

Class XI Psychology – Creative Holiday Homework (Project File)

Title: "Understanding Human Behaviour: A Small Study in Psychology"

Instructions:

You are required to select any ONE topic from the list below and conduct a small study using one or more of the following methods of enquiry:
Observation, Survey, Interview, or Questionnaire

Choose One Topic:

Bullying / Cyberbullying

Mental Health and Wellbeing

Impact of Social Media on Youth

Altruism and its Impact on Wellbeing

Peer Pressure

Anger Management

Sleep Hygiene

Changing Gender Roles and Stereotypes

Cooperation and Competition

Compliance and Obedience

Project File Format (Minimum 20 Pages, Handwritten)

1. Title Page

Title of the Project

Student's Name, Class, Roll Number, School Name

2. Introduction to the Topic

Brief explanation of the topic

Why did you choose this topic?

Relevance of the topic in today's world

3. Historical Background and Theoretical Perspectives

Key theories or psychologists associated with this topic

Explanation of major concepts using bullet points or diagrams

4. Method of Enquiry Used

Method(s) applied: survey, interview, observation, questionnaire

Detailed description of the procedure:

Number of participants

Age group and background

Sample questions or checklist used

Duration, setting, and how the data was collected

5. Creative Element (Choose One to Include in the File)

Case Study of a fictional or real person/situation related to your topic

Dialogue Writing between two characters discussing the issue

Mini Survey Report with graphs or tables summarizing responses
(Hand-drawn visuals, comic strips, or storyboards can be added for creativity)

6. Real-Life Applications

How does this issue or topic affect daily life?

At least 3 real-life situations or examples (can include headlines, family/school/community examples)

7. Interesting Findings and Reflection

Share 5 interesting facts or insights discovered during your study

Reflect on your personal experience conducting the project

8. Conclusion

What did you learn from this project?

How has it impacted your understanding of psychology and human behaviour?

9. Bibliography

Mention all sources of information (books, websites, interviews, etc.)

General Instructions:

Project must be handwritten in A4-size ruled/plain sheets

Use neat headings, subheadings, bullet points, and diagrams wherever appropriate

Minimum 20 pages, Maximum 25 pages

Submission: On the first day after summer vacation

Holiday Homework

Class XI

English

1. Personal Reading Journal

Read any one novel/storybook of your choice (outside your syllabus) and maintain a reading journal. Include:

- Title and author
- Main plot in 100 words
- Your favourite character and why
- A lesson learned

2. Literature Project

Choose one of the prescribed books (or a story/chapter from your syllabus) and:

- Write a brief summary
- Identify the theme(s)
- Mention the central characters
- Reflect on what you learned from the story

Summer Assignment : Mathematics

CLASS:XI

SETS

Question Bank : I

Subject Teacher : Patil sir

1. Write the solution set of the equation $x^2 + x - 2 = 0$ in roster form. Ans. {1, -2}.
2. Write the set $\{x : x \text{ is a positive integer and } x^2 < 40\}$ in the roster form.
Ans. {1, 2, 3, 4, 5, 6}.
3. Write the set $A = \{1, 4, 9, 16, 25, \dots\}$ in set-builder form. Ans. $\{x : x = n^2\}$
4. Write the set $\left\{\frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \frac{6}{7}\right\}$ in set-builder form. Ans. $x : x = \frac{n}{n+1}$
5. Match each of the set on the described in the roster form with the same set on the described in the set-builder form:
i) {P, R, I, N, C, A, L}
ii) {O}
iii) {1, 2, 3, 6, 9, 18}
iv) {3, -3}
a) $\{x : x \text{ is a positive integer and is a divisor of } 18\}$
b) $\{x : x \text{ is an integer and } x^2 - 9 = 0\}$
c) $\{x : x \text{ is an integer and } x + 1 = 1\}$
d) $\{x : x \text{ is a letter of the word PRINCIPAL}\}$
Ans. i) d), ii) c), iii) a), iv) a)
6. Which of the following are sets? Justify your answer.
i) The collection of all the months of a year beginning with the letter J.
ii) The collection of ten most talented writers of India.
iii) A team of eleven best cricket batsmen of the world.
iv) The collection of all boys in your class.
v) The collection of all natural number less than 100.
vi) A collection of novels written by the writer Munshi Prem Chand.
vii) The collection of all even integers.
viii) The collection of questions in this Chapter.
ix) A collection of most dangerous animals of the world.
Ans. i), iv), vi), v), vii) and viii) are sets.
7. Let $A = \{1, 2, 3, 4, 5, 6\}$. Insert the appropriate symbol \in or \notin in the blank spaces:
i) $5 \dots A$ ii) $8 \dots A$ iii) $0 \dots A$
iv) $4 \dots A$ v) $2 \dots A$ vi) $10 \dots A$
Ans. i) \in ii) \notin iii) \notin iv) \in v) \in vi) \notin
8. Wrote the following sets in the roster form:
i) $A = \{x : x \text{ is an integer and } -3 < x < 7\}$
ii) $B = \{x : x \text{ is an natural number less than } 6\}$
iii) $C = \{x : x \text{ is a two-digit natural number such that the sum of its digits is } 8\}$
iv) $D = \{x : x \text{ is a prime number which is divisor of } 60\}$
v) $E = \text{The set of all letters in the word PRINCIPAL}$
9. Write the following set in the builder form:
i) {3, 6, 9, 12}
ii) {2, 4, 8, 16, 32}
iii) {5, 25, 125, 625}
iv) {2, 4, 6, \dots}
v) 1, 4, 9, \dots, 100
Ans. i) $\{x : x = 3n \text{ and } 1 \leq n \leq 4\}$ ii) $\{x : x = 2^n \text{ and } 1 \leq n \leq 5\}$ iii) $\{x : x = 5^n \text{ and } 1 \leq n \leq 4\}$ iv) $\{x : x \text{ is an even natural number}\}$ v) $\{x : x = n^2 \text{ and } 1 \leq n \leq 10\}$
10. List all the elements of the following sets:
i) $A = \{x : x \text{ is an odd natural number}\}$
ii) $B = \{x : x \text{ is an integer, } -\frac{1}{2} < x < \frac{9}{2}\}$
iii) $C = \{x : x \text{ is an integer, } x^2 \leq 4\}$
iv) $D = \{x : x \text{ is a letter in the word "LOYAL"}\}$
v) $E = \{x : x \text{ is a month of a year not having } 31 \text{ days}\}$
vi) $F = \{x : x \text{ is a constant in the English alphabet which precedes } k\}$
Ans. i) $A = \{1, 3, 5, \dots\}$ ii) $B = \{0, 1, 2, 3, 4\}$ iii) $C = \{-2, -1, 0, 1, 2\}$ iv) $D = \{L, O, Y, A\}$ v) $E = \{\text{February, April, June, September, November}\}$ vi) $F = \{b, c, d, f, g, h, j\}$
11. Match each of the set on the described in the roster form with the same set on the described in the set-builder form:
i) {1, 2, 3, 6}
ii) {2, 3}
iii) {M, A, T, H, E, I, C, S}
iv) {1, 3, 5, 7, 9}
a) $\{x : x \text{ is a prime number and a divisor of } 6\}$
b) $\{x : x \text{ is an odd natural number less than } 10\}$
c) $\{x : x \text{ is natural number and divisor of } 6\}$
d) $\{x : x \text{ is a letter of the word MATHEMATICS}\}$
Ans. i) c), ii) a), iii) d) iv) b)
1. State which of the following sets are finite or infinite
i) $\{x : x \in \mathbb{N} \text{ and } (x-1)(x-2) = 0\}$
ii) $\{x : x \in \mathbb{N} \text{ and } x^2 = 4\}$
iii) $\{x : x \in \mathbb{N} \text{ and } 2x - 1 = 0\}$
iv) $\{x : x \in \mathbb{N} \text{ and } x \text{ is prime}\}$
v) $\{x : x \in \mathbb{N} \text{ and } x \text{ is odd}\}$
Ans. i), ii), iii) is finite & iv), v) is infinite
2. Find the pairs of equal sets, if any, given

