

A decorative border surrounds the central text, featuring various tropical elements: large green monstera leaves, vibrant orange bird-of-paradise flowers, clusters of small yellow berries, and brown coconuts, some of which are cracked open to show white coconut meat.

MOTHER INDIA PUBLIC SCHOOL  
BAZPUR

- H A P P Y -

Summer Holiday!

ENJOY

[www.mipsbazpur.org](http://www.mipsbazpur.org)

# CLASS – XII SCIENCE (2026-27)

## GUIDELINES

Wishing you a joyful and refreshing summer break!

May this holiday be filled with laughter, discovery, and quality time with loved ones. Take time to relax, explore your interests, and enjoy every moment.

Along with fun, use this time to engage in your holiday homework—designed to spark creativity, deepen understanding, and make learning enjoyable. Complete it with sincerity, originality, and pride.

Stay safe, stay curious, and come back recharged, ready for new beginnings!

## PHYSICS

Instructions.

Project file should contain at least 15 papers of content.

Writing should be neat and clean.

File should be well decorated.

Front paper of file should contain MIPS logo.

Activity video should be of at least 2 minutes.

Explain the main features of your topic in that activity video and perform the activity as well.

Marks distribution.

15 marks for project file.

10 marks for video presentation.

Project file Topics and video topics will send you through WhatsApp group

1 - Sonam Kamboj - Electric field and charge

The Tablecloth Pull: Use a smooth tablecloth and a heavy plate to demonstrate Newton's First Law (Inertia).

2 - Amaan Raza - Electric potential

Paper Bridge Challenge: Use two books and a single sheet of paper. Fold the paper in different ways (corrugated, arched) to see which shape supports the most weight (coins).

3 - Vipul Kumar Mourya - Capacitor and capacitance

Bifilar Pendulum: Hang a ruler by two parallel strings. Observe how it oscillates differently than a single-string pendulum, demonstrating Rotational Dynamics.

4 - Kanishka Sharm - Current electricity

DIY Parachute: Use plastic bags and strings of different lengths to see how surface area affects Terminal Velocity.

5 - Tiya Diwakar - Resistors

Reaction Time Test: Have a friend drop a ruler between your fingers. Use  $D=1/2gt^2$  to calculate your brain's reaction time based on where you caught it.

6 – Darshika - Galvanometer

Balloon Rocket: String a straw across a room, tape a blown-up balloon to it, and release. This perfectly illustrates Action and Reaction.

7 – Umam - Magnetic effect of current

Centre of Mass Magic: Balance a fork and spoon on a toothpick over the edge of a 'glass.

8 - Rashida Praveen - Electromagnetism

Non-Newtonian Fluid: Mix cornstarch and water (Oobleck). It acts like a solid when hit hard and a liquid when touched gently.

9 - Shikha Singh - Magnetic materials

Cartesian Diver: Put a small condiment packet inside a plastic water bottle filled with water. Squeeze the bottle to watch it sink and float as you change the Pressure and Density.

10 - Jashan Gautam - Alternating current

Surface Tension Boat: Cut a small "V" in a cardboard boat and put a drop of dish soap in the notch. The boat will zoom forward as the soap breaks the surface tension.

11 – Uditraj - Electromagnetic waves

The Capillary Action Race: Place one end of a paper towel in coloured water and the other in an empty glass to watch the water climb.

12 - Ayush Joshi - Reflection of light

Floating Needle: Carefully place a sewing needle on the surface of water using a piece of tissue paper to see Surface Tension In action.

13 - Shaziya Khan - Refraction of light

Convection Currents: Drop food colouring into a glass of hot water and a glass of cold water to see how heat affects the Diffusion Rate.

14 - Aksha Khan - Dispersion of light

Sound Visualization: Stretch plastic wrap over a bowl, pour sugar on top, and hum loudly nearby to see the sugar dance to the Sound Waves.

15 - Gurleen Kaur - Interference of light

DIY Doppler Effect: Put a ringing phone in a sock and swirl it in a circle. Listen for the pitch change as it moves toward and away from you.

16 Waseem Ali - Diffraction of light

Water Glass Xylophone: Fill glasses with different levels of water. Tap them to hear how the Resonant Frequency changes with the mass of the water.

17 - Himanshu Singh - Polarization of light

Disappearing Coin: Place a coin under a glass, then fill the glass with water. From the right angle, the coin disappears due to Total Internal Reflection.

18 – Simran - Optical instruments

The Pinhole Camera: Use a cereal box and aluminium foil with a tiny hole to project an inverted image of a bright window onto wax paper.

19 - Lovepreet Singh - Huygens principle

Home-made Rainbow: Use a mirror submerged in a bowl of water at an angle to reflect sunlight onto a white wall, showing Dispersion.

20 - Jagdeep Singh - Structure of atom

polarized Sunglass Test: Take two pairs of polarized sunglasses and rotate one 90° against the other. Watch the light get completely blocked.

21 – Alfisha - Atomic models

Refraction "Broken" Pencil: Place a pencil in a half-filled glass of water and observe the shift at the air-water interface.

22 - Jashanpreet Kaur - Structure of nucleus

Laser Diffraction: Shine a laser pointer through a very fine hair to see the diffraction pattern on the wall, allowing you to calculate the Thickness of the Hair.

