BABA BANDA BAHADUR PUBLIC SCHOOL

Jind Road, Rohtak, Haryana

SUMMER VACATION HOLIDAY HOMEWORK

SESSION 2026–27

SUMMER EXCELLENCE PROGRAMME

Theme:

"No Screen Learning – Learn, Create, Explore & Grow"

★ STUDENT DETAILS ★

Name : _____

Class & Section : _____

Roll No. : _____

House : _____

★ MY SUMMER VACATION GOALS

- ☐ I will follow a proper study routine.
- ☐ I will reduce unnecessary mobile usage.
- ☐ I will read daily.
- ☐ I will help my parents at home.
- ☐ I will stay healthy and active.
- ☐ I will complete my work sincerely.

★ SUMMER EXCELLENCE ASSESSMENT ★

ASSESSMENT STRUCTURE

Assessment Area	Marks
Written Work / Subject Practice	60 Marks
Presentation / Activity / Project Work	20 Marks
Parent Feedback & Student Discipline	20 Marks

Total = 100 Marks

- Holiday Homework marks will be reflected in Term Assessments.
- Focus will be given not only to written work but also to discipline, presentation, creativity, consistency and self-study habits.

★ HOLIDAY SCORE ★

Marks Obtained : _____

Teacher's Remarks :

_____

_____

_____

"Success is the result of discipline, consistency and hard work."

BABA BANDA BAHADUR PUBLIC SCHOOL

FOUNDATION * IIT-JEE * NEET * NDA * OLYMPIADS
NTSE * CA FOUNDATION * CLAT * CUET.

Holidays Homework (Class-XII)

English

Use your summer break to improve your language skills while having fun and exploring the world around you. Complete the following assignments neatly.

1. **Notice Writing**

Your school is organizing a workshop on Cyber Safety for students. Draft a notice inviting students to attend the workshop.

2. Article Writing

Write an article on the topic: "Impact of Social Media on Youth" using proper format and formal language.

3. Descriptive Paragraph Writing

Write a descriptive paragraph about your dream vacation including the place, activities, and why you chose it.

4. Persuasive Essay Writing

Write a persuasive essay on: "Why Reading is the Best Activity During Holidays".

5. Vocabulary Activity

Find and list 10 new words from books, newspapers, or magazines. Write their meanings and use each word in a sentence.

6. Book Review

Choose an English novel or short story and write a review including summary, favourite character, favourite quote, and your opinion.

7. Letter to the Editor

Write two letters to the editor on social issues using proper format and formal language.

8. Job Application Letter

Write a formal job application letter for the post of a Manager and attach a brief resume/CV.

9. Novel Reading Activity

Read any novel and prepare a summary, character sketch, favourite quote, and personal opinion.

10. Poetry Collection

Collect poems on themes like nature, hope, peace, and friendship. Add illustrations.

11. Debate Preparation

Prepare a debate on one topic: Social Media – Boon or Bane / AI vs Human Intelligence / Online Learning vs Classroom Learning.

Project Work

Prepare a project on any one of the following topics from Flamingo:

1. My Mother at Sixty-Six (Poem)

2. Lost Spring (Prose)

3. The Last Lesson (Prose)

Project Guidelines

Use A4 size coloured/designer sheets.

The project should be handwritten.

Add relevant pictures/photographs wherever required.

Decorate the project neatly and creatively.

Painting Summer Vacation Holiday Homework

Part A: Practical Work* -

1. *Nature & Object Study – 2 Sheets*

- *Sheet 1*: Still life with drapery + 3 objects of different materials – glass, metal, earthen pot.

- *Sheet 2*: Study of foliage + flowers in a transparent bottle/glass.

Medium: Watercolour or Acrylic. Focus on texture, transparency, light & shade, composition.

2. *Composition – Imaginative Painting – 2 Sheets*

Topics – choose any 2:

- “Metro Life”

- “Wedding in My Village”

- “Exam Stress”

- “Unity in Diversity”

Make a any 5 human figures, show perspective, movement, rhythm. Balance foreground/background.

3**.*Sketching – 5 Sketches*: Maintain A3 size sketchbook.**

- 10 life sketches: humans in different actions – sitting, walking, working

- 5 portraits: family members/friends with light & shadow

- 5 memory drawings: scenes from your vacation

Medium: Pencil 2B to 6B, charcoal, or pen. Mention date & time taken on each.

Part B: Theory

Portfolio File: Arrange all practical sheets + sketches in a handmade portfolio. Design the cover.