Summer Assignment : Mathematics

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Question Bank : 1

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reasons: $A = \{0\}$, $B = \{x : x > 15 \text{ and } x < 5\}$
 $C = \{x : x - 5 = 0\}$, $D = \{x : x^2 = 25\}$,
 $E = \{x : x \text{ is an integral positive root of the equation } x^2 - 2x - 15 = 0\}$.

Ans. C and E

3. Which of the following pairs of sets are equal? Justify your answer.
 - i) X, the set of letters in "ALLOY" and B the set of letters in "LOYAL".
 - ii) $A = \{n : n \in \mathbb{Z} \text{ and } n^2 \leq 4\}$ and $B = \{x : x \in \mathbb{R} \text{ and } x^2 - 3x + 2 = 0\}$.
4. Which of the following are examples of the null set.
 - i) Set of odd natural number divisible by 2
 - ii) Set of even prime numbers
 - iii) $\{x : x \text{ is a natural numbers, } x < 5 \text{ and } x > 7\}$
 - iv) $\{y : y \text{ is a point common to any two parallel lines}\}$

Ans. i), iii), iv)
5. Which of the following sets are finite or infinite.
 - i) The set of months of a year
 - ii) $\{1, 2, 3, \dots\}$
 - iii) $\{1, 2, 3, \dots, 99, 100\}$
 - iv) (The set of positive integers greater than 100)
 - v) The set of prime numbers less than 99

Ans. i) Finite ii) Infinite iii) Finite iv) Infinite v) Finite
6. State whether each of the following set is finite or infinite.
 - i) The set of lines which are parallel to the x-axis.
 - ii) The set of letters in the English alphabet
 - iii) The set of numbers which are multiple of 5
 - iv) The set of animals living on the earth
 - v) The set of circles passing through the origin (0, 0)

Ans. i) Infinite ii) Finite iii) Infinite iv) Finite v) Infinite
7. In the following, state whether $A = B$ or not:
 - i) $A = \{a, b, c, d\}$ $B = \{d, c, b, a\}$
 - ii) $A = \{4, 8, 12, 16\}$ $B = \{8, 4, 16, 18\}$
 - iii) $A = \{2, 4, 6, 8, 10\}$ $B = \{x : x \text{ is positive integer and } x \leq 10\}$
 - iv) $A = \{x : x \text{ is a multiple of } 10\}$, $B = \{10, 15, 20, 25, 30, \dots\}$

Ans. i) Yes ii) No iii) Yes iv) No
8. Are the following pair of sets equal? Give reasons.
 - i) $A = \{2, 3\}$, $B = \{x : x \text{ is solution of } x^2 + 5x + 6 = 0\}$
 - ii) $A = \{x : x \text{ is a letter in the word FOLLOW}\}$, $B = \{y : y \text{ is a letter in the word WOLF}\}$

Ans. i) No ii) Yes
9. From the sets given below, select equal sets:
 $A = \{2, 4, 8, 12\}$, $B = \{1, 2, 3, 4\}$
 $C = \{4, 8, 12, 14\}$, $D = \{3, 1, 4, 2\}$

$E = \{-1, 1\}$, $F = \{0, a\}$,
 $G = \{1, -1\}$, $H = \{0, 1\}$
 Ans. $B = D$, $E = G$

