BIRLA PUBLIC SCHOOL GANGANAGAR

SUMMER BREAK HOLIDAY HOMEWORK

CBSE AFFILIATION NO. 1730974

Session: 2025-26

Class: XII

"An upcoming vacation gives us something to eagerly anticipate."

As the much-awaited summer break is at our doorsteps, hope you have planned to spend time with family, explore new ideas, add value to your household and community. While every child deserves their time to relax and recover from the stresses of school, it is also important not to let grains of time pass aimlessly. To keep your brain occupied your teachers have created a homework pack incorporating activities that will help stretch your imagination, unravel creativity, and crystalize learnt concepts.

General Instructions:

Welcome to your English holiday homework plan! This plan is designed to keep you engaged and learning during the break while exploring various aspects of English literature and language. Here are the instructions and guidelines for completing your holidays homework:

- Review the weekly tasks and instructions provided. Make what is expected of you for each assignment.
- Keep track of deadlines, materials needed for each task, and any additional resources provided. Organization will help you manage your time effectively and produce high-quality work.
- Approach each task with enthusiasm and creativity. Take the opportunity to explore new ideas, express yourself through writing, and analyze literature from different perspectives.

- If you have any questions or need clarification on any aspect of the homework plan, don't hesitate to reach out to your teacher or classmates for assistance.
- Take time to reflect on you progress and the skills you've developed throughout the holiday homework period. Consider what you've learned and how you can apply it in the future.
- Ensure that your final presentation is well-organized, clear, and reflects the effort you've put into each task. Pay attention to details such as spelling, grammar, and presentation format.
- Importantly, enjoy the process of learning and exploring new topics in English literature and language. Use this opportunity to deepen your understanding and appreciation of the subject.

Section A: Letter & Notice Writing

Formal Letter Writing Topics

Write any one formal letter in about 150–200 words. Use proper format and tone.

1. Write a letter to the editor of a local newspaper, expressing your concern about the increasing air pollution in your city. Suggest measures the government should take to reduce pollution and improve air quality for the health and safety of residents.
2. Write a letter to the librarian of your school requesting an extension of the library hours. Explain why the current timing is inconvenient for students who need more time to study or complete assignments.
3. Write a letter to your school principal requesting permission for an educational trip to a nearby museum or historical site. Explain the educational value of the trip and how it aligns with the curriculum.
4. Write a letter to the transportation department of your city complaining about the inadequate public transport services. Provide specific examples, such as delayed buses or overcrowded trains, and suggest improvements to enhance the service.
5. Write a letter to a company where you recently purchased an electronic device, explaining that the product is defective. Provide details about the defect, mention the warranty, and request a refund or a replacement.

Notice Making Topics

Write notices of 50 words each. Be formal and to the point.

1. Prepare a notice to the school community about a new initiative to promote sustainability and green practices. The notice should include information about upcoming activities such as tree plantation drives, recycling programs, and how students can contribute to making the school more eco-friendly. Encourage participation and suggest ways everyone can reduce their carbon footprint.
2. Draft a notice announcing the launch of a student-run initiative aimed at raising awareness about mental health in the school. This should include details of workshops, expert talks, and student-led campaigns to reduce stigma surrounding mental health issues. Encourage students to attend and take part in the discussions and events.
3. Write a notice informing the school about an upcoming emergency preparedness drill, where students will practice responding to natural disasters, fire evacuations, and other emergency situations. The notice should explain why such drills are necessary, outline the steps to follow during an emergency, and highlight safety measures the school is taking to ensure the well-being of all students and staff.
4. Prepare a notice about a digital literacy program that will be introduced at the school, aiming to equip students with necessary skills such as coding, online communication, and cybersecurity. The program should be in response to the growing need for digital competencies in modern job

markets. Include registration details, the program schedule, and highlight the importance of adapting to the digital world.

5. Write a notice informing the students about an upcoming International Cultural Exchange Program where students from your school will collaborate with students from different countries. The focus will be on discussing and understanding global issues like climate change, cultural diversity, and social justice. Encourage students to apply and mention how they can contribute to meaningful discussions and cultural exchanges.

Creative & Art-Integrated Activities: Assam Theme

Prepare creative project to integrate art and culture into your learning. You may use handmade drawings, printed pictures, or digital tools:

Week 1: Genre Exploration

Day 1: Discover a Genre

Task: Choose a literary genre you've never explored before.

Clue:

- **If you enjoy adventures, consider diving into magical realism, where the ordinary meets the fantastical in everyday life.**
- **Explore options:** Research different literary genres to find one you've never explored.
- **Learn about the genre:** Read about the origins and key characteristics of the genre.
- **Choose a book:** Select a book that is often cited as a defining example of the genre.
- **Start reading:** Begin reading the chosen book to familiarize yourself with the genre's style and themes.
- **Reflect:** Consider how the setting, characters, and plot elements contribute to the genre's unique characteristics.
- **Explore further:** Look for other books, movies, or works of art within the genre to deepen your understanding.
- **Share insights:** Discuss your discoveries with classmates, friends, or family members who share your interest in literature.

Day 2: Research

Task: Research the origins and key characteristics of this genre.

