### KENDRIYA VIDYALAYA JASHPUR, RAIPUR REGION

### AUTUMN BREAK HOMEWORK (2023-24)

### CLASS: VI

### MATHEMATICS

1. Write all the tables from 2 to 20 three times and also learn and remember.

2. write the correct answer from the given four options (MCQ'S):

(a) Which of the following fractions is the smallest? (A) (B) (C) (D)

(b) The fraction which is not equal to is (A) (B) (C) (D)

(c) The two consecutive integers between which the fraction lies are

(A) 5 and 6 (B) 0 and 1 (C) 5 and 7 (D) 6 and 7

(d) When is written with denominator as 12, its numerator is (A) 3 (B) 8 (C) 24 (D) 12

(e) Which of the following is not in the lowest form? (A) (B) (C) (D)

(f) If = , then value of p is (A) 23 (B) 2 (C) 32 (D) 16

(g) Which of the following is not equal to the others? (A) (B) (C) (D)

(h) Which of the following fractions is the greatest? (A) (B) (C) (D)

(i) Which of the following fractions is the smallest? (A) (B) (C) (D)

(j) Sum of and is (A) (B) (C) (D)

(k) On subtracting from , the result is (A) (B) (C) (D)

(I) can be expressed in the form (A) (B) (C) (D)

(m) The mixed fraction can be expressed as (A) (B) (C) (D)

3. Fill in the blanks using > or < : (i) \_\_ (ii) \_\_ (iii) \_\_ (iv) \_\_

4. Add the fractions and .

5. On an average 1 10 of the food eaten is turned into organism's own body and is available for the next level of consumer in a food chain. What fraction of the food eaten is not available for the next level?

6. Mr. Rajan got a job at the age of 24 years and he got retired from the job at the age of 60 years. What fraction of his age till retirement was he in the job?

7. The food we eat remains in the stomach for a maximum of 4 hours. For what fraction of a day, does it remain there?

### SOCIAL STUDIES

1. Complete your notebook properly.

2. Revise New Questions and Ideas.

(After holiday class Test will conduct)

3. Answer the following questions-

i. What did the buddha do after his enlightenment?

ii. State two basic rules of Jainism

iii. How did monks take shelter in the rainy season?

4. Make a project on Buddha's life and Mahavira's teachings.

### **SCIENCE**

Q.1 prepare a chart on chapter motion and type of motion?

Q.2 prepare a chart on chapter Light, Reflection, Shadows with example?

Q.3 Make a working model based – water cycle, food pyramid, solar system air pollution ,seed germination, space station (earth), wind mill, part of the plant.

Q.4 Learn and write cct base question notecopy.

# <u>HINDI</u>

प्रश्न संख्या :१ अपने पाठ्य पुस्तक बसंत से दो पाठो का अभ्यास प्रश्न लिखिये (क) जो देख कर भी नहीं देखते (ख) संसार पुस्तक है प्रश्न संख्या :२ अपनी पाठ्य पुस्तक बसंत से किन्ही 15 विलोम शब्दों को लिखिये प्रश्न संख्या :३ अपनी पाठ्य पुस्तक बसंत से किन्ही 12 पर्यायवाची शब्दों को लिखिये

प्रश्न संख्या :४ हिंदी महीनों के नाम लिखिये

प्रश्न संख्या : ७ नवरात्रि मेले में घुमने जाने के लिए अपने प्रिय मामा जी को एक पत्र लिखिये

## **ENGLISH**

\* Complete the note and leant it .

\* Write an application to the principal of your school as you are unable to attend school because of viral fever .

\* Write all types of tense with examples in chart paper.

\* Write a paragraph on any one of the following My school , Any festival .

\* Translate into English-

- 1. वर्षा हो रही है।
- 2. सूर्य पूर्व से उदय होता है ।
- 3. कृपया मुझे अपनी पुस्तक दीजिये।
- 4. तुम प्रतिदिन स्कूल जाते हो।
- 5. मोहन पत्र लिख चुका है।

# **ARTIFICIAL INTELLIGENCE**

Q.1) Write two paragraphs about yourself on Computer( Laptop/Desktop) (such as Name, class, Roll no., Parents' name, Hobbies, Favorite Subject etc.) in MS Word and decorate it as per your choice.Take its printout and submit.