110. Consider the sets
 ϕ , $A = \{1, 3\}$, $B = \{1, 5, 9\}$, $C = \{1, 3, 5, 7, 9\}$.
11. Let $A = \{a, e, i, o, u\}$ and $B = \{a, b, c, d\}$. Is A a subset of B? No. (Why?). Is B a subset of A? No. (Why?)
12. Let A, B and C be three sets. If $A \in B$ and $B \subset C$, is it true that $A \subset C$? If not, give an example.
13. Let $A = \{1, 2, \{3, 4\}, 5\}$. Which of the following statements are incorrect and why?
 - i) $\{3, 4\} \subset A$
 - ii) $\{3, 4\} \in A$
 - iii) $\{\{3, 4\}\} \subset A$
 - iv) $1 \in A$
 - v) $1 \subset A$
 - vi) $\{1, 2, 5\} \subset A$
 - vii) $\{1, 2, 5\} \in A$
 - viii) $\{1, 2, 3\} \subset A$
 - ix) $\phi \subset A$
 - x) $\{\phi\} \subset A$

Ans. i), v), vii), viii), ix), xi
14. Write down all the subset of the following sets.
 - i) $\{a\}$
 - ii) $\{a, b\}$
 - iii) $\{1, 2, 3\}$
 - iv) ϕ

Ans. i) $\phi, \{a\}$, ii) $\phi, \{a\}, \{b\}, \{a, b\}$ iii) $\phi, \{1\}, \{2\}, \{3\}, \{1, 2\}, \{1, 3\}, \{2, 3\}, \{1, 2, 3\}$ iv) ϕ
15. How many elements has $P(A)$, if $A = \phi$?

Ans. 1
16. Write the following as intervals:
 - i) $\{x : x \in \mathbb{R}, -4 < x \leq 6\}$
 - ii) $\{x : x \in \mathbb{R}, -12 < x < -10\}$
 - iii) $\{x : x \in \mathbb{R}, 0 \leq x < 7\}$
 - iv) $\{x : x \in \mathbb{R}, 3 \leq x \leq 4\}$
1. Write the following intervals in set-builder form:
 - i) $(-3, 0)$ Ans. $\{x : x \in \mathbb{R}, -3 < x < 0\}$
 - ii) $[6, 12]$ Ans. $\{x : x \in \mathbb{R}, 6 \leq x \leq 12\}$
 - iii) $[6, 12]$ Ans. $\{x : x \in \mathbb{R}, 6 < x \leq 12\}$
 - iv) $[-23, 5]$ Ans. $\{x \in \mathbb{R} : -23 \leq x < 5\}$
2. What universal set(s) would you propose for each of the following :
 - i) the set of right triangles
 - ii) The set of isosceles triangles
3. Give the sets $A = \{1, 3, 5\}$, $B = \{2, 4, 6\}$ and $C = \{0, 2, 4, 6, 8\}$, which of the following may be considered as universal set (s) for all the three set A, B and C
 - i) $\{0, 1, 2, 3, 4, 5, 6\}$
 - ii) ϕ
 - iii) $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
 - iv) $\{1, 2, 3, 4, 5, 6, 7, 8\}$

Ans. iii)
4. Let $A = \{2, 4, 6, 8\}$ and $B = \{6, 8, 10, 12\}$. Find $A \cup B$.

Ans. $\{2, 4, 6, 8, 10, 12\}$
5. Let $A = \{a, e, i, o, u\}$ and $B = \{a, i, u\}$. Show that $A \cup B = A$.