Clue:

- **Look up the first major work published in this genre; what historical or social conditions influenced its development.**
- **Select a topic:** Choose a subject or area of interest to research.
- **Gather information:** Use reliable sources such as books, articles, and websites to gather information about your topic.
- **Take notes:** Take detailed notes on key points, facts, and findings related to your research.
- **Organize your findings:** Arrange your notes in a logical order to help you understand and analyze the information.
- **Analyze the data:** Review and analyze the data you've collected to draw conclusions and identify trends or patterns.
- **Draw conclusions:** Use your analysis to draw conclusions and form opinions about your topic.
- **Cite your sources:** Be sure to cite the sources you used in your research to give credit to the original authors and avoid plagiarism.

Day 3: Reading Day

Task: Start reading a seminal text from this genre.

Clue:

- **Find a book that is often cited as a defining example of the genre—perhaps it won a significant literary award.**
- **Choose a book:** Select a book that is considered a defining example of the genre you're exploring.
- **Start reading:** Begin reading the chosen book to immerse yourself in the genre's style and themes.
- **Take notes:** Make note of interesting quotes, characters, and plot developments as you read.
- **Reflect:** Pause periodically to reflect on how the book aligns with the characteristics of the genre.
- **Analyze:** Consider the author's writing style, character development, and thematic elements as you progress through the book.
- **Discuss:** Share your thoughts and impressions with classmates, friends, or family members who may have read the book or are interested in the genre.
- **Enjoy:** Allow yourself to enjoy the reading experience and be open to discovering new aspects of the genre through the book.

Day 4: Reflective Journal

Task: Write a reflective journal about your first impressions of the genre.

Clue:

- **Consider how the setting impacts the narrative. Does it alter your perception of the possible?**
- **Select pivotal moments:** Choose three significant events or experiences from your life.
- **Reflect on emotions:** Explore the feelings you experienced during each moment.
- **Consider lessons learned:** Think about the insights gained from each experience.
- **Reflect on personal growth:** Consider how each moment contributed to your development.
- **Write journal entries:** Record your thoughts and feelings for each moment.
- **Use prompts:** Use prompts to guide your reflection if needed.
- **Create a safe space:** Find a quiet place to reflect and write privately.

Day 5: Creative Conversion

Task: Convert a scene from your chosen text into a different genre.

Clue:

- **Imagine a key romantic scene written as a horror sequence. How would the descriptions and characters' reactions change?**
- **Select a scene:** Choose a scene from the book you're reading or a story you've recently enjoyed.
- **Choose a different genre:** Select a genre different from the original scene's genre.
- **Imagine the scene:** Picture how the scene would unfold in the new genre.
- **Adjust elements:** Modify the setting, characters, and plot elements to fit the new genre.
- **Write or visualize:** Write a short narrative or visualize the scene in your mind.
- **Consider impact:** Reflect on how the scene changes in the new genre and the impact it has on the story.
- **Share:** Share your creative conversion with others and discuss how the genre change alters the scene's interpretation.

Day 6: Weekend Project: Create a Mini-Documentary

Task: Create a mini-documentary about the genre using your findings and thoughts.

Clue:

- **Use examples of critical scenes to highlight how the genre's unique characteristics manifest. Consider including expert opinions or critical essays.**

- **Choose a topic:** Select a topic that interests you and that you'd like to explore further.
- **Plan your documentary:** Outline the key points you want to cover and decide on the structure of your documentary.
- **Gather materials:** Collect footage, interviews, images, and other resources related to your topic.
- **Film or create visuals:** Capture video footage or create visuals that illustrate your topic and support your narrative.
- **Edit your footage:** Use video editing software to compile and edit your footage into a cohesive documentary.
- **Add narration or interviews:** Record narration or include interviews with experts or people relevant to your topic.
- **Review and finalize:** Review your documentary and make any necessary edits or adjustments to ensure clarity and coherence.
- **Share your documentary:** Share your mini-documentary with friends, family, or classmates, and invite them to provide feedback.

Week 3: My Story Begins

Day 1-2: Autobiographical Timeline

Task: Create a visual timeline of significant events in your life, from childhood to the present day.

Instructions:

- **Use photographs, drawings, or symbols to represent key milestones, memories, and turning points.**
- **Gather materials:** Collect photos, drawings, or symbols representing significant life events.
- **Choose key events:** Reflect on important milestones and experiences from childhood to the present.
- **Create the timeline:** Draw a horizontal line representing your life span, and mark events chronologically.
- **Add events:** Place photos or symbols along the timeline, with brief descriptions.
- **Reflect:** Consider the emotions and lessons associated with each event.
- **Personalize:** Add creative touches to make the timeline your own.
- **Display and share:** Showcase your timeline and invite others to explore your life story.

Day 3-4: Reflective Journaling

Task: Write reflective journal entries about three pivotal moments in your life.

Instructions:

- **Choose three pivotal moments:** Select significant events from your life.
- **Reflect on emotions:** Explore the feelings you experienced during each moment.
- **Consider lessons learned:** Think about the insights gained from each experience.
- **Reflect on personal growth:** Consider how each moment contributed to your development.
- **Write journal entries:** Record your thoughts and feelings for each moment.
- **Use prompts:** Use prompts to guide your reflection if needed.
- **Create a safe space:** Find a quiet place to reflect and write privately.

Day 5-6: Family Oral History Project

Task: Interview a family member about their life experiences and personal stories.

Instructions:

- **Record the interview and transcribe key excerpts. Reflect on how their narratives contribute to your understanding of family history and heritage.**
- **Choose a family member:** Select someone to interview about their life experiences.