## **SANSKRIT**

प्रश्न 1 : ' सूक्तिस्तबक: ' पाठ की सभी सूक्तियों को लिखकर याद कीजिए।

# प्रश्न 2 - 'बालक ' शब्द रूप को लिखकर याद कीजिए।

# **CLASS - VII**

## MATHS:

- 1. Find 128.9/1000
- 2. Find 38.53/1000
- 3. Solve the equation : 3n-2=46
- 4. Solve the equation: -2(x+3)=8
- 5. Find : 15% of 250
- 6. Find 75% of 1 kg
- 7. What rate gives Rupees 280 as interest on a sum of 56,000 in 2 years?

# SCIENCE (7 A)

1. Draw a chart on working of Heart and Kidney. 2. Solve the following CCT case study- (1). Class VII students went for an educational trip to see how various industries and

human settlements around river Yamuna, in Delhi, are polluting it deliberately. They saw that factory wastes and municipal wastes are dumped into it untreated. They thought of spreading an awareness programme. They even wrote to Municipal Corporation of the state suggesting ways to reduce this kind of pollution. (a) How factory or domestic wastes affect the quality of the river?

(b) How the process of neutralization is effective in changing some of the quality of water?

(c) Suggest any two ways to reduce pollution of river Yamuna?

(d) Why is it important to check river pollution?

(2) While learning to ride a bicycle Satish lost his balance and fell down. He got a cut on his knee and it started bleeding. His sister Sujata on seeing this asked him to put pressure on the area with a clean handkerchief. She immediately rushed to her home to

call her parents. (a) How does applying pressure to a bleeding wound help?

(b) When we get small bruises, bleeding stops automatically after some time. Why?

(c) What would be the colour of the wounded area? Why?

(d) Which type of blood cells are responsible for clotting of blood?

# SCIENCE (7 B)

Q 1. Make working model based on -Wind city model, brain model ,blood circulation in human body, heart, ear model, urinary model, plant cell, eye model ,solar system ,electric bell, rain harvesting model, ecosystem Q.2 write notedown note copy cct base question -transportion in animals and plants.

Q.3 Write note copy and learn reproduction in plants ?

#### SOCIAL SCIENCE

- 1. Complete your notebook properly.
- 2. Revise Understanding Media. (After holiday class Test will conduct)
- 3. Write the details about Gond and Ahom tribes.
- 4. Make a project on media, paste some pictures. (10)
- 5. Draw a diagram of water cycle and explain it.
- 6. Make a scrapbook of different tribal communities of india.(10)

#### <u>HINDI</u>

प्रश्न संख्या :१ अपनी पाठ्य पुस्तक से दो पाठो का अभ्यास प्रश्न लिखिये

- (क) खान पान की बदलती तस्वीर(ख) नीलकंठ
- प्रश्न संख्या :२ कारक की परिभाषा एवम् भेद लिखिये

प्रश्न संख्या :३ हिंदी महीनों के नाम लिखिये

प्रश्न संख्या :४ अपनी पाठ्य पुस्तक बसंत आधारित 10 विलोम और 10 मुहावरो को लिखिये

प्रश्न संख्या :५ निम्नलिखित विषयों में से किसी एक विषय पर आवेदन पत्र लिखे

(क) दो दिन की छुट्टी के लिए(ख) दशहरा मेले में घुमने जानें क लिए मामा जी को

#### ENGLISH

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\* Write an application to the principal of your school as you are unable to attend school because of viral fever .

- \* Write all types of tense with examples in chart paper.
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1. वर्षा हो रही है।

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- 5. मोहन पत्र लिख चुका है।

# **ARTIFICIAL INTELLIGENCE**

Q.1) Draw the list of Photoshop Tools with its icons and proper names. On a Chartpaper (for groups) / On A4 Size sheet (for individuals)

### **SANSKRIT**

प्रश्न 1 - संस्कृत प्स्तक के पाठ 12(द्वादश पाठ)

के 'विदयाधनम् 'पाठ के श्लोकों को लिखकर याद कीजिए।

प्रश्न 2-स्वर, व्यंजन और अयोगवाह का विभाजन कर क्रमशः लिखकर याद करो ।( पेज़ नंबर 87 पर है)

#### CLASS - VIII

#### ENGLISH

Q1.Write a story in about 150 words that begins with "I didn't tell, my dad about the red lizard I found at the bottom of the garden because....."

Q2.write a diary entry on trip to Agra.

Q. 3 You are Anushka of 1441, Maya Enclave, Noida. Write a letter to your sister Muskan, giving her the details of a free medical camp that your grandmother arranged recently.