23 – Sara - Semiconductors

The Lemon Battery: Insert a zinc nail and a copper wire into a lemon to generate enough Voltage to power a small digital clock.

24 - Mohd. Arbaz - Pn junction diode

Static Electricity Levitation: Rub a PVC pipe with wool and use the static charge to levitate a thin plastic ring.

25 - Harsh Kumar - Rectifiers

DIY Electromagnet: Wrap copper wire around an Iron nail and connect the ends to a battery to pick up paperclips.

26 - Aryan Vardan - Transformers

Magnetic Slime: Mix iron filings into glue and starch slime to see it "reach out" toward a strong magnet.

27 - Avika Agarwal - Current electricity

Faraday Cage: Wrap your phone In aluminium foil and try calling It. The foil blocks the Electromagnetic Signals.

## **CHEMISTRY**

### GENERAL GUIDELINES

Each student must prepare a proper project file including:

1. Cover Page (Title, Student Name, Class, Roll Number, Subject & Session)
2. Certificate & Acknowledgement
3. Index
4. Introduction (1–2 pages): Basic concept and real-life relevance
5. Aim of the Experiment
6. Materials Required
7. Procedure (Stepwise, clear, logical)
8. Observations/Data Table (Minimum 3 readings)
9. Result/Conclusion (Based on observation)
10. Precautions
11. Applications/Real-life connection

### MARKING SCHEME (25 MARKS)

Content Accuracy & Concept Clarity – 6

Procedure & Observation – 5

Analysis & Conclusion – 5

Creativity & Presentation – 4

Practical Understanding (Viva/Originality) – 5

### TOPIC DISTRIBUTION

- 1) Study of the presence of oxalate ions in guava fruit at different stages of ripening. (SONAM, AYUSH, HARSH)
- 2) Study of quantity of casein present in different samples of milk. (AMAAN, SHAZIYA, ARBAZ)
- 3) Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc. (VIPUL, AKSHA)
- 4) Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.) (KANISHKA, GURLEEN)
- 5) Study of digestion of starch by salivary amylase and effect of pH and temperature on it. (TIYA, WASEEM)
- 6) Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.(DARSHIKA, HIMANSHU)
- 7) Extraction of essential oils present in Saunf (aniseed), Ajwain (carom), Illaichi (cardamom). ( UMAM, SIMRAN)
- 8) Study of common food adulterants in fat, oil, butter, sugar, turmeric powder. ( RASHIDA, LOVEPREET, AVIKA)
- 9) To study the presence of Herbicides and pesticides in various fruits and vegetables. (SHIKHA, JAGDEEP, ARYAN)
- 10) Constituents of toothpaste (JASHAN GAUTAM, ALFISHA)
- 11) Study of adulteration in food stuffs. (UDIT RAJ, JASHAN PREET, SARA)

## **ENGLISH**

Handwriting should be neat, readable, and well-spaced.

Each answer should be written In 200–250 words.

Begin each topic on a new page.

Include proper headings and subheadings.

Avoid copying directly from guides or Internet sources. Write in your own language after understanding the text.

Criteria of Marks (Total 25 Marks)

Content Understanding & Interpretation 8

Analytical Thinking & Critical Response 5

Vocabulary, Expressions & Literary devices 4

Organization & Presentation 3

Grammar, Accuracy & Language 3

Creativity & Originality 2

Total = 25 Marks

### Journey to the End of the Earth

1. Analyse how the author uses scientific vocabulary and descriptive expressions to create environmental awareness. How do these expressions influence the reader’s understanding of climate change?

2. Examine the symbolism of Antarctica as a “time capsule.” How does the author connect geological history with the future of humanity?

3. How does the narrative style combine factual information with emotional reflection? Discuss the effectiveness of this literary technique.

4. Analyse the narrator’s perspective toward human civilization after visiting Antarctica. How does isolation shape philosophical thinking?

5. “The world’s ecological balance depends on human responsibility.” Discuss this statement with reference to the chapter and present-day environmental realities.

#### WRITING

You are Rohan/Riya of 24, Green Park, Dehradun. You saw an advertisement in a newspaper for the post of an English teacher at Bright Future School. Write a job application along with your biodata applying for the post.

### The Enemy

1. Analyse how the author uses expressions of silence, fear, and tension to build suspense throughout the story.

2. Examine Dr. Sadao’s character as both a patriot and a humanitarian. How does the conflict between duty and morality shape his decisions?

3. How do literary devices such as irony and contrast strengthen the impact of the story?

4. Analyse the role of Hana in the story. How does her perspective reflect the emotional and social pressures of wartime Japan?

5. “The true enemy of humanity is hatred, not nationality.” Discuss this idea with reference to the story and modern global conflicts.

#### WRITING

You are applying for the post of sports coach in a school. Write a formal application mentioning your achievements in sports, coaching experience, and leadership qualities.

### On the Face of It

1. Analyse how the expressions used by Mr. Lamb reveal his wisdom and positive attitude toward life.

2. How does Derry’s vocabulary and tone reflect his psychological insecurity and loneliness?

3. Examine the symbolic significance of the garden in the play. How does it represent freedom and acceptance?

4. Analyse the contrast between Derry’s perspective and Mr. Lamb’s worldview. What message does the playwright convey through this contrast?