Write & learn- Bengal School + Modern Indian Art:

- ***Part 1***: Bengal School – Abanindranath Tagore, Nandalal Bose, contribution to national movement

- ***Part 2***: Modern Trends – K.G. Subramanyan, M.F. Husain, S.H. Raza

***Note*:** Practical is externally evaluated so do it with neat and finished manner.

Music

Unit 1

Alankar, kan, meend, khatka, murki, gamak

Gram, murchana, alap, tana

Unit 2

Historical development of Time Theory of Ragas

Unit 3

Biography of Faiyaz khan and Bade Gulam Ali Khan

Maths

Relation and function

Inverse trigonometry

Matrices

Determinants

Solve worksheets of above chapter

Chemistry

Written practice work :-

Solve atleast 10 numerical of each topics

1.Relative lowering in vapour pressure

2.Elevation in boiling point

3.Depression in boiling point

4.Osmotic pressure

5.Vant's hoff factor

6.Nernst equation

7.Kohlarsch's law

8.Faraday's law of elecrolysis

9.Rate calculation by change in concentration of reactant and product

10.Rate constant calculation for 1^{st} order and zero order reaction by using integrated rate equation for 1^{st} and zero order reaction

11. half life period for zero and 1^{st} order reaction

12.Activation energy using Arrhenius Equation

<u>Activity work</u>

Solve the NCERT exercise of

Ch-1(Solution)

Ch-2(Electrochemistry)

Ch-3(Chemical kinetics)

Physics

Conceptual Questions

Electric Charges and Fields

1. Why do electric field lines never intersect each other?
2. Why is electric field inside a conductor zero in electrostatic equilibrium?
3. Why are electric field lines perpendicular to the surface of a conductor?
4. Why can electric field lines never form closed loops?
5. Why does a charged comb attract small paper pieces?
6. What happens to electrostatic force if distance between charges becomes double?

Using Coulomb's law:

7. Why does the electric field decrease with distance from a point charge?
8. Why is electric dipole called electrically neutral despite having charges?
9. Why is torque produced on dipole in uniform electric field but net force is zero?
10. Why is no torque experienced by dipole when aligned parallel to electric field?
11. Why is electric field maximum near sharp points of conductor?
12. Why are charges distributed only on outer surface of conductor?
13. Why is electrostatic shielding possible?
14. Why does a hollow conductor protect its interior from external electric fields?
15. Why is Gauss law useful for symmetric charge distributions only?
16. Why does electric flux depend on enclosed charge only?
17. Why is electric field outside spherical shell same as point charge?
18. Why is electric field inside charged spherical shell zero?
19. Why does rubbing produce charges?
20. Why does electrostatic force obey inverse square law?

Electrostatic Potential and Capacitance

1. Why is electrostatic force called conservative?
2. Why is work done in moving a charge on equipotential surface zero?

3. Why can two equipotential surfaces never intersect?
4. Why is electric field always perpendicular to equipotential surface?
5. Why is potential constant throughout conductor?
6. Why does capacitance depend on geometry of conductor?
7. Why does capacitance increase when dielectric is inserted?
8. Why does dielectric reduce electric field inside capacitor?
9. Why is energy stored in capacitor?
10. Why is capacitor used in electronic circuits?
11. Why are capacitors connected in parallel in power supply circuits?
12. Why does equivalent capacitance increase in parallel combination?
13. Why does equivalent capacitance decrease in series combination?
14. Why is dielectric used between capacitor plates?

15. Why does capacitance increase when plate area increases?
16. Why does capacitance decrease when plate separation increases?

Capacitance relation:

17. Why is electric potential scalar quantity?
18. Why does a charged capacitor store energy?
19. Why is potential inside charged conductor constant?
20. Why does a battery maintain potential difference across capacitor plates?

HOTS (Higher Order Thinking Skills)

1. A charged particle enters perpendicular to uniform electric field. Describe its path.
2. Can electric field exist where electric potential is zero? Explain.
3. Can electric potential exist where electric field is zero? Explain.
4. Why is electric field stronger at sharp edges of conductor?
5. Why does a bird sitting on high-voltage wire not get electric shock?
6. Two identical charged spheres repel each other. What happens if immersed in water?
7. Why is earthing necessary in electrical appliances?
8. Why are lightning conductors pointed?
9. Why does synthetic clothing produce static electricity easily?
10. Why does humidity reduce electrostatic effects?