- **Prepare questions:** Create a list of questions covering their childhood, significant events, and memories.
- **Schedule and record:** Set a time for the interview and record it using a device.
- **Transcribe:** Write down key points and memorable quotes from the interview.
- **Reflect:** Consider the significance of the stories shared.
- **Share:** Share the oral history with family members.
- **Express gratitude:** Thank the family member for sharing the stories.

Day 7- 8: Creative Writing: Ancestral Tales
Task: Write a short story or poem inspired by your family's cultural heritage or ancestral roots.
Instructions:

- **Draw upon family folklore, traditions, or migration narratives to create a fictionalized account that celebrates your cultural identity.**
- **Draw inspiration:** Reflect on your family's cultural heritage and ancestral roots.
- **Choose a theme:** Select a theme or aspect of your family history to explore in your story.
- **Create characters:** Develop characters inspired by your ancestors or family traditions.
- **Craft your story:** Write a short story or poem based on your chosen theme and characters.
- **Incorporate cultural elements:** Include cultural motifs, traditions, or values in your narrative.
- **Explore emotions:** Reflect on the emotions and experiences of your characters.
- **Edit and revise:** Review your writing and make any necessary edits or revisions.
- **Share your story:** Share your ancestral tale with family members or friends.

Week 5: Literary Exploration

Day 1-2: Creative Activity

- Create a 'Character Scrapbook' for one of the main characters in the novel or play you choose.
- Gather images, quotes, and descriptions that represent the character's personality, motivations and relationships.

Instructions:

- ✓ **Use scrapbooking materials or digital tools to design an aesthetically pleasing layout.**
- ✓ **Write bried annotations explaining why each item was chosen and its significance to the character.**

Day 3-4: Interactive Task

- Host a 'Literary Tea Party' inspired by scenes or themes from the book.
- Decorate your space with props and decorations that reflect the setting or atmosphere of the story.
- Click photographs and paste them in your scrap-book.

Instructions:

- ✓ **Prepare snacks and beverages that relate to the characters or events in the book (eg. Serving Southern-style treats for 'To kill a Mockingbird')**
- ✓ **Discuss key moments in the story while enjoying your tea party, sharing insights and interpretations with family or friends.**

Day 5-7: Creative Writing Prompt

- Write a series of 'Found Poems' using passages or dialogues from the novel or play.
- Select excerpts that resonate with you or capture important themes, emotions, or imagery.

Instructions:

- ✓ **Rearrange the selected text to create new poems, experimenting with line breaks, punctuation, and rhythm.**

- ✓ **Reflect on how the process of found poetry deepens your understanding of the text and its literary elements.**

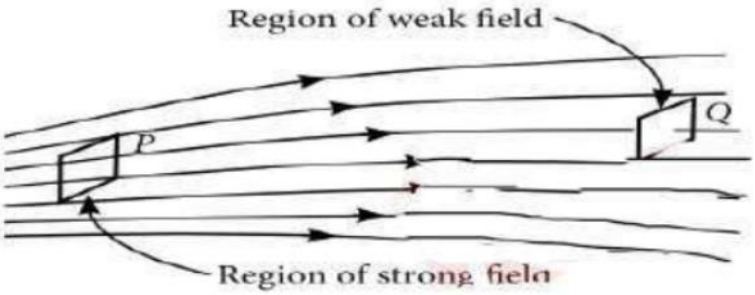
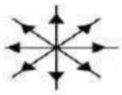
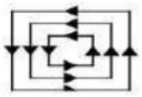
Physics

General Instruction:

1. **Complete all questions as given in the Holiday Homework**
2. **Solve each question in your school notebook.**
3. **Do neat and clean work.**
4. **Write each question before its solution.**
5. **Ensure the solutions are presented in a proper and organized manner.**

1.	Two positive ions each carrying a charge q are separated by a distance d. If F is the force of repulsion between the ions , the number of electrons missing from each ion (a) $\frac{4\pi\epsilon_0 F d^2}{e^2}$ (b) $\sqrt{\frac{4\pi\epsilon_0 F e^2}{d^2}}$ (c) $\sqrt{\frac{4\pi\epsilon_0 F d^2}{e^2}}$ (d) $\frac{4\pi\epsilon_0 F e^2}{d^2}$	
2.	The total electric flux emanating from an alpha particle is (a) $2e/\varepsilon_0$ (b)e/ε_0 (c) $4e/\varepsilon_0$ (d) e^2/ε_0	
3.	A charge Q is placed at each of the opposite corners of a sphere. A charge q is placed at each of the other corners .If the net electrical force on Q is zero then Q/q is equal to (a) $-2\sqrt{2}$ (b) -1 (c) 1 (d) $-1/\sqrt{2}$	
4.	A cylinder of radius r and length l is placed in a uniform electric field parallel to the axis of the cylinder. The total flux for the surface of the cylinder is given by (a) zero (b) πr^2 (c) $\pi E r^2$ (d) $2E(\pi r^2)$	
5.	Seven charges of equal magnitude q are placed at the corners of a cube of side b. The force experienced by another charge Q placed at the center of the cube is (a) Zero (b) KQq/ 3b (c) 7KQq/3b (d) 2KQq/3b	
6.	When a negative charge (-Q) is brought near one face of a metal cube, the (a) cube becomes positively charged (b) cube becomes negatively charged. (c) face near the charge becomes positively charged and the opposite face becomes negatively charged. (d)face near the charge becomes negatively charged and the opposite face becomes positively charged.	
7.	A charge Q is placed at the centre of the line joining two charges q and q. The system of the three charges will be in equilibrium if Q is (a) q/3 (b) – q/3 (c) q/4 (d) – q/4	
8.	A point charge situated at a distance r from a short electric dipole on its axis, experience a force F. If the distance of the charge is 2r, the force on the charge will be (a) F/16 (b) F/8 (c) F/4 (d) F/2	
9.	The magnitude of the electric field due to a point charge, object at a distance of 4m is 9 N/C. From the same charged object, the electric field of magnitude, 16 N/C will be at a distance of (a) 1m (b) 2m (c) 3m (d) 6m	
10.	An electric dipole of length 2cm is placed at an angle of 30˚with an electric field of 2×10^5 N/C. If the dipole experiences a torque of 8×10^{-3} Nm, the magnitude of either charge of the dipole , is (a) 4 μC (b) 7 μC (c) 8 mC (d) 2mC	
	ASSERSION- REASON QUESTIONS Two statements are given-one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below A) Both A and R are true and R is the correct explanation of A B) Both A and R are true and R is NOT the correct explanation of A C) A is true but R is false	