5. “Physical appearance does not define human worth.” Discuss the relevance of this statement in today’s society with reference to the play.

#### WRITING

Write an application for the post of office assistant in a private company. Include your computer knowledge, organizational skills, and ability to work in a team.

### Deep Water

1. Analyse how the author's use of vivid imagery and fearful expressions helps readers experience his trauma psychologically.
2. How does the author transform fear into determination? Examine the psychological journey presented in the chapter.
3. Identify and analyse the literary devices used to describe the drowning experience. How do they intensify emotional impact?
4. How does the chapter explore the relationship between fear and self-confidence?
5. "Courage is not the absence of fear but the ability to overcome it." Discuss this statement with examples from the chapter and real life.

#### WRITING

You saw an advertisement for the post of journalist trainee in a media house. Write a job application describing your writing skills, curiosity about current affairs, and communication abilities.

### The Rattrap

1. Analyse how the metaphor of the "rattrap" becomes a philosophical explanation of human greed and temptation.
2. How does the peddler's language change in different situations? What does this reveal about his personality and emotional state?
3. Examine the role of Edla's kindness in transforming the peddler. How does the author present compassion as a redemptive force?
4. Analyse the use of irony in the story. How do mistaken identities contribute to the plot and themes?
5. "The world becomes better through empathy and trust." Discuss this idea with reference to the story and present-day society.

#### WRITING

You wish to apply for the position of customer care executive in a telecom company. Write a job application highlighting your speaking skills, patience, and problem-solving abilities.

### Indigo

1. Analyse how the author uses simple yet powerful language to portray Mahatma Gandhi's leadership qualities.
2. How do expressions related to fear and courage reflect the social condition of the peasants in Champaran?
3. Examine the significance of Rajkumar Shukla's persistence. How does his character represent determination and social awakening?
4. Analyse the literary style of the chapter as both historical documentation and inspirational narrative.
5. "Real leadership empowers people to become self-reliant." Discuss this statement with reference to Gandhi's work in Champaran and modern leadership ideals.

#### WRITING

You are Karan/Karuna of 18, Raj Nagar, Delhi. Write an application for the post of librarian in a public school. Mention your educational qualifications and interest in books and organization.

### Poets and Pancakes

1. Analyse how humour and satire are used to present the film industry in a realistic manner.
2. How does the author's observational style contribute to the authenticity of the narrative?
3. Examine the symbolic significance of "pancake makeup" in the chapter. What does it reveal about artificiality in cinema?
4. Analyse the character sketches presented in the essay. How do they reflect human ego, ambition, and insecurity?
5. "The glamour of the film world often hides deeper realities." Discuss this statement with reference to the chapter and contemporary media culture.

#### WRITING

You are Aman/Aditi, a computer graduate. You came across a vacancy for the post of a software trainee at Tech Vision Pvt. Ltd., Noida. Write a formal job application with biodata.

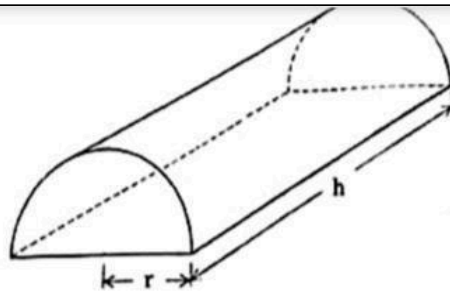
## Mathematics

### Worksheet – I (Relations and Functions)

- 1- If  $A = \mathbb{R} - \{3\}$  and  $B = \mathbb{R} - \{1\}$ , consider the function  $f: A \rightarrow B$  defined by  $f(x) = (x-2)/(x-3)$ , for all  $x \in A$ . Then show that  $f$  is bijective.
- 2- Show that the function  $f$  in  $A = \mathbb{R} - \{2/3\}$  defined as  $f(x) = (4x+3)/(6x-4)$ , is one-one and onto.
- 3- If  $Z$  is the set of all integers and  $R$  is the relation on  $Z$  defined as  $R = \{(a, b) : a, b \in \mathbb{Z} \text{ and } a - b \text{ is divisible by } 5\}$ . Prove that  $R$  is an equivalence relation.
- 4- Show that the relation  $R$  in the set  $A = \{1, 2, 3, 4, 5\}$  given by  $R = \{(a, b) : |a-b| \text{ is divisible by } 2\}$  is an equivalence relation. Write all the equivalence classes of  $R$ .