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SETS

Question Bank : I

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6. Let $X = \{\text{Ram, Geeta, Akbar}\}$ be the set of student of class XI, who are in school hockey team. Let $Y = \{\text{Geeta, David, Ashok}\}$ be the set of students from Class XI who are in the school football team. Find $X \cup Y$ and interpret the set.
7. Let $A = \{2, 4, 6, 8\}$ and $B = \{6, 8, 10, 12\}$. Find $A \cap B$. Ans. $\{6, 8\}$
8. Let $X = \{\text{Ram, Geeta, Akbar}\}$ be the set of student of class XI, who are in school hockey team. Let $Y = \{\text{Geeta, David, Ashok}\}$ be the set of students from Class XI who are in the school football team. Find $X \cap Y$. Ans. $\{\text{Geeta}\}$
9. Let $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and $B = \{2, 3, 5, 7\}$. Find $A \cap B$ and hence show that $A \cap B = B$. Ans. $\{2, 3, 5, 7\}$
10. Let $A = \{1, 2, 3, 4, 5, 6\}$, $B = \{2, 4, 6, 8\}$. Find $A - B$ and $B - A$. Ans. $\{1, 3, 5\}$ & $\{8\}$
11. Let $V = \{a, e, i, o, u\}$ and $B = \{a, i, k, u\}$. Find $V - B$ and $B - V$.
12. Find the union of each of the following pairs of sets:
 i) $X = \{1, 3, 5\}$ $Y = \{1, 2, 3\}$
 ii) $A = \{a, e, i, o, u\}$ $B = \{a, b, c\}$
 iii) $A = \{x : x \text{ is a natural number and multiple of } 3\}$
 $B = \{x : x \text{ is a natural number less than } 6\}$
 iv) $A = \{x : x \text{ is a natural number and } 1 < x \leq 6\}$
 $B = \{x : x \text{ is a natural number and } 6 < x < 10\}$
 v) $A = \{1, 2, 3\}$, $B = \phi$
 Ans. i) $\{1, 2, 3, 5\}$, ii) $\{a, b, c, e, i, o, u\}$ iii) $\{x : x = 1, 2, 4, 5 \text{ or a multiple of } 3\}$ iv) $\{x : 1 < x < 10, x \in \mathbb{N}\}$ v) $\{1, 2, 3\}$
13. Let $A = \{a, b\}$, $B = \{a, b, c\}$. Is $A \subset B$? What is $A \cup B$? Ans. Yes, $A \cup B = \{a, b, c\}$
14. If A and B are two sets such that $A \subset B$, then what is $A \cup B$? Ans. B
15. If $A = \{1, 2, 3, 4\}$, $B = \{3, 4, 5, 6\}$, $C = \{5, 6, 7, 8\}$ and $D = \{7, 8, 9, 10\}$; find
 i) $A \cup B$ ii) $A \cup C$ iii) $B \cup C$
 iv) $B \cup D$ v) $A \cup B \cup C$ vi) $A \cup B \cup D$
 vii) $B \cup C \cup D$.
 Ans. i) $\{1, 2, 3, 4, 5, 6\}$, ii) $\{1, 2, 3, 4, 5, 6, 7, 8\}$, iii) $\{3, 4, 5, 6, 7, 8\}$ iv) $\{3, 4, 5, 6, 7, 8, 9, 10\}$, v) $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, vi) $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, vii) $\{3, 4, 5, 6, 7, 8, 9, 10\}$
16. If $A = \{3, 5, 7, 9, 11\}$, $B = \{7, 9, 11, 13\}$, $C = \{11, 13, 15\}$ and $D = \{15, 17\}$; find
 i) $A \cap B$ ii) $B \cap C$
 iii) $A \cap C \cap D$ iv) $A \cap C$
 v) $B \cap D$ vi) $A \cap (B \cup C)$
 vii) $A \cap D$ viii) $A \cap (B \cup D)$
- ix) $(A \cap B) \cap (B \cup C)$
 x) $(A \cup D) \cap (B \cup C)$
 Ans. i) $\{7, 9, 11\}$ ii) $\{11, 13\}$, iii) ϕ , iv) $\{11\}$, v) ϕ , vi) $\{7, 9, 11\}$, vii) ϕ , viii) $\{7, 9, 11\}$, ix) $\{7, 9, 11\}$, x) $\{7, 9, 11, 15\}$
17. If $A = \{x : x \text{ is a natural number}\}$, $B = \{x : x \text{ is an even natural number}\}$, $C = \{x : x \text{ is an odd natural number}\}$ and $D = \{x : x \text{ is a prime number}\}$, find.
 i) $A \cap B$ ii) $A \cap C$ iii) $A \cap D$
 iv) $B \cap C$ v) $B \cap D$ vi) $C \cap D$
 Ans. i) B , ii) C , iii) D , iv) ϕ v) $\{2\}$ vi) $\{x : x \text{ is an odd prime number}\}$
18. Which of the following pairs of sets are disjoint:
 i) $\{1, 2, 3, 4\}$ and $\{x : x \text{ is a natural number and } 4 \leq x \leq 6\}$
 ii) $\{a, e, i, o, u\}$ and $\{c, d, e, f\}$
 iii) $\{x : x \text{ is an even integer}\}$ and $\{x : x \text{ is an odd integer}\}$
 Ans. iii)
1. If $A = \{3, 6, 9, 12, 15, 18, 21\}$, $B = \{4, 8, 12, 16\}$, $C = \{2, 4, 6, 8, 10, 12, 14, 16\}$, $D = \{5, 10, 15, 20\}$; find
 i) $A - B$ ii) $A - C$ iii) $A - D$
 iv) $B - A$ v) $C - A$ vi) $D - A$
 vii) $B - C$ viii) $B - D$ ix) $C - B$
 x) $D - B$ xi) $C - D$ xii) $D - C$
 Ans. i) $\{3, 6, 9, 15, 18, 21\}$, ii) $\{3, 9, 15, 18, 21\}$ iii) $\{3, 6, 9, 12, 18, 21\}$, iv) $\{4, 8, 16, 20\}$ v) $\{2, 4, 8, 10, 14, 16\}$, vi) $\{5, 10, 20\}$, vii) $\{20\}$, viii) $\{4, 8, 12, 16\}$, ix) $\{2, 6, 10, 14\}$ x) $5, 10, 15\}$, xi) $\{2, 4, 6, 8, 12, 14, 16\}$ xii) $\{5, 15, 20\}$
2. If $X = \{a, b, c, d\}$ and $Y = \{f, b, d, g\}$, find
 i) $X - Y$ ii) $Y - X$ iii) $X \cap Y$
 Ans. i) $\{a, c\}$, ii) $\{f, g\}$, iii) $\{b, d\}$
3. If \mathbb{R} is the set of real numbers and \mathbb{Q} is the set of rational numbers, then what is $\mathbb{R} - \mathbb{Q}$?
 Ans. Set of irrational numbers.
4. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and $A = \{1, 3, 5, 7, 9\}$. Find A' Ans. $\{2, 4, 6, 8, 10\}$
5. Let U be the universal set of all the students of Class XI of a coeducational school and A be the set of all girls in Class XI. Find A'
 Ans. set of all boys in the class.
6. Let $U = \{1, 2, 3, 4, 5, 6\}$, $A = \{2, 3\}$ and $B = \{3, 4, 5\}$. Find A' , B' , $A' \cap B'$, $A \cup B$ and hence show that $(A \cup B)' = A' \cap B'$.
 Ans. $A' = \{1, 4, 5, 6\}$, $B' = \{1, 2, 6\}$, $A' \cap B' = \{1, 6\}$, $A \cup B = \{2, 3, 4, 5\}$
7. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \text{Let } U = \{1, 2, 3, 4\}$, $B = \{2, 4, 6, 8\}$ and $C = \{3, 4, 5, 6\}$.