	D) A is false and R is also false.	
11.	Assertion: The charge on anybody can be increased or decreased in terms of e. Reason: Quantization of charge means that the charge on a body is the integral multiple of e.	
12.	Assertion: A Charge, which is less than charge of one electron is not possible Reason: Charge is quantized.	
13.	Assertion: The properties that the force with which two charges attract or repel each other are not affected by the presence of a third charge. Reason: Force on any charge due to a number of other charges is the vector sum of all the forces on that charge due to other charges, taken one at a time.	
14.	Assertion: Coulomb force is the dominating force in the universe. Reason: Coulomb force is weaker than the gravitational force.	
15.	Assertion (A): The range of gravitational force and coulomb force is infinity. Reason(R): The Coulomb force is stronger than the gravitational force.	
16.	Assertion (A): Positive electric flux indicates that electric lines of force are directed outwards Reason (R): Positive electric flux is due to a positive charge.	
17.	Assertion (A): Charge on a body is 2.3x10-19C is not possible. Reason (R): Electric charge on a body is quantized and integral multiple of charge of an electron.	
	Short Type question 1	
18.	Calculate the electric field strength required to just support a water drop of mass 10^{-7} kg and having a charge 1.6x 10^{-19} C.	
19.	A spherical rubber ballon carries some charge distributed uniformly over its surface. The balloon is blown up to increase in its size. How does the total electric flux come out of the surface change?	
20.	The electrostatic force (F) acts between two point charges in a vacuum. If a brass plate is placed between the two charges. What would be the value of the electrostatic force?	
21.	Two-point charges Q and -3Q are placed at some distance apart at some distance apart. If electric field at location of Q is E Find the field in the location of -3Q	
	Short Type question 2	
22.	Five point charges, each of value +q are placed on five vertices of a regular hexagon of side Lm. What is the magnitude of the force on a point charge of value -q coulomb placed at the centre of the hexagon?	
23.	Given is a line of charge of uniform linear density. A charge +q is distributed uniformly between y = 0 and y = a and charge –q is distributed uniformly between y = 0 and y = -a. Explain how the direction of the resultant electric field at point P can be obtained. Represent using a vector diagram.	
24.	A spherical Gaussian surface encloses a positive charge q. Explain with a reason what happens to the net electric flux through the Gaussian surface if: (a) the charge is tripled (b) the volume of the sphere is tripled (c) the shape of the Gaussian surface is changed into a cuboid.	
25.	a). Derive an expression for electric field at a point outside and inside for a uniformly charged spherical shell b).An early model for an atom considered it to have a positively charged point nucleus of charge Ze, surrounded by a uniform density of negertive charge up to a radius R. The atom as a whole is neutral. For this model, what is the eletric field at a distance r from the nucleus?	
	Case Study Question	

26.	Electric field strength is proportional to the density of lines of force i.e., electric field strength at a point is proportional to the number of lines of force cutting a unit area element placed normal to the field at that point. As illustrated in the given figure, the electric field at P is stronger that at Q.  (i) Electric lines of force about a positive point charge are (a) radially outwards (b) circular clockwise (c) radially inwards (d) parallel straight lines. (ii) Which of the following is false for electric lines of force? (a) They always start from positive charges and terminate on negative charges. (b) They are always perpendicular to the surface of a charged conductor. (c) They always form closed loops. (d) They are parallel and equally spaced in a region of uniform electric field. (iii) Which one of the following patterns of electric line of force in not possible in filed due to stationary charges? (a)  (b)  (c)  (d)  (iv)The figure below shows the electric field lines due to two positive charges. The magnitudes EA, EB and EC of the electric fields at points A, B and C respectively are related as (a) $E_A > E_B > E_C$ (b) $E_B > E_A > E_C$ (c) $E_A = E_B > E_C$ (d) $E_A > E_B = E_C$	

Chemistry

General instructions

- Complete all the work in the Chemistry fair notebook.
- Maintain cleanliness and avoid spelling mistakes.
- Write in good handwriting.
- Complete the work neatly with proper numbering.
- Use your own creativity to make it look attractive.
- Submit the entire task in class notebook only.