### Worksheet – II (Matrices and Determinants)

- 1- If  $A$  and  $B$  are two square matrices each of order 3 with  $|A| = 3$  and  $|B| = 5$ , then  $|2AB|$  is :  
A. 30                      B. 120                      C. 225                      D. 15
- 2- If  $\begin{vmatrix} 2x & 5 \\ 12 & x \end{vmatrix} = \begin{vmatrix} 6 & -5 \\ 4 & 3 \end{vmatrix}$ , find the value of  $x$ .
- 3- If  $A$  is any square matrix of order  $3 \times 3$  such that  $|A| = 3$ , Then the value of  $|adjA|$  is  
(a) 3                      (b) 13                      (c) 9                      (d) 27
- 4- If for any square matrix  $A$ ,  $A(adjA) = \begin{bmatrix} 6 & 0 \\ 0 & 6 \end{bmatrix}$  then value of  $|A|$   
(a) 3                      (b) 6                      (c) 8                      (d) 15.
- 5- If  $A$  and  $B$  are symmetric matrices, show that  $AB + BA$  is symmetric and  $AB - BA$  is skew symmetric
- 6- If  $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ , show that  $A^2 - 5A + 7I = 0$
- 7- If  $A = \begin{bmatrix} 2 & 1 & -3 \\ 3 & 2 & 1 \\ 1 & 2 & -1 \end{bmatrix}$ , find  $A^{-1}$ . Using the inverse, solve the system of linear equations  $2x + y - 3z = 1$ ;  $3y + 2z = 1$ ;  $x + 2y - z = 3$ .



- (i) If  $r$ ,  $h$  and  $V$  are radius, length and volume respectively of the half cylinder, then find the total surface area function  $S$  of the half cylinder in terms of  $V$  and  $r$ .
- (ii) For the given volume  $V$ , Find the condition for the total surface area  $S$  to be minimum.
- (iii) Use second derivative test to prove that Surface area is minimum for given volume.

**OR**

- (iii) Find the ratio  $h : 2r$  for  $S$  to be minimum.

**37. Case-Study 2:**

The use of electric vehicles will curb air pollution in the long run.



The use of electric vehicles is increasing every year and the estimated number of electric vehicles in use at any time  $t$  is given by the function  $V$ :

$$V(t) = \frac{1}{5}t^3 - \frac{5}{2}t^2 + 25t - 2$$

where  $t$  represents the time and  $t = 1, 2, 3, \dots$  corresponds to the years 2001, 2002, 2003, ..... respectively.

Based on the above information, answer the following questions:

- (i) Can the above function be used to estimate the number of vehicles in the year 2000? Justify.
- (ii) Prove that the function  $V(t)$  is an increasing function.

**18** On the inauguration day of a new showroom, a lucky draw was organized and some vouchers of ₹ 1,000 and ₹ 500 were given to the lucky draw winners.



A total of 60 vouchers were given on the day. The number of ₹ 1,000 vouchers added to 3 times the number of ₹ 500 vouchers, gives 100.

Express the given information as a system of linear equations in two

- 18 On the inauguration day of a new showroom, a lucky draw was organized and some vouchers of ₹ 1,000 and ₹ 500 were given to the lucky draw winners.



A total of 60 vouchers were given on the day. The number of ₹ 1,000 vouchers added to 3 times the number of ₹ 500 vouchers, gives 100. Express the given information as a system of linear equations in two variables. Hence, find the number of vouchers of each type by matrix method.

- 19 A carpenter needs to design a wooden box in the shape of a cuboid such that the sum of its length and breadth is 3 cm more than its height. Twice of its length, thrice of its breadth and its height add up to 10 cm. Its breadth added to 7 times its height is 1 cm less than 3 times its length.

On the basis of the above information, answer the following questions :

- (i) Write the equations representing the various dimensions and express them as the matrix equation  $AX = B$ . 1
- (ii) Find if  $A^{-1}$  exists. Justify your answer. 1
- (iii) (a) Find  $A^{-1}$ . 2
- OR**
- (iii) (b) Find  $A^2 + 7I$ . 2

## BIOLOGY

CBSE Board Examination Preparation Assignment)

Student's Name : \_\_\_\_\_

Class & Section : \_\_\_\_\_

Roll Number : \_\_\_\_\_

Submission Date : \_\_\_\_\_

“Learn Creatively, Prepare Smartly for Boards!”

Dear Students,

This holiday assignment has been specially designed according to the CBSE Board Examination Pattern 2027. The activities included here will strengthen your:

1. NCERT understanding
2. Diagram practice
3. Competency-based learning
4. HOTS solving ability
5. Assertion–Reasoning skills
6. Answer writing skills

#### CHAPTERS INCLUDED

- Sexual Reproduction in Flowering Plants
- Human Reproduction
- Reproductive Health
- Principles of Inheritance and Variation
- Molecular Basis of Inheritance

#### GENERAL INSTRUCTIONS

Use an A4 size file/project folder.

All work should be handwritten.

Draw neat labelled diagrams using pencil and colours.

Write answers in CBSE Board format.

Highlight important keywords and headings.

Add flowcharts, tables, and mind maps wherever possible.

Maintain proper index and page numbering.

Submit the assignment on time.

SECTION – A

NCERT MASTER WORKSHEET

Q1. Prepare Mind Maps

Prepare colourful mind maps for all five chapters including:

Important terms

Key processes

Flowcharts

Genetic ratios

Important scientists

(One mind map for each chapter)

Q2. Important Diagram Practice

Draw and label the following diagrams neatly:

Sexual Reproduction in Flowering Plants

Structure of Anatroous Ovule

Structure of Mature Embryo Sac

T.S. of Anther

Double Fertilization

Human Reproduction

Male Reproductive System

Female Reproductive System

Spermatogenesis

Oogenesis

Principles of Inheritance and Variation

Monohybrid Cross

Dihybrid Cross

Pedigree Symbols

Molecular Basis of Inheritance

DNA Double Helix

Lac Operon

DNA Replication Fork

SECTION – B

PREVIOUS YEAR QUESTIONS (PYQs)

Chapter 1 – Sexual Reproduction In Flowering Plants

Explain double fertilization in angiosperms.

