

NORTH-EX PUBLIC SCHOOL
(Senior Secondary, Affiliated To CBSE)
School Block, Jain Nagar, Sector-38, Rohini, Delhi-81
WINTER HOLIDAY HOMEWORK
XII A

Physics

1. State Bohr's postulates. Using these postulates, derive an expression for total energy of an electron in the n th orbit of an atom. What does negative of this energy signify?
2. Define binding energy of a nucleus. Draw a curve between mass number and average binding energy per nucleon. On the basis of this curve, explain fusion and fission reactions.
3. What is p-n junction diode? Define the term dynamic resistance for the junction. With the help of labelled diagram, explain the working of p-n junction as a full wave rectifier.
4. The focal lengths of objective and eye piece of a microscope are 1.25 cm and 5 cm respectively find the position of the object relative to the objective in order to obtain an angular magnification of 30 in normal adjustment.
5. An small telescope has an objective lens of focal length 150 cm and an eye piece of focal length 5 cm. If his telescope is used to view a 100 m high tower 3 km away find the height of the final image when it find the height of the final image when it is formed 25 cm away from the eye pieces.

Biology

1. How are the DNA fragments separated and isolated for DNA fingerprinting? Explain.
2. Explain the process of replication of a retrovirus after it gains entry into the human body.
3. Explain the different steps involved in sewage treatment before it can be released into natural water bodies.
4. Explain how recombinants and non recombinants are differentiated on the basis of colour production in the presence of a chromogenic substrate. Name that procedure.
5. Prepare investigatory project on different topic .

Note: Revise the syllabus covered and prepare well for test .

Chemistry

1. Differentiate between fibrous and globular proteins
2. Differentiate between α - helical and β - pleated sheet structure.
3. What do you understand by secondary structure of proteins?
4. What is denaturation of proteins? Explain with examples.
5. How are enzymes named? Give an example

English

1. The odd even formula in Delhi has been a good initiative to control air pollution in the City. Write a letter to the editor of the Deccan Chronicles expressing your views and the need for more such

efforts which can help in keeping our environment clean. You are Prashida/ Prashant Ghosh of 36, Friends Colony, New Delhi.

2. You are Mohit Jain. Draft a formal invitation to be extended among your friends and relatives for the inauguration ceremony of your new showroom. Invent the necessary details.
3. Write a notice for a tree plantation drive that is going to be organised in your school. You are Sameer Nandi, student Coordinator of Greenfield Public School, Delhi.
4. You are Prem / Parul of 16, TT Nagar, Bhopal. You would like to apply for the post of Marketing Manager in a reputed firm in Mumbai. Right a letter to the Public Relations Officer, Chantac Enterprises, Mumbai applying for the job.

To complete your English project file. Learn and revise all the syllabus of PT-2

PHYSICAL EDUCATION

- Q1. List any 4 asansused for prevention of asthma. Explain that procedure for administration of any 1 of them with diagram.
- Q2. What are the movements that take place at the ankle joint? Name them.
- Q3. Write an essay on Newtown's law of motion and it's application.
- Q4. Explain what is strength and write the methods of improving strength.
- Q5. Explain any two doping and steroids. Mention 5 side effects.
- Q6. Complete practical file.

MATHS

1. Integrate the function $x \tan^{-1} x$.
2. Find the angle between the pair of lines: $\vec{r} = 2i - 5j + k + \gamma(3i + 2j + 6k)$ and $\vec{r} = 7i - 6k + \mu(i + 2j + 2k)$
3. Find the area of the region in the first quadrant enclosed by x-axis, line $x = \sqrt{3}y$ are the given curve $x^2 + y^2 = 4$.
4. Solve the differential equation $ydx + (x - y^2)dy = 0$
5. Complete lab manual, activities as given in the class.