Summer Assignment : Mathematics

CLASS: XI

SETS

Question Bank : 1

Subject Teacher : Patil sir

- Find
- i) A' ii) B' iii) $(A \cup C)'$
 iv) $(A \cup B)'$ v) $(A')'$ vi) $(B - C)'$
 Ans. i) {5, 6, 7, 8, 9}, ii) {1, 3, 5, 7, 9}, iii) {7, 8, 9}, iv) {5, 7, 9} v) {1, 2, 3, 4}, vi) {1, 3, 4, 5, 6, 7, 9}
8. If $U = \{a, b, c, d, e, f, g, h\}$, find the complements of the following sets:
 i) $A = \{a, b, c\}$ ii) $B = \{d, e, f, g\}$
 iii) $C = \{a, c, e, g\}$ iv) $D = \{f, g, h, a\}$
 Ans. i) $\{d, e, f, g, h\}$, ii) $\{a, b, c, h\}$, iii) $\{b, d, f, h\}$, iv) $\{b, c, d, e\}$
9. Taking the set of natural numbers as the universal set, write down the complements of the following sets:
 i) $\{x : x \text{ is an even natural number}\}$
 ii) $\{x : x \text{ is an odd natural number}\}$
 iii) $\{x : x \text{ is a positive multiple of } 3\}$
 iv) $\{x : x \text{ is a prime number}\}$
- v) $\{x : x \text{ is a natural number divisible by } 3 \text{ and } 5\}$
 vi) $\{x : x \text{ is a perfect square}\}$
 vii) $\{x : x \text{ is a perfect cube}\}$
 viii) $\{x : x + 5 = 8\}$
 ix) $\{x : 2x + 5 = 9\}$
 x) $\{x : x \geq 7\}$
 xi) $\{x : x \in \mathbb{N} \text{ and } 2x + 1 > 10\}$
 Ans. i) $\{x : x \text{ is an odd natural number}\}$, ii) $\{x : x \text{ is an even natural number}\}$, iii) $\{x : x \in \mathbb{N} \text{ and } x \text{ is not a multiple of } 3\}$, iv) $\{x : x \text{ is a positive composite number and } x = 1\}$, v) $\{x : x \text{ is a positive integer which is not divisible by } 3 \text{ or not divisible by } 5\}$, vi) $\{x : x \in \mathbb{N} \text{ and } x \text{ is not a perfect square}\}$, vii) $\{x : x \in \mathbb{N} \text{ and } x \text{ is not a perfect cube}\}$, viii) $\{x : x \in \mathbb{N} \text{ and } x = 3\}$, ix) $\{x : x \in \mathbb{N} \text{ and } x = 2\}$, x) $\{x : x \in \mathbb{N} \text{ and } x < 7\}$, xi) $\{x : x \in \mathbb{N} \text{ and } x > 9/2\}$.
10. If $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $A = \{2, 4, 6, 8\}$ and $B = \{2, 3, 5, 7\}$. Verify that
 i) $(A \cup B)' = A' \cap B'$
 ii) $(A \cap B)' = A' \cup B'$
11. Draw appropriate Venn diagram for each of the following :
 i) $(A \cup B)'$ ii) $A' \cap B'$
 iii) $(A \cap B)'$ iv) $A' \cup B'$
12. Let U be the set of all triangles in a plane. If A is the set of all triangles with at least one angle different from 60° , what is A' ?
 Ans. Is the set of all equilateral triangles.
13. If X and Y are two sets such that $X \cup Y$ has 50 elements, X has 28 elements and Y has 32 elements, how many elements does $X \cap Y$ have?
 Ans. 10
14. In a school there are 20 teachers who teach mathematics or physics. Of these, 12 teach mathematics and 4 teach both physics and mathematics. How many teach physics?
 Ans. 12
15. In a class of 35 students, 24 like to play cricket and 16 like to play football. Also, each student likes to play at least one of the two games. How many students like to play both cricket and football?
 Ans. 5
16. In a survey of 400 students in a school, 100 were listed as taking apple juice, 150 as taking orange juice and 75 were listed as taking both apple as well as orange juice. Find how many students were taking neither apple juice nor orange juice.
 Ans. 225
1. There are 200 individuals with a skin disorder, 120 had been exposed to the chemical C_1 , 50 to chemical C_2 , and 30 to both the chemical C_1 and C_2 . Find the number of individual exposed to
 i) Chemical C_1 but not chemical C_2
 ii) Chemical C_2 but not chemical C_1
 iii) Chemical C_1 or chemical C_2 .
 Ans. i) 90, ii) 20, iii) 140
2. If X and Y are two sets such that $n(X) = 17$, $n(Y) = 23$ and $n(X \cup Y) = 38$, find $n(X \cap Y)$.
 Ans. 2
3. If X and Y are two sets such that $X \cup Y$ has 18 elements, X has 8 elements and Y has 15 elements; how many elements does $X \cap Y$ have?
 Ans. 5
4. In a group of 400 people, 250 can speak Hindi and 200 can speak English. How many people can speak both Hindi and English?
 Ans. 50
5. If S and T are two sets such that S has 21 elements, T has 32 elements, and $S \cap T$ has 11 elements, how many elements does $S \cup T$ have?
 Ans. 42
6. If X and Y are two sets such that X has 40 elements, $X \cup Y$ has 60 elements, $X \cap Y$ has 60 elements, and $X \cap Y$ has 10 elements, how many elements does Y have?
 Ans. 30
7. In a group of 70 people, 37 like coffee, 52 like tea and each person likes at least one of the two drinks. How many people like both coffee and tea?
 Ans. 19
8. In a group of 65 people, 40 like cricket, 10 like both cricket and tennis. How many like tennis only and not cricket? How many like tennis?
 Ans. 25, 35
9. In a committee, 50 people speak French, 20 speak Spanish and 10 speak both Spanish and French. How many speak at least one of these two language?
 Ans. 60

कक्षा 11वीं

विषय-हिंदी कोड ३०२

सन्मति उच्चतर माध्यमिक विद्यालय इंदौर

ग्रीष्मकालीन अवकाश गृहकार्य

1. हिंदी समाचार पत्र के इतिहास पर प्रकाश डालते हुए ले किन्ही दो समाचार पत्रों की समीक्षा लिखें।

1. अमर उजाला

2. पंजाब केसरी

3. देशबंधु

4. उदंत मार्तंड

2. "नमक का दरोगा" कहानी के आधार पर "एक न्याय प्रिय अधीक्षक" की भूमिका को अपने शब्दों में लिखें।

3. "मसि कागद छूयो नहि, कलम गही नहि हाथ"
कबीरदास जी के विषय में क्यों कहा गया है?