Differentiate between self-pollination and cross-pollination.

Describe the structure of microsporangium with labelled diagram.

What is emasculation? Why Is it important In hybridization?

Explain the development of male gametophyte.

Differentiate between albuminous and non-albuminous seeds.

Explain the structure of anatropous ovule.

Why is pollen grain considered a rich source of nutrients?

Explain syngamy and triple fusion.

Describe outbreeding devices in flowering plants.

HOTS Questions

Why do wind-pollinated flowers produce a large amount of pollen grains?

Explain why self-pollination may reduce genetic variation in plants.

A farmer wants higher crop yield. Which type of pollination would you recommend and why?"

Why is double fertilization considered a unique feature of angiosperms?

Predict what would happen If synergids were absent in the embryo sac.

Chapter 2 – Human Reproduction

Draw a labelled diagram of male reproductive system.

Explain spermatogenesis in humans.

Describe menstrual cycle in human female.

Explain the structure and functions of placenta.

Differentiate between spermatogenesis and oogenesis.

Describe fertilization and implantation in humans.

Explain the role of hormones In menstrual cycle.

What are the functions of testes and ovaries?

Explain parturition and lactation.

Draw labelled diagram of female reproductive system.

HOTS Questions

Why does fertilization normally occur only In the ampullary-isthmic junction?

Explain why pregnancy does not occur during every menstrual cycle.

What may happen If LH hormone Is not released during ovulation?

Why are millions of sperms released although only one fertilizes the ovum”

Explain the importance of placenta for foetal development.

Chapter 3 – Reproductive Health

What is reproductive health”

Explain different methods of contraception.

Write causes and prevention of AI'S.

Differentiate between STDs and STIs.

Explain the role of amniocentesis and why Is it banned?

What are the causes of population explosion”

Explain MTP and its significance.

Describe ART techniques used In infertility treatment.

Explain the importance of sex education.

Write preventive measures against drug and alcohol abuse.

HOTS Questions

Why is awareness considered the best prevention against STDs?

Explain how illiteracy contributes to population explosion.

Why is sex education important at adolescent stage?

Explain why ART techniques are becoming more common today.

Why is medical supervision necessary during contraceptive use?

## Chapter 4 – Principles of Inheritance and Variation

State Mendel's Law of Segregation.

Explain monohybrid cross with phenotypic ratio.

Explain incomplete dominance with suitable example.

Differentiate between homozygous and heterozygous.

What is pedigree analysis?"

Explain sex determination in humans.

Differentiate between linkage and recombination.

Explain chromosomal theory of inheritance.

What is codominance? Explain with example.

Describe inheritance pattern of haemophilia.

### HOTS Questions

Why are males more commonly affected by haemophilia?

Explain how Mendel's laws apply in modern genetics.

Why are linked genes inherited together?

Predict the offspring ratio in a cross between heterozygous tall plants.

Explain why pedigree analysis is useful in genetic counselling.

## Chapter 5 – Molecular Basis of Inheritance

Draw and explain Watson and Crick model of DNA.

Explain semiconservative replication of DNA.

Differentiate between DNA and RNA.

Explain transcription in prokaryotes.

Describe the lac operon model.

What is genetic code?" State its features.

Explain DNA fingerprinting technique.

Differentiate between replication and transcription.

Describe translation process in protein synthesis.

Why is DNA considered a better genetic material than RNA?

### HOTS Questions

Why is thymine present In DNA but absent In RNA?

Explain why DNA replication Is called semiconservative.

Predict the effect If histone proteins are absent In chromosomes.

Why is genetic code called universal”

Explain how DNA fingerprinting helps In forensic science.

SECTION – C

SPECIAL BOARD PREPARATION TASKS

1. NCERT Line Practice

Write and learn:

Definitions

NCERT statements

Important differences

Scientific terms

2. Frequently Asked Topics File

Prepare short notes on:

Double Fertilization

Menstrual Cycle

Mendel’s Laws

DNA Replication

Lac Operon

Pedigree Analysis

IVF Technique

AIDS and STDs

3. Competency-Based Learning

Prepare:

5 Case Studies

5 Diagram-Based Questions

5 Assertion–Reason Questions

With answers.

## ASSESSMENT SCHEME



Criteria

Marks

Content Accuracy.	05
Board-Oriented Preparation.	05
Creativity & Presentation	05
Diagrams & Flowcharts	05
Neatness & Timely Submission.	05
Total:-	25 Marks

## TEACHER'S MESSAGE

“Board examination success depends on strong NCERT concepts, regular practice, and smart revision.”

 Complete the assignment sincerely and strengthen your preparation for CBSE Board Examination 2027. 

Designed by:- Mr. A. Hassan

(PGT-Biology)

## HOME SCIENCE

### 1.PRACTICAL (15)

Aim

Preparation and use of one teaching aid to communicate socially relevant messages for children/ adolescent /adults In the community.