Frequently Asked CBSE Conceptual Questions

1. Define electric flux and explain its physical significance.
2. Explain why electrostatic field lines cannot cross.
3. Explain electrostatic shielding with applications.
4. Explain relation between electric field and potential.
5. State properties of equipotential surfaces.
6. Explain effect of dielectric on capacitor.
7. Explain principle of capacitor.
8. Distinguish between conductor and insulator.
9. Define polarization of dielectric.
10. Explain energy stored in capacitor

Electrostatic Potential and Capacitance

1. Define electric potential difference.
2. What is an equipotential surface?
3. Why is work done zero on equipotential surface?
4. Why can two equipotential surfaces never intersect?
5. State relation between electric field and potential.
6. Define capacitance. Write its SI unit.
7. State factors affecting capacitance of parallel plate capacitor.
8. Why does capacitance increase when dielectric is inserted?
9. Define dielectric constant.
10. Write expression for capacitance of parallel plate capacitor.
11. Define dielectric polarization.

12. Why is electric potential same throughout conductor?
13. What is the function of dielectric in capacitor?
14. State two uses of capacitors.
15. Why is electrostatic field conservative?
16. Write expression for energy stored in capacitor.
17. Distinguish between conductor and insulator. (Any two points)
18. What happens to capacitance if plate separation is doubled?
19. What happens to capacitance if plate area is increased?
20. Why is electric potential a scalar quantity?

– Electrostatics HOTS

Electric Charges and Fields

1. Can electric field exist at a point where electric potential is zero? Explain with example.
2. Can electric potential exist at a point where electric field is zero? Justify your answer.
3. Why do birds sitting on high-voltage transmission wires not get electric shock?
4. A charged particle enters perpendicular to a uniform electric field. Describe its path and explain why.
5. Why are lightning conductors made pointed?
6. Why is electric field strongest near sharp edges of conductor?
7. A hollow metal sphere encloses a charge. Will the electric field outside depend on position of enclosed charge? Explain.
8. Why does electrostatic shielding occur inside hollow conductor?
9. Two charged conducting spheres of different radii are connected by wire. What happens to:
    - charge
    - potential
    - electric field

    on both spheres?
10. Why is electric field inside a charged spherical shell zero even though shell contains charge?
11. Why does Coulomb's law fail at extremely small nuclear distances?
12. Why is electrostatic force conservative in nature?
13. Two identical metal spheres carrying unequal charges are brought in contact and separated. Explain redistribution of charge.
14. Why do field lines originate from positive charge and terminate at negative charge?
15. A proton and electron are released in electric field. Compare:

- acceleration
- force
- direction of motion

Electric Dipole HOTS Questions

1. A dipole is placed in non-uniform electric field. Will net force act on it? Explain.
2. Why does dipole experience torque in uniform electric field but no net force?

3. What happens when dipole is placed:
    - parallel to field
    - perpendicular to field
    - antiparallel to field
4. Why is electric field at equatorial position opposite to dipole moment direction?
5. Two dipoles are placed side by side. Explain conditions for attraction and repulsion.

Gauss Law HOTS Questions

1. Why is Gauss law useful only for symmetrical charge distributions?
2. Can electric flux through closed surface be zero even when electric field exists? Explain.
3. Can net electric flux through closed surface be non-zero if enclosed charge is zero?
4. A cube is placed in uniform electric field. What is total electric flux through cube?
5. Why does external charge produce zero net flux through closed surface?

Electrostatic Potential and Capacitance HOTS Questions

1. Why is work done in moving charge along closed path zero?
2. Why are equipotential surfaces always perpendicular to electric field lines?
3. Why can two equipotential surfaces never intersect?
4. A positive charge is moved against electric field. What happens to its potential energy?
5. Why is electric potential scalar while electric field is vector?
6. A charged capacitor is disconnected from battery and dielectric inserted. Explain changes in:
    - capacitance
    - charge
    - potential difference
    - energy stored
7. A capacitor remains connected to battery while dielectric inserted. Explain changes in:
    - charge
    - energy
    - electric field
8. Why is dielectric used between capacitor plates?
9. Why does capacitance depend only on geometry and not on charge stored?
10. Why is energy stored in electric field between capacitor plates?
11. Why does equivalent capacitance increase in parallel combination but decrease in series combination?
12. Why are capacitors used in electronic circuits despite storing small charges?
13. A capacitor is charged and battery removed. What happens if:

- plate separation increases
- dielectric inserted

14. Why does electric field decrease inside dielectric medium?
15. Explain why electrostatic potential inside conductor remains constant.