Q1. A. Take salt and ice cubes. Add salt to ice and observe the temperature drop. Write your observation and explanation of it

B. Why do some fruits like apples or bananas turn brown when cut?"
Explain using the concept of redox reactions in electrochemistry.

Q2. A.Why IV drips in hospitals are isotonic and why hypertonic or hypotonic solutions can be harmful.

Q3. Prepare a colorful mind map covering:

- Types of electrodes
- Cell potential
- Nernst Equation
- Electrochemical vs. Electrolytic cells

Q4.

a. Define azeotropes. What type of azeotrope is formed by positive deviation from Raoult's law? Give an example.

b. Differentiate between ideal and non-ideal solutions with suitable examples.

c. Calculate the mass of a non-volatile solute (molar mass = 40 g/mol) which should be dissolved in 114 g of octane to reduce its vapour pressure to 80%.

d. What are hypertonic, isotonic, and hypotonic solutions? Explain their biological significance.

Q5. A. State Kohlrausch's law. How is it used to calculate the molar conductivity of a weak electrolyte like acetic acid?

B. What is meant by standard electrode potential of an electrode? Write the Nernst equation for an electrode reaction.

C. Differentiate between electrochemical cell and electrolytic cell (any two points).

Q6. A. Define cell constant. How is it related to conductivity and resistance of a solution?

B. The conductivity of 0.20 M solution of KCl at 298 K is 0.0248 S cm^{-1}. Calculate its molar conductivity.

C. Write the cell reactions for a Daniell cell. Why is the salt bridge used in the cell?

Q.7 A galvanic cell is formed by dipping Zn rod in 0.1 M $ZnSO_4$ and Cu rod in 0.01 M $CuSO_4$. Write the cell notation and calculate the EMF using Nernst equation. (E^0Zn^{2+}/Zn = –0.76 V, E^0Cu^{2+}/Cu = +0.34 V)

B. Explain how electrolysis of molten NaCl is different from electrolysis of aqueous NaCl.

NOTE: -Complete practical 1 to 4 in lab manual

Investigatory project (Art integrated projects Rajasthan and Assam)

Handwritten Format:

1. Write neatly and legibly. Use a **black and blue pen** for all the text (avoid coloured pens, unless specifically required).
2. Avoid **cutting**, **overwriting**, or using **correction fluid**.
3. **Margins**: Maintain equal margin on both sides of the page. This helps in keeping the work organized.
4. **Page Numbering**: Number your pages at the bottom-centre or bottom-right corner for easy reference.

Following things must be included in your project

1. Title Page
2. Certificate
3. Acknowledgment
4. Table of Contents (Index)
5. Main Content (Introduction, Objective, Materials, Methods, Results, Discussion, Conclusion)
6. Summary
7. Diagrams and Pi-Charts (if applicable)

8. Bibliography

S.No.	Project name	Student Name
1	Study of the presence of oxalate ions in guava fruit at different stages of ripening.	Aadesh
2	Study of quantity of casein present in different samples of milk.	Aditya
3	Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.	Anant
4	Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.)	Darst
5	Study of digestion of starch by salivary amylase and effect of pH and temperature on it.	Harshit
6	Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.	Krishana
7	Extraction of essential oils present in Saunf (aniseed), Ajwain (carom), Illaichi (cardamom).	Panshul
8	Study of common food adulterants in fat, oil, butter, sugar, turmeric power, chili ,powder and pepper.	Parneet
9	Coordination Compounds	Saroj
10	Colligative properties of solutions	Satwik
11	Biomolecules	Tanisha
12	Electrochemistry	Vinay

BIOLOGY

General Instructions:

- Complete all the work in the Class work Note Book.
- Maintain cleanliness and avoid spelling mistakes.
- Write in good handwriting.
- Complete the work neatly with proper numbering.
- Draw diagrams neatly and label them.
- Please Write the entire task with blue/ black pen.
- Use your own creativity to make it look attractive.

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1. Describe the structure of a mature ovule with a neat labeled diagram.
2. What is double fertilization? Explain its significance.
3. Compare and contrast geitonogamy and xenogamy.

4. Explain the development of male gametophyte in angiosperms.
5. Describe the process of pollination and the various agents involved.
6. Describe the structure and function of the human male reproductive system.
7. Explain the menstrual cycle with hormonal regulation.
8. What are the major events of fertilization and implantation?
9. Describe the process of gametogenesis in humans.
10. Explain the role of hormones in the regulation of the menstrual cycle.
11. List any four sexually transmitted infections (STIs) and their symptoms.
12. What are the problems related to reproductive health in India?
13. Explain the role of various contraceptive methods.
14. Define apomixis and state its significance.
15. Differentiate between microsporogenesis and megasporogenesis..
16. Explain the role of synergids in the embryo sac.
17. Describe the development of the female gametophyte in angiosperms.
18. What is double fertilization? Describe the events involved.
19. Describe the role of corpus luteum in the menstrual cycle.
20. Differentiate between spermatogenesis and oogenesis.
21. Explain the role of FSH in males.
22. Describe the process of fertilization in humans.
23. Explain the hormonal regulation of the menstrual cycle.
24. Why are cleistogamous flowers guaranteed to produce seeds?
25. How does polyembryony benefit plants?
26. If a plant produces both types of flowers (chasmogamous & cleistogamous), what advantage does it gain?
27. Describe the structure and function of the human male reproductive system.
28. Explain the menstrual cycle with hormonal regulation.
29. What are the major events of fertilization and implantation?
30. Why do testes lie outside the abdominal cavity?
31. How is sex of the baby determined in humans?
32. Why is progesterone called a pregnancy hormone?
33. Explain the role of various contraceptive methods.
34. Why is there a need for assisted reproductive technologies today?
35. How can government policies help in improving reproductive health?
36. Give reasons: "Sex education should be introduced at the school level."