Suggestions for Students: It can be chart, poster, PPT, leaflet, Pamphlet. Puzzles can also be made out of drawings that are taken fro' the newspaper or magazines. Cut pictures can also be used to make a scrap book with ”ut pictures and drawings. Some ideas fo' scrap books are a collection called my family, or ”y school, or my neighborhood, village. Pictures of fruits, animals, household objects, natural things, can be used for several activities like these.

Assessment criteria

Content: - 5

Presentation: - 5

Authentication: - 5

### 1.Practical (10)

AIM: Preparation of one article of each using applied textile design technique (Tie and Dye). For example: - Handkerchief, Dupatta, Table cloth, Saree, Curtains (set of 2).

Task: Learning the different techniques of tie and dye

Some of the techniques are described below:

Knotting: It is one of the easiest and quickest ways of producing the design. Knots can be tied in several ways depending on the size, shape and grain of the fabric. The test results are achieved on fine fabric. It creates shaded circular patterns.



Knotting method

Binding method

Binding: Certain parts of fabric are bound very tightly with thread before dyeing. Binding can be done in the form of a dot, a band, line, criss-cross or spiral. Designs are like stripes – straight or diagonal (lehria), circles or spots (bandhej).

Assessment criteria

Article making: - 5

Article design: - 3

Article presentation: - 2

## HINDI

ग्रीष्मकालीन अवकाश हेतु गृहकार्य

कक्षा :- 12

विषय :- हिंदी

1. रचनात्मक कार्य

• किसी एक विषय पर प्रोजेक्ट फाइल बनाएं (शब्द सीमा लगभग 500 शब्द ):

क) “भारतीय संस्कृति और युवा पीढ़ी”

ख) “हिंदी भाषा का महत्व”

ग) “जल संरक्षण”

• प्रोजेक्ट में शामिल करें:

• चित्र / चार्ट

• तथ्य और उदाहरण

• स्वयं के विचार

2) ग्रीष्मकालीन अवकाश में 3-4 प्रेरणादायक हिंदी फिल्म या कहानी देखकर:

• उसका सार लिखें

• उससे मिली सीख लिखें

• फिल्म निर्माण की कुछ प्रमुख विशेषता लिखिए

## INFORMATION TECHNOLOGY

• Solve attached Board Question Paper in your Fair notebook.

• Project work/file:

Guidelines:

The file should consist of Introduction page, Acknowledgement page, Index, and Query and Programming pages.

Get print of 15 Java Codes with their outputs.

Get print out of 15 RDBMS Queries with their output.

Question Paper is attached below in the next page:

**General Instructions :**

- (i) Please read the instructions carefully.
- (ii) This question paper consists of **24** questions in **two** Sections : **Section A** and **Section B**.
- (iii) **Section A** has Objective Type Questions, whereas **Section B** contains Subjective Type Questions.
- (iv) Out of the given  $(6 + 18) = 24$  questions, a candidate has to answer  $(6 + 11) = 17$  questions in the allotted (maximum) time of 3 hours.
- (v) All questions of a particular section must be attempted in the correct order.
- (vi) **Section A : Objective Type Questions (30 marks) :**
- (a) This section has **6** questions.
- (b) There is no negative marking.
- (c) Do as per the instructions given.
- (d) Marks allotted are mentioned against each question / part.
- (vii) **Section B : Subjective Type Questions (30 marks) :**
- (a) This section has **18** questions.
- (b) A candidate has to do **11** questions.
- (c) Do as per the instructions given.
- (d) Marks allotted are mentioned against each question / part.

**SECTION A**

**(Objective Type Questions)**

**(30 Marks)**

1. Answer any **4** out of the given **6** questions on Employability skills.  $4 \times 1 = 4$

(i) In the acronym 'SMART' to set goals, the letter 'A' implies

\_\_\_\_\_.

(ii) In which year did the Government of India launch the National Action Plan on Climate Change (NAPCC) ?

- (A) 2005
- (B) 2008
- (C) 2010
- (D) 2012



- (iii) Which of the following best describes active listening ?
- (A) Listening passively without responding
  - (B) Hearing words without comprehension
  - ✓(C) A process of comprehending and offering support to the speaker
  - (D) Interrupting the speaker to share your experiences
- (iv) A workbook in a spreadsheet refers to :
- (A) A single document only
  - ✓(B) A spreadsheet with one or more worksheets
  - (C) A rectangular box where a row and a column meet
  - (D) The toolbar of the software application
- (v) Why are interpersonal skills important for an entrepreneur ?
- (A) They enable effective collaboration and teamwork.
  - (B) They help in managing finances efficiently.
  - (C) They improve technical knowledge.
  - (D) They ensure personal hobbies are pursued.
- (vi) Which personality trait is characterized by anxiety, self-doubt, depression and excessive worrying ?
- (A) Extraversion
  - (B) Agreeableness
  - (C) Openness
  - (D) Neuroticism

2. Answer any 5 out of the given 7 questions.

5×1=5

(i) Fill in the blank :

The number of attributes in a relation is called the \_\_\_\_\_ of a relation.

- (A) Degree (B) Cardinality  
(C) Tuple (D) Domain

(ii) Write the output of the following Java code :

```
public class JavaProg
{
    public static void main(String[] args)
    {
        String myStr = "Digital-India ";
        System.out.println(myStr.concat("Mission"));
    }
}
```

(iii) In a relational database, when the value of an attribute in a tuple is not known, not available or not applicable, which special value is used to represent it ?