Q4.Write a letter to your landlord for getting the house repaired.Base your letter on the following inputs: 1. Big cracks in walls

2.Roofs leaking

3.Window panes broken.

Q5.Write an article on "Gymnastics - A surprise hit".

#### MATHEMATICS

1. Subtract  $5x^2 - 4y^2 + 6y - 3$  from  $7x^2 - 4xy + 8y^2 + 5x - 3y$ .

- 2. Subtract 3xy + 5yz 7zx from The sum of 3yx+2xz-9xyz and 5xy 2yz 2zx + 10xyz.
- *3. Find the product of* (a+b) (a+b) (a+b)

4. Find the product of two trinomials:  $(x^2 - 2x + 1)$  and  $(x^2 - 4x - 3)$ .

5. The height of a triangle is  $x^4 + y^4$  and its base is 14xy. Find the area of the triangle.

6. If p + q = 12 and pq = 22, then find  $p^2 + q^2$ .

7. Radha invests Rs 6000 in a compound interest savings account at an annual interest rate of 3% compounded annually. Calculate the interest she earns after 3 years and compare it to what she would have earned if it were simple interest.

8. John borrows Rs 15000 from a bank at a simple interest rate of 6% per annum. Calculate the total interest he has to pay after 4 years. Later, when John gets a loan for his business at a compound interest rate of 6% per annum, calculate the compound interest he has to pay after the same period of 4 years.

9. A king wanted to reward his advisor, a wise man of the kingdom. So, he asked the wiseman to name his own reward. The wiseman thanked the king but said that he would ask only for some gold coins each day for a month. The coins were to be counted out in a pattern of one coin for the first day, 3 coins for the second day, 5 coins for the third day and so on for 30 days. Without making calculations, find how many coins will the advisor get in that month?

10. Find the value of  $\sqrt{17} + \sqrt{64}$ 

### **SCIENCE**

Write two CCT based case studies including 4 questions of each.

1. Write a report on Reproductive Health of females in India.

Solve the following case study based critical thinking based questionare.

2. For centuries human activities such as hunting and encroachment have led to degradation of forests and extinction of many species of plants and animals. Government of India has taken many steps to conserve forests and wildlife. But this movement will not be a success without the involvement of all of us.

(a) What products are obtained from forests and wildlife?

(b) How can we help in conserving forest and wildlife?

(c) Can you name some organisation which are working against killing or poaching of animals?

3.Ram with his family went to a picnic spot near a pond. He saw some jelly-like mass floating on the sides of the pond. He asked about this to his father. His father explained him that these are frogs egg and are millions in number. Ram wondered if all of them get hatched, what will happen to other aquatic animals?

(a) What type of fertilisation is shown by frogs?

(b) Why do frogs lay eggs in large amounts?

(c) Is Ram's concern about hatching of too many eggs at a time will affect the aquatic animals correct? Why?

4.Mercury is largely used in thermometers to measure the temperature. It is a very dangerous metal as its density is very high. If it gets into the food chain, it leads to mercury poisoning.(a) What two precautions must you take while handling equipments containing mercury?

(b) Why is mercury used in thermometers?

(c) Can you suggest other alternatives to mercury thermometers?

### <u>HINDI</u>

निर्देश:-सभी प्रश्न अनिवार्य हैं। कृपया साफ - सफाई का विशेष ध्यान दें।

1.मान लीजिए आप एक संवाददाता हैं ।आपको 8 मार्च 1992 के दिन पुडुकोट्टई जिले में हुई घटना का समाचार तैयार करना है।पाठ में दी गई सूचनाओं और अपनी कल्पना के आधार पर एक समाचार तैयार कीजिए।

2.'अकबरी लोटा' कहानी को पढ़कर पाठ का सार व शब्दार्थ लिखें ।

3.'सुदामा चरित' कविता के आधार पर कृष्ण और सुदामा के बीच हुए बातचीत पर संवाद लिखें। 4.'अकबरी लोटा' कहानी में लेखक ने अनेक मुहावरों का प्रयोग किया है ।कहानी में से पांच मुहावारें चुनकर उनका प्रयोह करते हुए वाक्यों लिखें।

5.'सूरदास के पद' कविता को पढ़कर उसके शब्दार्थ व भावार्थ को लिखें।

## SOCIAL SCIENCE

- 1. Define Macaulay minutes.
- 2. Write Adam's report.
- 3. What was Wood's Despatch?
- 4. Why British want to educate Indians?
- 5. What is marginalisation?
- 6. Who were Adivasis?
- 7. What was the culture of Adivasis?
- 8. What is industry?
- 9. What are the factors that influence industries?
- 10. Explain all types of industries.