कबीर के जीवन पर शोध कर वर्णित करें।

4. "पोस्ट कार्ड" का उपयोग कर अपने मित्र को परीक्षा में प्रथम श्रेणी में आने पर उसकी उज्ज्वल भविष्य की कामना करते हुए एक अनौपचारिक पत्र लिखे।

5. कोई एक व्यक्ति विशेष का साक्षात्कार लेकर अपनी पुस्तिका में चित्र के साथ वर्णित करे।

1. प्रिय शिक्षक
2. मेरे आदर्श भाई
3. मेरे बचपन का मित्र
4. मेरे पिता की सफलता की यात्रा।

SUMMER ASSIGNMENTS
SESSION 2025 -26
CLASS XI
SUBJECT: PHYSICS

A) Write the following Experiments and Activities in your Physics Practical File:

SECTION (A)

1. To measure the diameter of small spherical / cylindrical body using vernier Callipers.
2. To measure the internal diameter and depth of given beaker using vernier Callipers and hence find its volume.
3. To the diameter of a wire using screw gauge.
4. To measure the thickness of the given sheet using screw gauge.

Activity-(A)

- (i) To study the variation in range of projectile with angle of projection
- (ii) To study the dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time.

SECTION (B)

1. To determine the radius of curvature of given spherical surface by a spherometer.
2. To find the weight of given body using parallelogram law of vectors.
3. To find the force constant of helical spring by plotting a graph between load and extension.
4. To study the relationship between temperature of the hot body and time by plotting a cooling curve

Activity-(B)

- (i) To note the change in the level of the liquid in a container on heating and interpret the observations.
- (ii) To study the effects of detergents on surface tension of water by observing capillary rise
- (iii) To study the factors affecting the rate of loss of heat of liquid

B) Prepare an **observatory project with minimum 25 pages (Hand written) on the topic allot to you**

Sanmati Higher secondary school, Indore

Session : 2025-26, Class-XI

Summer Assignment : Chemistry

Dear Students,

During the summer vacation, You are required to complete following 2 objectives :

- 1.) Complete the 4 practicals in your practical diary we are done so far.
 - a) Preparation of standard solution of M/10 Sodium carbonate.
 - b) Preparation of standard solution of M/20 Oxalic acid.
 - c) Determination of strength of a given solution of hydrochloric acid by titrating it against M/10 standard Sodium Carbonate solution.
 - d) Determination of strength of a given solution of Sodium hydroxide by titrating it against standard solution of M/20 Oxalic acid.

Note : Kindly take care , Start new experiment from a new page after completing every experiment. Diagrams, Observation Table and Calculations should be on the unruled page rest on the ruled side. File should be neatly complete and clean with covered and labelled. Date of experiment and date of submission, will be written during regular classes.

2.) Prepare an investigatory project on any one topic of the following :

- A. Chemistry Project on Content of Bone Ash
- B. Chemistry Project on Measurement of Acetic Acid in Vinegar
- C. Chemistry Project on Determination and Extraction of Caffeine in Multiple Tea Samples and Other Edible Items
- D. Chemistry Project on Quantitative Estimation
- E. Chemistry Project on Rusting of Iron
- F. Chemistry Project on Characterization and Purification of Organic Substances
- G. Chemistry Project on **Electrochemical Cell**
- H. Chemistry Project on Food Adulteration
- I. Chemistry Project on Sterilization of Water with Bleaching Powder
- J. Chemistry Project on Setting of Cement
- K. Chemistry Project on Calculating the pH Balance and Change
- L. Chemistry Project on Green Chemistry – Biodiesel and Biopetrol
- M. Chemistry Project on Analysis of Fertilizers
- N. Chemistry Project on Preparation of Potash Alum
- O. Chemistry Project on Diffusion of Solid in Liquid

A.

Physical Education Class 11th & 12th

Summer Assignment

Progression of SAI Khelo India Fitness Test

Dear Athletes/Players,

Summer is the best time to storm your brain as there is no pressure on you and this is the best leisure time for you.

So keeping this in mind, I am sharing with you an assignment on SAI Khelo India Fitness Test.

"SAI Khelo India Fitness Test Summer Assignment"

Aim:

To understand and promote a healthy and fit lifestyle through the practice of SAI Khelo India Fitness Tests during the summer break.

Objectives:

- 1. Build cardiovascular endurance**
- 2. Improve muscular endurance**
- 3. Develop strength**
- 4. Improve flexibility**
- 5. Increase neuromuscular coordination**
- 6. Maintain a healthy body weight**

Instructions:

- 1. Read the SAI Khelo India Fitness Test PDF carefully to understand the tests and procedures.**
- 2. Create a scorecard to track your performance.**
- 3. Perform all tests on Day 1 and record your scores.**
- 4. Practice the tests regularly and update your scorecard every week for 4 weeks.**
- 5. Compare your progress and write a short note on your assignment journey.**
- 6. Submit your final scorecard and reflection in June.**

Precautionary Measures:

- 1. Avoid running in danger areas (e.g., roofs, traffic roads).**
- 2. Avoid exercising if unwell or injured.**
- 3. Avoid exercising after meals; maintain a 2.5-3 hour gap after heavy meals.**
- 4. Practice with proper techniques as suggested in the PDF.**
- 5. Gradually progress your exercises.**
- 6. Avoid overexertion.**
- 7. Maintain a healthy diet.**

Benefits:

This assignment will help you develop a consistent fitness routine, track your progress, and understand the importance of physical fitness in maintaining a healthy lifestyle. It will also improve your sports performance.