- (A) ZERO (B) SPACE  
(C) NULL (D) DEFAULT

(iv) Define e-Governance.

(v) Which of the following is **not** an advantage of using a DBMS ?

- (A) Reduction in data redundancy  
(B) Improved data consistency  
(C) Improved data availability  
(D) Increased data duplication

(vi) Mention one example of any web-based application.

(vii) Which of the following is an invalid variable name in Java ?

- (A) product\_1 (B) marks  
(C) sales123 (D) total-Marks

3. Answer any 6 out of the given 7 questions.

6×1=6

- (i) Which of the following operators in Java is used to compare two values for equality ?
- (A) = (B) ==  
(C) != (D) >
- (ii) Which of the following is **not** a feature of a project ?
- (A) A project is complete when its end objectives are achieved.  
(B) A project requires infinite resources.  
(C) A project has a beginning and an end.  
(D) A project has specific objectives.
- (iii) Which of the following best describes webinars ?
- (A) Pre-recorded video courses  
(B) Text-based documents  
(C) Real-time lectures with opportunities to ask questions  
(D) Interactive games for learning
- (iv) Which loop in Java executes at least once even when the condition is **False** ? Do-while
- (v) What is a major benefit of online learning ?
- (A) It only teaches how to use software.  
✓ (B) It allows learners to study at their own location, time and pace.  
(C) It discriminates students on the basis of age, caste and qualification.  
(D) It is only available in regional languages.
- (vi) How many **bits** of memory does a **short** type variable use in Java ?
- (vii) State whether the following statement is True or False :

The following SQL command is used to delete a relation/table from a relational database.

**DELETE TABLE STUDENT;**



- (v) In Java, which of the following statements is correct about exception handling ?
- (A) A **catch** block can exist without a **try** block.
  - (B) Multiple **catch** blocks can follow a **try** block to handle different types of exceptions.
  - (C) The **finally** block is executed only if an exception occurs in the **try** block.
  - (D) If no exception occurs in the **try** block, the corresponding **catch** block is executed.
- (vi) Which of the following is an application of Database Management Systems (DBMS) ?
- (A) Storing students' academic records
  - (B) Creating digital paintings
  - (C) Playing audio and video files
  - (D) Writing fictional stories

5. Answer any 5 out of the given 6 questions.

5×1=5

- (i) What do you understand by methods in Java ?
- (ii) What is the purpose of **WHERE** clause in SQL ?
  - (A) It adds a new column to a table.
  - (B) It filters rows on the basis of condition.
  - (C) It sorts the rows in ascending or descending order.
  - (D) It renames columns of the table.
- (iii) Mention the expanded form of IDE in the context of programming.
- (iv) Which SQL command is used to modify the attribute values of one or more tuples in a table ?
  - (A) **INSERT**
  - (B) **UPDATE**
  - (C) **DELETE**
  - (D) **SELECT**

(v) Which of the following statements is true about the **switch** statement in Java ?

(A) The **switch** statement is used to execute a block of code based on the value of an expression.

(B) The **break** statement is optional and has no effect on the execution of a **switch**.

(C) If no **case** matches, the program generates an error.

(D) A **switch** can have only one **case** statement.

(vi) Which of the following correctly describes online shopping ?

(A) Customers can buy only books and electronics over the Internet.

(B) Customers can browse items online, place them in a virtual basket and make payment.

(C) Customers can shop online, but must pay only in cash at delivery.

(D) Customers can select items online, but cannot have them delivered.

6. Answer any 5 out of the given 6 questions.

5×1=5

(i) Which of the following is known as the National Portal of India ?

(A) [www.india.gov.in](http://www.india.gov.in)

(B) [www.irctc.co.in](http://www.irctc.co.in)

(C) [www.goidirectory.nic.in](http://www.goidirectory.nic.in)

(D) [www.w3schools.com](http://www.w3schools.com)

(ii) Which of the following statements is true about using the **RESTRICT** option while dropping a column in SQL ?

(A) The column is dropped even if it is referenced in other tables.

(B) The column cannot be dropped if it is being referenced in other tables.

(C) The column is renamed instead of being dropped.

(D) The column is dropped along with all dependent objects automatically.

- (iii) In Java, which operator is used to access the data members and method members of an object ?
- (A) equal (=) operator (B) plus (+) operator  
(C) dot (.) operator (D) comma (,) operator
- (iv) Which SQL clause is used to sort data in ascending or descending order ?
- (A) Order By (B) Sort By  
(C) Group By (D) Arrange By
- (v) In the Requirement Definition Phase of a Web Application Project, defining the scope involves :
- (A) Designing the user interface  
(B) Listing features, goals, and project limitations  
(C) Writing and testing code  
(D) Deploying and managing the website
- (vi) Consider the Java statement `Book book1 = new Book ();` where `Book` is a class. What is the role of the `new` keyword in the statement ?

### SECTION B

(Subjective Type Questions)

(30 Marks)

Answer any 3 out of the given 5 questions on Employability skills. Answer each question in 20 - 30 words.