### ARTIFICIAL INTELLIGENCE

Q.1) Draw the diagram listing all of Artificial Intelligence applications on A4 size sheet.

# SANSKRIT

प्रश्न 1 - संस्कृत पाठ्य पुस्तक के दशम पाठ ( पाठ दस) में 'नीति नवनीतम् ' पाठ के श्लोकों को लिखकर याद करो।

प्रश्न 2- उपसर्ग ( prefix) को लिखकर याद करें और उन्हें जोड़ कर नये शब्द बनायें। ( पेज़ नंबर 120 पर है।)

प्रश्न 3 - 'अस्मद् ' (सर्वनाम) के शब्द रूप को लिखकर याद कीजिए।

# <u>CLASS IX</u>

# <u>HINDI</u>

नोट:-

- सभी प्रश्नों को पूरा लिखना अनिवार्य है, क्रमश: प्रश्न के पश्चात उत्तर लिखेंगे |
- पाठ्यपुस्तक सम्बंधित उत्तर को कही से न देखकर, स्वविवेक से लिखने का प्रयास करेंगे जिससे बोर्ड परीक्षाओं में सहायता मिलेगी |
- अवकाश के पश्चात् विद्यालय प्रारम्भ होने के दिन सभी कार्य पूर्ण कर कॉपी जमा करेंगे |
- दो बैलों की कथा में प्रेमचंद ने बैलों के माध्यम से कई मानवीय गुणों की और ध्यान आकर्षित करने का प्रयास किया है,
  - क) किन्ही तीन मानवीय गुणों की पाठ के आधार पर व्याख्या कीजिये |
  - ख) किसी एक मानवीय गुण के विषय में बताइए जिसे आप अपने जीवन में अपनाना चाहेंगे।
  - ग) लिखिए की आप अपने जीवन में उस मानवीय गुण को क्यों अपनाना चाहेंगे?
- आपके द्वारा अपने परिवार /मित्रों के साथ किये गए किसी यात्रा का वर्णन 100-150 शब्दों में करिए साथ ही लिखिए की यह यात्रा आपको किस तरह प्रभावित करती है तथा उससे आपने क्या क्या सिखा ?
- ऐसी किसी घटना का उल्लेख करिए जिसमें मिडिया द्वारा फैलाई बैटन से समाज में अराजकता फैली हो, साथ ही इसे रोकने के बारे में विचारकर लिखिए |
- उपभोक्तावाद की संस्कृति पाठ का सार अपने शब्दों में लिखिए, अगर यह पाठ आपको प्रभावित करती है तो लिखिए की इससे आप अपने जीवन में क्या-क्या बदलाव ला सकते हैं।
- 5. बच्चों की शिक्षा के विषय में हमारे देश के नियम क्या है ? और इसमें आप क्या सुधार करना चाहेंगे, लिखिए |
- कवि ने जंजीरों को गहना क्यों कहा है? उक्त पद के आधार पर लेखक का ब्रिटिश शासन के प्रति क्या विचार रहे होंगे अपने शब्दों में लिखिए |
- प्रेमचंद के फटे जूते को आधार बनाकर परसाई जी ने यह व्यंग्य लिखा है। आप भी किसी व्यक्ति की पोशाक को आधार बनाकर एक व्यंग्य लिखिए।
- 8. आपकी दृष्टि में वेश-भूषा के प्रति लोगों की सोच में आज क्या परिवर्तन आया है?
- आज की उपभोक्ता संस्कृति हमारे रीति-रिवाजों और त्योहारों को किस प्रकार प्रभावित कर रही है? अपने अनुभव के आधार पर एक अनुच्छेद लिखिए।
- 10. किसी भी भक्तिकालीन कवि की कम से कम चार रचनाओं को पढ़िए तथा उसे कंठस्थ करिए।

# <u>ENGLISH</u>

1. Write a letter to your cousin requesting the loan of a camera during your holidays.

2.You are Bali a student of 9th in spite of being so young you are given a chance to be a radio jockey for a day at a popular radio station of your city.Write a diary entry in 100 to 150 words sharing your experience.3. Do grammar practice of unit 6 and 7 from the workbook.

