the function
4. Accept a 2D array of integers and its size as arguments and displays the elements which lie on diagonals. [Assuming the 2D Array to be a square matrix with odd dimension i.e. 3×3 , 5×5 , 7×7 etc.] Example, if the array content is

5 4 3
6 7 8
1 2 9

Output through the function should be: Diagonal 1 : 5 7 9 Diagonal 2 : 3 7 1

5. To accept a squared integer matrix with odd dimensions (3*3, 5*5 ...) & display the square of the elements which lie on both diagonals. For ex. :

2 5 7
3 7 2
5 6 9

The output should be:

Diagonal one : 4, 49, 81

Diagonal two : 49, 49, 25

6. Write a user defined function in C++ which accepts a squared integer matrix with odd dimensions (3*3, 5*5..) & display the sum of the middle row & middle column elements. For ex. :

2 5 7
3 7 2
5 6 9

The output should be:

Sum of middle row = 12

Sum of middle column = 18

7. Takes 2D array A, with size N rows and N columns and prints the lower half of the array.

Eg. Input

2 3 1 5 0
7 1 5 3 1
2 5 7 8 1
0 1 5 0 1
3 4 9 1 5

The output will be

2
7 1
2 5 7
0 1 5 0
3 4 9 1 5

8. Input 2D array A, with size N rows and N columns and print the upper half of the array

Eg. Input

```
2 3 1 5 0
7 1 5 3 1
2 5 7 8 1
0 1 5 0 1
3 4 9 1 5
```

The output will be

```
2 3 1 5 0
  1 5 3 1
    7 8 1
      0 1
```

9. Accept an integer array and its size and assign the elements into a 2 D array of integers in the following format:
If the array is 1,2,3,4,5.
The resultant 2D array is given below

```
1 0 0 0 0
1 2 0 0 0
1 2 3 0 0
1 2 3 4 0
1 2 3 4 5
```

10. To accept an integer array and size and assign values into a 2D array of integers in the following format:
If the array is 1, 2, 3, 4, 5, 6
the resultant 2D array is given below

```
1 2 3 4 5 6
1 2 3 4 5 0
1 2 3 4 0 0
1 2 3 0 0 0
1 2 0 0 0 0
1 0 0 0 0 0
```

- 11.To accept an integer array and its size and then assigns the elements into a two dimensional array of integers in the following format:

If the array is 1, 2, 3, 4, 5, 6
The resultant 2 D array is given below

```
0      0      0      0      0      1
0      0      0      0      2      1
0      0      0      3      2      1
0      0      4      3      2      1
0      5      4      3      2      1
6      5      4      3      2      1
```

If the array is 1, 2, 3
The resultant 2 D array is given
below

```
0      0      1
0      2      1
3      2      1
```

12. To accept an integer array and its size and assign the elements into a two dimensional array of integers in the following format.

If the array is 9,8,7,6,5,4 . The resultant 2D array is given below

```
9 9 9 9 9 9
8 8 8 8 8 0
7 7 7 7 0 0
6 6 6 0 0 0
5 5 0 0 0 0
4 0 0 0 0 0
```

If the array is 1, 2, 3. The resultant 2D array is given below

```
1 1 1
2 2 0
3 0 0
```

13. To accept a integer array and its size and print the output (using nested loops) in following format:

Example: if the array is having 1 2 4 5 7. Then the output should be

```
1
2 2
4 4 4 4
5 5 5 5 5
7 7 7 7 7 7 7
```

14. To accept an integer array and its size and assign the elements into a two dimensional array of integers in the following format (size must be odd)

If the array is 1 2 3 4 5 . The output must be

```
1 0 0 0 5
0 2 0 4 0
0 0 3 0 0
0 2 0 4 0
1 0 0 0 5
```

If the array is 10 15 20. The output must be

```
10 0 20
  0 15 0
10 0 20
```

15. To accept a 2D array of integers, number of rows and number of columns and assign the elements which are divisible by 3 or 5 into a one dimensional array of integers.

If the 2D array is

$$\begin{bmatrix} 12 & 3 & 9 & 14 \\ 24 & 25 & 16 & 31 \\ 19 & 32 & 45 & 27 \\ 11 & 5 & 28 & 18 \end{bmatrix}$$

The resultant 1D arrays is 12, 3, 9, 24, 25, 45, 9, 5, 18

PSYCHOLOGY (CH8)

Q1. What do you mean by Thinking? Elaborate the building blocks of thought?

Q2. Mention the process involved in Thinking (tabular format)?

Q3. Explain how Problem Solving leads to the process of Thinking?

Q4. What are the obstacles to Problem Solving?

Q5. What do you mean by Reasoning as a process of Thinking?

Q6. Explain Decision making process of Thinking.

Q7. What is Creative Thinking? State its Salient features.

Q8. How does Divergent Thinking follow the process of Creative Thinking?

Q9. What are the barriers of Creative Thinking?

Q10. How can we develop Creative Thinking?

Q11. Elaborate the process of Creative Thinking.

Q12. Suggest some strategies of Creative Thinking?

ECONOMICS- PROJECT WORK

Being an economics student you have been assigned to prepare a project on any one of the topics suggested by C.B.S.E.

The student in context of any project work are expected to use their own thought process based on their understanding of statistical methods.

PREPARE A PROJECT ON ANY ONE OF THE GIVEN TOPICS:--

- (I) Project report on consumer awareness among households with reference to electrical product like A.C., T.V., Refrigerator etc. Using primary data which is to be collected through a survey on 10 households.

- (II) Project report on demographic structure of neighborhood [A survey on 10 families]
- (III) Project on changing prices of a few vegetables (6 - 8) in the market in past 2 weeks using primary data to study the effect of changing prices on the consumption pattern , do a survey of 10 households.

LAYOUT OF THE PROJECT FILE –

- (i) Introduction
- (ii) Acknowledgement
- (iii) List of contents
- (iv) Sample questionnaire
- (v) Research methodology (sample size ,methods adopted to collect data)
- (vi) Analysis & presentation of data
- (vii) Conclusion and inference .

NOTE : THE PROJECT SHOULD BE OF 15 TO 18 PAGES .