PRACTICALS

Time: 03 Hours

Max. Marks: 30

Evaluation Scheme		Marks
One Major Experiment Part A (Experiment No- 1,3,7,8)		5 Marks
One Minor Experiment Part A (Experiment No- 6,9,10,11,12,13)		4 Marks
Slide Preparation Part A (Experiment No- 2,4,5)		5 Marks
Spotting Part B		7 Marks
Practical Record + Viva Voce	(Credit to the student's work over the academic session may be given)	4 Marks
Project Record + Viva Voce		5 Marks
Total		30 Marks

A: List of Experiments

1. Study and describe locally available common flowering plants, from family Solanaceae (Poaceae, Asteraceae or Brassicaceae can be substituted in case of particular geographical location) including dissection and display of floral whorls, anther and ovary to show number of chambers (floral formulae and floral diagrams), type of root (tap and adventitious); type of stem (herbaceous and woody); leaf (arrangement, shape, venation, simple and compound).
2. Preparation and study of T.S. of dicot and monocot roots and stems (primary).
3. Study of osmosis by potato osmometer.
4. Study of plasmolysis in epidermal peels (e.g. Rhoeo/lily leaves or flashy scale leaves of onion bulb).
5. Study of distribution of stomata on the upper and lower surfaces of leaves.

6

-
6. Comparative study of the rates of transpiration in the upper and lower surfaces of leaves.
 7. Test for the presence of sugar, starch, proteins and fats in suitable plant and animal materials.
 8. Separation of plant pigments through paper chromatography.
 9. Study of the rate of respiration in flower buds/leaf tissue and germinating seeds.
 10. Test for presence of urea in urine.
 11. Test for presence of sugar in urine.
 12. Test for presence of albumin in urine.
 13. Test for presence of bile salts in urine.

B. Study and Observe the following (spotting):

1. Parts of a compound microscope.

Scanned by CamScanner

Scanned by CamScanner

Scanned by CamScanner

Summer Assignment

Subject: Artificial Intelligence

Class: 11

Topic: Traffic Jam Due to Roadside Parking

Based on: AI Project Cycle

1. Problem Scoping – Understanding the Issue

What is the main problem you're trying to solve?

How does roadside parking contribute to traffic jams in your area or city?

Who are the people affected by this problem?

What is your goal in solving this issue?

What would a successful solution look like?

2. Data Acquisition – Collecting the Right Information

What kind of data would help you understand the problem better?

Where can you find data related to traffic flow and parking patterns?

What tools or methods will you use to collect or simulate this data?

Are there any existing public datasets or APIs you can explore?

3. Data Exploration – Analyzing the Data

What patterns do you notice in the data collected?

Which areas seem to have the most traffic due to roadside parking?

Are there specific times of the day/week when traffic is worse?

Can you visualize this data using graphs or charts?

4. Modelling – Building a Solution

What kind of AI model can you create or simulate to solve this problem?

Will your model predict traffic, suggest alternative parking, or notify authorities?

Which AI concepts (e.g., classification, prediction) can be applied here?

How can you demonstrate your solution in a simple way (flowchart, scratch, Teachable Machine)?

5. Evaluation – Judging the Effectiveness

How will you know if your solution is successful?

What improvements do you expect if your model is applied?

How will it benefit commuters, traffic authorities, and the environment?

What challenges might you face while implementing your idea?

Submission Guidelines

Prepare a neat handwritten or digital report with your answers.

Add graphs, visuals, or mock screenshots wherever possible.

Submit in a file or presentation format.

Sanmati Higher Secondary School
PA-1 Computer Science Preparation Worksheet
Total Questions: 50

MCQs (1 mark each)

1. Which of the following is not an input device?
a) Scanner b) Mouse c) Monitor d) Keyboard
 2. Which type of memory is volatile in nature?
a) ROM b) DVD c) RAM d) Blu-ray
 3. What is the full form of ALU?
a) Arithmetic Logic Unit b) Algorithmic Logical Unit c) Arithmetic List Unit d) None of the above
 4. Which is an example of application software?
a) MS Word b) BIOS c) Compiler d) Disk Defragmenter
 5. Which of the following is not utility software?
a) Antivirus b) Disk Cleaner c) MS Word d) Disk Defragmenter
 6. What kind of memory is used to store BIOS?
a) ROM b) RAM c) DRAM d) Cache
 7. Which port is used to connect flash drives?
a) PS/2 Port b) Serial Port c) USB Port d) IR Port
 8. Which operating system is not a real-time OS?
a) Linux b) Windows CE c) VxWorks d) Palm OS
 9. What does GUI stand for?
a) General User Interface b) Graphical User Interface
c) Guide User Interface d) General Utility Interface
 10. Which device is known as the brain of the computer?
a) Mouse b) RAM c) CPU d) Monitor
-

Assertion and Reasoning (1 mark each)

11. A: A mouse is used as a pointing device in GUI.
R: GUI is based on text command inputs.
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. A: Cache memory stores data temporarily.
R: It is slower than secondary memory.
[Options as above]

13. A: ROM is used for temporary data storage.
R: ROM retains data even after power is off.
[Options as above]
14. A: Output devices produce human-readable information.
R: Monitor, printer, speaker are output devices.
[Options as above]
-