Activity Work-

(1) **Case Study: A Day at a Fertility Clinic**

Objective: Apply knowledge to real-life applications.Imagine you're a medical intern. Write a short report (~300 words) on: Common causes of infertility,Diagnostic tests performed, One assisted reproductive technique (e.g., IVF, ICSI, GIFT)

(2) Prepare flow charts showing the journey of

Pollen grain, ovule, human male sperm ,female ovum and developing embryo.

(3) **Make collection of 10 mango seeds.**

(To donate mango seeds –Gram Samridhi Foundation)

Procedure : After eating mangoes wash the seeds properly(3-4 times to remove all the traces of pulp).Let the seeds to dry in bright sunlight for 7-8 days.

Subject -Mathematics

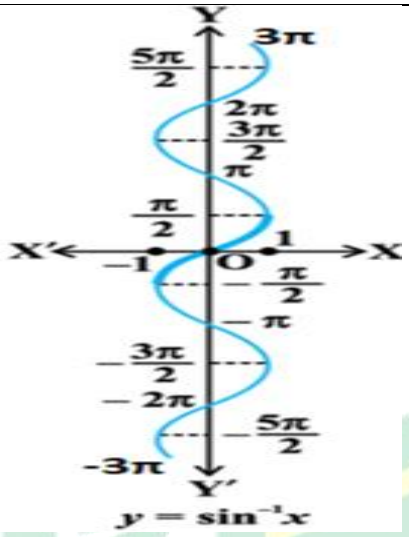
General Instructions:

1. Complete the holiday homework **neatly** in your **Maths class notebook**.
2. Use **sharp pencils** for diagrams and **blue/black pen** for writing (if allowed).
3. Maintain **proper presentation** — headings, margins, and neat handwriting are important.
4. Write the **question first**, and then solve it.
5. Submit the work on the **first day after holidays** without fail.

Revise the concepts regularly for better understanding.

1	Check the injectivity and surjectivity of the below function: f : R → R given by f(x) = x^2
2	If f : R→ R is defined by f(x) = x^2 - 3x + 2, find f(f(x)).
3	Let A = { - 1, 0, 1, 2}, B = { - 4, - 2, 0, 2} and f, g : A→ B be the functions defined by f(x) = x^2 - x, x ∈ A and $g(x) = 2\left\|x - \frac{1}{2}\right\| - 1, x \in A$. Are f and g equal? Justify your answer. (Hint: One may note that two functions f : A → B and g : A → B such that f(a) = g(a) ∀ a ∈ A, are called equal functions).
4	Let A = {1, 2, 3, 4} and R = {(1,1), (2,2), (3,3), (4,4), (1,2), (1,3), (3,2)}. Show that R is reflexive and transitive but not symmetric.
5	If A is a square matrix such that A^2 = I, then find the simplified value of $(A - I)^3 + (A + I)^3 - 7A$.
6	Find the value of$\tan^{-1}\left(\tan\frac{2\pi}{3}\right)$.
7	For the principal value, evaluate$\cot[\sin^{-1}\{\cos(\tan^{-1}1)\}]$
8	Prove that$\sin^{-1}(2x\sqrt{1-x^2} = 2\cos^{-1}x$, $\frac{1}{\sqrt{2}} \le x \le 1$.
9	Find the value of$\sin\left[2\cot^{-1}\left(\frac{-5}{12}\right)\right]$
10	$find\ the\ principle\ value:\ \cot^{-1}(\sqrt{3})$
11	Construct a 3 x 2 matrix whose elements are given by$a_{ij} = (i + 2j)$.
12	Construct a3 × 4 matrix, whose element are given by $a_{ij} = \frac{1}{2}\|-3i + j\|$
13	For two matrices A and B, A =$\begin{bmatrix}2 & 1 & 3\\4 & 1 & 0\end{bmatrix}$, B = $\begin{bmatrix}1 & -1\\0 & 2\\5 & 0\end{bmatrix}$ verify that $(AB)^T = B^T A^T$.
14	If$A_\alpha = \begin{bmatrix}\cos\alpha & \sin\alpha\\-\sin\alpha & \cos\alpha\end{bmatrix}$, then prove that $A_\alpha A_\beta = A_{\alpha+\beta}$
15	Let$A = \begin{bmatrix}2 & 4\\3 & 2\end{bmatrix}$, $B = \begin{bmatrix}1 & 3\\-2 & 5\end{bmatrix}$, $C = \begin{bmatrix}-2 & 5\\3 & 4\end{bmatrix}$. Find each of the following: 1. A + B