Numerical HOTS Questions

1. Two identical charged spheres suspended by strings repel each other. Explain what happens if:
   - strings are immersed in water
   - one sphere is discharged
2. A charged particle is projected parallel to electric field. Describe motion.
3. Two charges are fixed at two corners of square. Determine electric field at centre.
4. A capacitor is charged to volts. What happens to energy stored if:
   - voltage doubled
   - capacitance halved

Using energy relation:

5. A conducting sphere is charged. Explain variation of:
   - electric field
   - potential

   from centre to outside surface.

5 Marks Important CBSE Derivations

1. Using Gauss's theorem, derive the expression for electric field due to:
   - an infinitely long straight charged wire,
   - a uniformly charged spherical shell,
   - an infinite plane sheet of charge.
2. Derive the expression for electric field at a point on the axial line of an electric dipole.
3. Derive the expression for electric field at a point on the equatorial line of an electric dipole.
4. Derive the expression for electric potential due to an electric dipole at any point.
5. Derive the expression for capacitance of a parallel plate capacitor without dielectric.
6. Derive the expression for capacitance of a parallel plate capacitor with dielectric slab inserted between the plates.
7. Derive the expression for energy stored in a capacitor.
8. Derive the expression for equivalent capacitance when capacitors are connected:
   - in series,
   - in parallel.
9. Derive the expression for electrostatic potential energy of a system of charges.
10. Derive the expression for force between the plates of a charged capacitor.

Biology

Part A – Multiple Choice Questions (MCQs)

1. The functional unit of anther is:

a) Ovule b) Microsporangium c) Ovary d) Stigma

2. Double fertilization is found in:

a) Gymnosperms b) Bryophytes c) Angiosperms d) Pteridophytes

3. The hormone responsible for ovulation is:
a) Estrogen b) Progesterone c) LH d) Thyroxine
4. The site of fertilization in human female is:
a) Ovary b) Uterus c) Vagina d) Fallopian tube
5. Which contraceptive method prevents implantation?
a) Copper-T b) Condom c) Pills d) Vasectomy
6. PCR technique was developed by:
a) Watson b) Crick c) Kary Mullis d) Mendel
7. Restriction enzymes are also called:
a) Molecular scissors b) Molecular glue c) Vectors d) Plasmids
8. Bt cotton is resistant to:
a) Virus b) Fungi c) Insects d) Bacteria
9. The transfer of pollen grains from anther to stigma is called:
a) Fertilization b) Pollination c) Germination d) Syngamy
10. IVF stands for:
a) Internal Virus Formation b) In Vitro Fertilization c) In Vivo Fertilization
d) Internal Vitro Fusion

Part B – Very Short Answer Questions

1. Define pollination.
2. What is double fertilization?
3. Name the male reproductive part of a flower.
4. What is amniocentesis?
5. Define infertility.
6. What are vectors in biotechnology?
7. Define genetic engineering.
8. Name the enzyme used in PCR.
9. What is gene therapy?
10. Define biopiracy.

Part C – Short Answer Questions

1. Differentiate between self-pollination and cross-pollination.
2. Explain the structure of a mature embryo sac.
3. Write short notes on menstrual cycle.
4. Explain the importance of reproductive health.
5. Describe the steps involved in PCR technique.
6. Explain the role of restriction enzymes in biotechnology.
7. Differentiate between plasmid and vector.
8. Write the applications of biotechnology in agriculture.

Part D – Long Answer Questons

1. Describe the process of double fertilization in flowering plants.
2. Explain human male reproductive system with labelled diagram.

3. Discuss various contraceptive methods and their importance.
4. Explain recombinant DNA technology in detail.
5. Describe the applications of biotechnology in medicine and agriculture.

Part E – Diagram Practice

- Structure of Flower
- LS of Anther
- Structure of Ovule
- Human Male Reproductive System
- Human Female Reproductive System
- PCR Technique
- Plasmid Vector
- Embryo Sac
- Recombinant DNA Technology Process

Part F – Activity Based Work

Activity 1

Prepare a colourful chart on any one topic:

- Double Fertilization
- Human Reproductive System
- Menstrual Cycle
- PCR Technique
- Recombinant DNA Technology
- Bt Cotton

Activity 2

Make a flowchart showing the steps involved in:

- PCR Technique
- Recombinant DNA Technology
- Formation of Male and Female Gametes

Part G – Case Study / HOTS Questions

1. Why is double fertilization considered unique to angiosperms?
2. Why is reproductive health important for society?
3. How does PCR help in forensic science?
4. What are the advantages and disadvantages of genetically modified crops?
5. Why is biotechnology considered both beneficial and controversial?