3×2=6

7. "Listening skill is one of the most important skills in communication."  
Mention any two points to support this statement. 2
8. Mention the steps to start LibreOffice Calc in Windows Operating System. 2
9. Define green jobs and state any one benefit of green jobs. 1+1=2
10. Write two benefits of having a positive attitude. 2
11. Write any two benefits of goal setting by an entrepreneur. 1+1=2

Answer any 3 out of the given 5 questions in 20 – 30 words each.

3×2=6

12. Write the output of the following Java code :

2

```
public class SumClass {  
    public static void main(String[] args) {  
        int x, y, sum;  
        x = 5;  
        y = 5;  
        sum = x + y++;  
        System.out.println("y = " + y);  
        System.out.println("sum = " + sum);  
    }  
}
```

13. Write one similarity and one difference between **CHAR** and **VARCHAR** data types in SQL.

1+1=2

14. Mention any two uses of database management systems in banking sector. if used - string of bond account

1+1=2

15. Write a Java program to perform the following tasks :

2

- Store an employee's basic salary of ₹ 50,000 in a variable named **basicSalary**.
- Calculate the dearness allowance (DA) as 50% of the basic salary and store it in a variable named **allowance**.
- Add the dearness allowance to the basic salary to compute the total salary and store the result in a variable named **totalSalary**.
- Display the value of total salary.

16. (a) Write SQL query to display the list of all the tables stored in a database.

(b) Define Primary Key with respect to DBMS.

1+1=2

Answer any 2 out of the given 3 questions in 30 – 50 words each.

2×3=6

17. Consider the following table **Employee** :

1+1+1=3

Table: **Employee**

EmpID	Name	Department	Salary
101	Rajesh	HR	50000
102	Anjali	IT	60000
103	Suresh	Finance	55000
104	Priya	Marketing	52000

Write the SQL commands to :

- Update the **Name** of the employee with **EmpID** 102 to "Ananya".
- Display the structure of the **Employee** table.
- Add a new column **JoiningDate** of type **DATE** to the **Employee** table.

18. Rewrite the following Java program using **while** loop :

3

```
public class Monuments {  
    public static void main(String[] args) {  
        for (int i = 0; i < 5; i++) {  
            if (i % 2 == 0)  
                System.out.println("Monument-1: Taj Mahal");  
            else  
                System.out.println("Monument-2: Gateway of India");  
            System.out.println("Monuments of India");  
        }  
    }  
}
```

19. A group of students is developing a **Hospital Management System** as their project. Ravi, one of the project members, has been assigned database-related tasks. He needs to create a table named **Patient** with the following schema :

3

Schema: **Patient**(PatientID, PatientName, DateOfBirth)

Note : **PatientID** is a 5-digit number.

Help Ravi by completing the table given below. Write the Attribute Name in the first column and corresponding appropriate Data Type in the second column.

Attribute Name	Data Type

Answer any **3** out of the given **5** questions in 50 – 80 words each.

3×4=12

20. (a) The following Java code contains errors. Rewrite it correctly, clearly underlining all the corrections made :

```
public class JavaProg {  
    public static void main(String[] args) {  
        int a = 0;  
        b = 15;  
        do (  
            a = a + 3;  
            b = b - 3;  
        } While (a <= b)  
    }  
}
```

- (b) What will be the output of the following Java program when executed?

```
public class CalculateN {
    public static void main(String[] args) {
        int n = 0, m = 4;
        for (int i = m + 5; i >= 6; i--) {
            if (i % 3 == 0) {
                n = n + i;
            } else {
                n = n - i;
            }
            System.out.println("n = " + n);
        }
    }
}
```

2+2=4

21. (a) Write any two advantages of using Online Reservation System.  
(b) Mention any two precautions that should be taken while performing Online Transactions. 4
22. Explain the following terms in the context of Java : 4  
(a) **Class**  
(b) **Exception**  
(c) **Array**  
(d) **Constructor**
23. (a) What will be the output of the following Java program when executed?

```
public class StringOperations {
    public static void main(String[] args) {
        String mystring = "JavaProgram";
        System.out.println(mystring.toLowerCase());
        System.out.println(mystring.replace("Java", "Python-"));
    }
}
```

- (b) Write a user-defined Java method `circleArea()` that takes the radius of a circle as input and returns its area. (Note : Take the value of Pi ( $\pi$ ) as 3.14)

2+2=4

24. Consider the following table **STOCK** :

1+1+1+1=4

Table: **STOCK**

ItemNo	ItemName	Dealercode	Qty	UnitPrice
5001	ERASER SMALL	103	120	5
5002	GEL PEN PREMIUM	101	125	25
5003	BALL PEN 0.25	102	150	15
5006	ERASER BIG	103	100	10
5009	BALL PEN 0.5	102	100	10
5015	GEL PEN CLASSIC	101	200	20
5019	SHARPENER CLASSIC	104	110	5

Write SQL queries for the following requirements :

- Retrieve all details of items from the **STOCK** table, sorted in ascending order of **UnitPrice**.
- Display **ItemNo** and **ItemName** for those items in the **STOCK** table whose **Qty** exceeds 102.
- Retrieve all details of items from the **STOCK** table where **Dealercode** is 102 or **UnitPrice** is less than 20.
- Display each **Dealercode** along with the count of **ItemName** supplied by that dealer.