	2. A - B
16	A trust fund has Rs30,000 that must be invested in two different types of bond. The first bond pays 5% interest per year and the second bond pays 7% interest per year. Using matrix multiplication, determine how to divide Rs30,000 in two types of bonds, if the trust fund must obtain an annual interest of (a) Rs1800, (b) Rs 2000.
17	Prove that the function, f : N → N is defined by $f(x) = x^2 + x + 1$ is one-one but not onto. Find inverse of f : N → S, where S is range of f.
18	If A = {1, 2, 3, .. ,9} and R is the relation in A × A defined by (a , b) R(c, d), if a + d = b + c for (a,b), (c, d) in A × A. Prove that R is an equivalence relation. Also, obtain the equivalence class [(2, 5)].
19	Check if the relation R defined in the set {1, 2, 3, 4, 5, 6} as R = {(a, b): b = a+1} is reflexive, symmetric or transitive.
20	Prove that the relation R in set A = {1, 2, 3, 4, 5} given by R = {(a, b) : Ia - bl is even} is an equivalence relation.
21	Find the value of $\tan^{-1}(1) + \cos^{-1}\left(-\frac{1}{2}\right) + \sin^{-1}\left(-\frac{1}{2}\right)$
22	Compute AB and BA, if exists when $A = \begin{bmatrix} -1 & 1 \\ -2 & 2 \\ -3 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 3 & -2 & 1 \\ 0 & 1 & 2 \\ -3 & 4 & -5 \end{bmatrix}$
23	If A = $\begin{bmatrix} 2 & -1 & 3 \\ -4 & 5 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 \\ 4 & -2 \\ 1 & 5 \end{bmatrix}$ then find AB and BA. Show that $AB \neq BA$
24	Find the values of x, y, z if the matrix $A = \begin{bmatrix} 0 & 2y & z \\ x & y & -z \\ x & -y & z \end{bmatrix}$, satisfy the equation $A'A = I_3$
25	If A = $\begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 4 \\ -1 & 7 \end{bmatrix}$, find $(3A^2 - 2B + I)$.
26	**Read the following text carefully and answer the questions that follow:** A relation R on a set A is said to be an equivalence relation on A iff it is • Reflexive i.e., (a, a)∈ R ∀ a ∈ A. • Symmetric i.e., (a, b)∈ R ⇒ (b, a) ∈ R ∀ a, b ∈ A. • Transitive i.e., (a, b)∈ R and (b, c) ∈ R ⇒ {a, c) ∈ R ∀ a,b, c ∈ A.
27	**Read the following text carefully and answer the questions that follow:** Today in the class of Mathematics, Mrs. Pandey is explaining the inverse trigonometric function. She draws the graph of the $\sin^{-1} x$ and write down the following about the principal value of branch function $\sin^{-1} x$: **Principal value of branch function $\sin^{-1} x$:** It is a function with domain [- 1, 1] and range $\left[\frac{-3\pi}{2}, \frac{-\pi}{2}\right]$, $\left[\frac{-\pi}{2}, \frac{\pi}{2}\right]$ or $\left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$ and so on corresponding to each interval, we get a branch of the function $\sin^{-1} x$. The branch with range $\left[\frac{-\pi}{2}, \frac{\pi}{2}\right]$ is called the principal value branch. Thus, $\sin^{-1} x$: [- 1, 1] → $\left[\frac{-\pi}{2}, \frac{\pi}{2}\right]$

	 1. Find the domain of $\sin^{-1}\sqrt{x-1}$. 2. Find the domain of $\sin^{-1}[x]$. 3. Find the valuesin $\left[\frac{\pi}{3}-\sin^{-1}\left(-\frac{1}{2}\right)\right]$. 4. The principal value of $\cos^{-1}(\cos\frac{2\pi}{3})+\sin^{-1}(\sin\frac{2\pi}{3})$ is π .
28	**Read the following text carefully and answer the questions that follow:** In a city, there are two factories A and B. Each factory produces sports clothes for boys and girls. There are three types of clothes produced in both the factories, type I, II and III. For boys, the number of units of types I, II, and III respectively are 80, 70, and 65 in factory A and 85, 65, and 72 are in factory B. For girls the number of units of types I, II, and III respectively are 80, 75, 90 in factory A and 50, 55, 80 are in factory B.  1. Represent the number of units of each type produced by factory A for both boys and girls and number of units of each type produced by factory B for both boys and girls in matrix form. (1) 2. Find the total production of sports clothes of each type for boys. (1) 3. Find the total production of sports clothes of each type for girls. (2) **OR** Let R be a 3 × 2 matrix that represent the total production of sports clothes of each type for boys and girls, then find the transpose of R. (2)
29	Show that the function f : R - {3}→ R - {1} given by $f(x)=\frac{x-2}{x-3}$ is a bijection.
30	If$A=\begin{bmatrix}1 & 2\\ -2 & 1\end{bmatrix}, B=\begin{bmatrix}2 & 3\\ 3 & -4\end{bmatrix}$ and $C=\begin{bmatrix}1 & 0\\ -1 & 0\end{bmatrix}$, verify

	1. (AB)C = A(BC) 2. A(B + C) = AB + AC.

When the seeds are thoroughly dried , wrap them in a sheet of paper and store at room temperature.

Precautions : seeds should be washed properly,there should be no trace of pulp over them if persists, it can cause fungal infection in seeds. If seed turned black after drying ,remove that particular seed ,Don't store the infected seeds.

(4)**Art Integration Project –** prepare art integrated project based on state Assam under the theme

(Choose any one**) (a) Rhino conservation efforts. (b)Traditional medicinal plants of Assam.**

Computer Science

SECTION A: Conceptual Understanding

I. Answer the following in 100–150 words each:

1. What is data communication? Describe its main components with real-life examples.
2. Differentiate between circuit switching and packet switching. Give examples of their applications.