Short Answer (2 marks each)

15. Differentiate between System Software and Application Software.
16. What is the difference between RAM and ROM?
17. Write two differences between Primary and Secondary Memory.
18. Define Operating System. Name two functions.
19. What is Cache Memory? Mention one advantage and one disadvantage.
-

Long Answer (4 marks each)

20. Explain the block diagram of a computer system.
21. Describe types of Operating Systems with examples.
22. What are language translators? Name two.
23. Explain types of memory in a computer with examples.
24. Write functions of an Operating System.
-

Boolean Logic / Number System

25. Convert decimal 76 into binary, octal, and hexadecimal.
26. Convert decimal 45 into binary.
27. Convert decimal 90 into octal.
28. Convert decimal 150 into hexadecimal.
29. Write the truth table for XOR gate.
30. Draw logic circuit: $X = AB' + B'C' + ABC$
31. What is a universal gate? Name them.
32. What is De Morgan's first law? Give example.
33. Define the principle of duality in Boolean algebra.
34. Write Boolean expression for NOR gate.

Concept-based / Application-based

35. Difference between system software and utility software.
36. List four input and output devices.
37. What is BIOS? Write its function.
38. Explain GUI and CLI with examples.
39. Define volatile and non-volatile memory.
40. Two uses of Cache memory.
41. Two advantages of utility software.
42. What is the role of device drivers?
43. State use of USB port and IR port.
44. Importance of operating system in computers.

One Word / Fill in the Blanks / Define (1 mark each)

45. Full form of ASCII.
46. Full form of MICR.
47. Example of Interpreter and Compiler.
48. Two characteristics of secondary storage.
49. Difference between touch screen and light pen.
50. Two differences between SRAM and DRAM.

Let me know if you'd like a version with answers as well!

4o

You said:

yes give answer as well

ChatGPT said:

Here are the **answers** to the **50-question Computer Science PA-1 worksheet** for your reference or inclusion in a teacher's copy:

 **Answer Key: PA-1 Computer Science Preparation Worksheet**

MCQs (Q1–10)

1. c) Monitor
 2. c) RAM
 3. a) Arithmetic Logic Unit
 4. a) MS Word
 5. c) MS Word
 6. a) ROM
 7. c) USB Port
 8. d) Palm OS
 9. b) Graphical User Interface
 10. c) CPU
-

Assertion-Reasoning (Q11–14)

11. c) A is true but R is false
 12. c) A is true but R is false
 13. d) A is false but R is true
 14. a) Both A and R are true and R is the correct explanation of A
-

Short Answer (Q15–19)

15.
 - System Software: Controls hardware (e.g., OS like Windows)
 - Application Software: Performs specific tasks (e.g., MS Word)
16.
 - RAM: Volatile, read/write memory
 - ROM: Non-volatile, read-only memory
17.
 - Primary: Fast, temporary (e.g., RAM)
 - Secondary: Slow, permanent (e.g., HDD)
18.
 - OS is system software managing hardware/software
 - Functions: Memory management, device management

19.

- Cache: High-speed memory between CPU and RAM
 - Adv: Fast access Disadv: Expensive & limited
-

Long Answer (Q20–24)

20.

- Block diagram: Input → CPU (CU + ALU + Memory) → Output
- CPU processes data, Memory stores, Input/Output handles user interaction

21.

- Types: Single-user (Windows), Multi-user (UNIX), RTOS (VxWorks), Distributed, etc.

22.

- Translators: Convert code to machine language
- Examples: Compiler, Interpreter, Assembler

23.

- Primary (RAM, ROM), Secondary (HDD, CD), Cache (fastest), etc.

24.

- OS functions: Device management, memory allocation, file handling, user interface
-

Boolean Logic / Number System (Q25–34)

25.

- Binary: **1001100** Octal: **114** Hex: **4C**

26.

- Binary of 45: **101101**

27.

- Octal of 90: **132**

28.

- Hex of 150: **96**

29.

A B XOR

0 0 0

A B XOR

0 1 1

1 0 1

1 1 0

30.

- Use AND, OR, NOT gates to form the expression
- Practice drawing logic gates

31.

- **Universal Gates:** NAND and NOR

32.

- $(A \cdot B)' = A' + B'$
- Example: $(1 \cdot 0)' = 1$, $A'=0$, $B'=1 \rightarrow A'+B' = 1$

33.

- Duality: Swap AND \leftrightarrow OR, 0 \leftrightarrow 1

34.

- $\text{NOR} = (A + B)'$

Concept / Application (Q35–44)

35.

- System Software: Manages system (e.g., OS)
- Utility: Enhances performance (e.g., Disk Cleanup)

36.

- Input: Keyboard, Mouse, Scanner, Light Pen
- Output: Monitor, Printer, Speaker, Projector

37.

- BIOS: Basic Input Output System
- Function: Initializes hardware on startup

38.

- GUI: Uses icons (Windows)
- CLI: Uses commands (DOS)

39.

- Volatile: Loses data on power off (RAM)
- Non-volatile: Retains data (ROM, HDD)

40.

- Stores frequent instructions
- Reduces data fetch time

41.

- Improve security
- Manage memory/storage

42.

- Controls hardware devices like printers, scanners

43.

- USB: Data transfer
- IR: Wireless short-range communication

44.

- OS manages system resources, user interaction, and multitasking

One Word / Fill-ups / Define (Q45–50)

45. **American Standard Code for Information Interchange**

46. **Magnetic Ink Character Recognition**

47. **Compiler: GCC, Interpreter: Python**

48. **Portable, Non-volatile**

49. **Touchscreen detects touch; Light pen is for drawing/selecting**

50.

- SRAM: Faster, uses flip-flops DRAM: Slower, needs refreshing