II. Multiple Choice Questions:

1. ARPANET is known as:
A) A type of modem B) A social media network
C) The first packet-switching network D) An Internet browser

2. Which of the following is not a component of data communication?
A) Sender B) Switch C) Message D) Protocol

3. Bandwidth is:
A) A network protocol B) A communication device
C) The capacity of communication media D) A type of topology

4. Which address is essential for identifying devices on a network?
A) MAC address B) Subnet C) IP address D) Gateway

5. Which of these is a wired communication medium?
A) Radio waves B) Twisted pair cable
C) Infrared D) Wi-Fi

6. Which device amplifies signals to extend network distance?
A) Switch B) Repeater C) Modem D) Router

7. What does a router do?
A) Sends spam
B) Transfers power
C) Forwards data packets between networks
D) Connects a mouse to a computer

8. What is the role of a gateway?
A) Sends only emails
B) Connects networks using different protocols
C) Measures signal strength
D) Transfers video content

🛠 SECTION B: Practical Activity

📌 Poster or Infographic Design (ART INTEGRATION PROJECT)

Design a digital or handmade poster or infographic on any one of the following themes:

- "Networking Then vs. Now: From ARPANET to Internet"
- "Know Your Network Devices: The Brains Behind Connectivity"
- "Wired or Wireless? Choosing the Right Transmission Media"

General Instructions:

- *Use coloured visuals, neatly labelled diagrams, tables, or charts.*
- *Include real-life examples and key facts.*
- *Paste a coloured printout of the poster in your CS notebook or affix a neat handmade version.*
- *Be creative and informative. You may add QR codes, tips, or icons if required.*

Subject-Psychology

General Instructions:

- Summer Break Holiday Homework is a part of ***internal assessment*** which carries marks.
- Maintain neatness and avoid spelling mistakes. Write in good handwriting.
- Complete the entire task with blue pen only.
- Use your own creativity to make it look attractive.

In the bright glow of summer, let us investigate the flow of the psyche.
Pens poised, minds ignited, dissecting the wisdom of psychology.
In the warmth and goodwill of the season, let us examine the frontier of the mind.
Let's discover what psychology is capable of under the bright glow of the sun.
"Remember, the goal of homework is not just to complete tasks,
But to maintain and improve your skills and knowledge.
Approach these assignments with a growth mindset and a positive attitude."

ASSIGNMENT:

Q. Watch any 1 or 2 movies or read books (related to psychological disorders)
*** Like- a beautiful mind (2001-paranoid schizophrenia)**
*** Good will hunting (1997-gifted/counseling/PTSD)**
*** Rain man (1988-autism), I am Sam (2001)**
*** As good as it gets (1997), the aviator (2004-OCD)**
*** The prince of tides', 'girl, Interrupted'(1999- substance abuse-BPD)**
*** Silver linings playbook (2012-bipolar disorders/depression)**
*** The breakfast club (1985-stereotypes), Three faces of eve, Etc.**

Q. PRACTICAL FILE:
Complete writing the following Practical's in the practical file.

- **Sinha's Comprehensive anxiety Test.**
- **Self Concept Questionnaire.**

MUSIC

This is regarding **MUSIC Summer Break Homework** of **Class 12th A,B,C**.
There are "**Three topics**" **and 10 MCQs** that students will do in **Summer Vacation**.

(Homework should be done in Music Copy or Assignment file (your choice)

Topic : 1. **Musical Treatise**

Write a detailed study of **any one** of the following***(search in Music research)***

- Sangeet Ratnakar (**1page**)*(For eg. Type : **Sangeet Ratnakar in Music**)*
- Sangeet Parijat(**1page**)

Topic : 2. **Life Sketch and Contribution**

Write a life sketch and musical contribution of **any one** of the following musicians in "**300 words**". ***(search in Music research)***

- Inayat Khan *(For eg. Type **: Inayat Khan in Music**)*
- Mushtaq Ali Khan
- Alauddin Khan

Topic : 3. **Talas Study**

Write a detailed description of **any one** of the following talas:

- Jhaptala (Single, Double, Chaugun)*(Mark vibhag and sam clearly.)*
- Rupak (Single, Double, Chaugun) *(Mark vibhag and sam clearly.)*

MCQ Creation Task and Instructions :

- After completing your homework, create **10 MCQ** (Multiple Choice Questions) based on the topics you selected.
- Each MCQ should have four options, and mark the correct answer clearly.
- Your MCQs must be different from other students (no copying).
- You may discuss with your music classmates to take a hint about which MCQs they are preparing, in order to avoid creating the same questions

PAINTING

INSTRUCTION
Use white paper and for medium you can choose colour according to your choice.
SUBJECT :- one landscape &one still life.
Reference:Impressionism paintings.
YOU CAN MAKE YOURS DRAWING FILE.

Sports

Practical / Physical Task

Maintain a Daily Fitness Log (at least 15 days):

- **Record your daily fitness activities such as:**
- **Morning walk or jog (duration/time)**
- **Exercises (push-ups, skipping, yoga, etc.)**
- **Sports played (football, badminton, etc.)**

Yoga Practice:

- **Learn and practice any 3 yoga asanas, draw their diagrams, and write their benefits.**