# **SCIENCE**

1. Draw tha well labelled diagram of types of Animal tissues in chart paper.

\*\*Solve the CCT based Case study-

(A)The atom is divisible and contains three smaller particles in it. On the basis of experimental observations, different models have been proposed for the structure of an atom. Firstly thomson's gives the atomic model which is known as raisin pudding model. According to this

model atom can be considered as a large sphere of uniform positive charge with a number of small negatively charged electrons scattered throughout it. After the thomson model, rutherford discover the nucleus of atom in our experiment.

(i) Select the correct statements.

1. An atom is divisible and consists of charged particles.

2. It was known by 1900 that the atom was not a simple, indivisible particle but contained at least one sub-atomic particle the electron.

3. E. Goldstein in 1886 discovered the presence of new radiations called canal rays which led to the discovery of another sub-atomic particle the proton. -

4. Proton had a charge, equal in magnitude but opposite in sign to that of the electron and its mass was approximately 2000 times as that of the electron.

5. The mass of an electron is considered to be negligible and its charge is minus one.

(a) 1, 2 and 3. (b) 3, 4 and 5

- (c) 2, 3 and 4. (d) All the statements are correct.
- (ii) was the first one to propose a model for the structure of an atom.
- (a) J. Chadwick. (b) E. Rutherford
- (c) Neils Bohr. (d) J. J. Thomson

(iii) Which model of an atom is depicted by the given figure? Positive sphere Electron

(a) Thomson's model of an atom. (b) Rutherford's model of an atom

(c) Bohr's model of an atom. (d) None of these

(iv) Observe the given figure and answer the question that follows:

I. Most of the fast moving a-particles passed straight through the gold foil.

II. Some of the a-particles were deflected by the foil by small angles.

III Surprisingly one out of every 12000 particles appeared to rebound. Identify the correct observations.

(a) I and II. (b) II and III

(c) I and III. (d) All are correct.

(v) ...... was known as the 'Father'; of nuclear physics. He is famous for his work on radioactivity and the discovery of the nucleus of an atom with the gold foil experiment.

(a) J. J. Thomson. (b) Neils Bohr

(C) Rutherford. (d) J. Chadwick

(B)understood by adding a solid coloured compound in water. The whole water becomes coloured due to mixing of particles of coloured compound. Ultimately, the size of coloured compound becomes small and it dissolves in water. This shows that matter is made up of a number of small particles. The particles of matter are separated from one another by some distance. This distance between two particles is known as intermolecular distance. The properties of matter like compressibility and rigidity are also governed by intermolecular distance within the particles. The particles of matter possess kinetic energy (the energy associated with motion) due to which they are in continuous random motion. The motion of particles increases with the increase in temperature as this results in increased kinetic energy. The Brownian motion is observed in particles of matter due to their random movement. The particles of matter attract one another through intermolecular forces of attraction. The force of attraction between two molecules of same substance say water is known as cohesive force, whereas the force of attraction between particles of two different substance say water and glass is known as adhesive force. The intermolecular forces of attraction between particles of solid are more as compared to particles of liquid and gas. In which form, do the water molecules have known as adhesive force. The intermolecular forces of attraction between particles of solid are more as compared to particles of liquid and E. (B) Matter is made up of a number of extremely small and indivisible particles. This can be gas.

- (i) In which form, do the water molecules have less kinetic energy?
- (a) Ice. (b) Water
- (c) Steam. (d) All of them have equal kinetic energy.
- (ii) The inter-particle forces are the strongest in
- (a) Hydrogen. (b) Methyl alcohol
- (c) Water. (d) Sodium chloride
- (iii) On arranging water, sugar and oxygen in increasing order of forces of attraction between
- their particles, which the following will be the correct arrangement?
- (a) Water, Oxygen, Sugar. (b) Oxygen, Sugar, Water
- (c) Sugar, Oxygen, Water. (d) Oxygen, Water, Sugar
- (iv) Kinetic energy of molecules is directly proportional to
- (a) temperature. (b) pressure
- (c) both (a) and (b). (d) atmospheric pressure.
- V.The substance with least inter-particle space is
- (a) Methanol. (c) Copper
- (b) Acetic acid. (d) Oxygen

# SOCIAL SCIENCE

- 1. Complet your notebook properly.
- Revise Nazism and Rise of Hitler. (After holiday class Test will conduct)
- 3. Answer the following questions according to your understanding.
  - i. What was the cause of word war II?
  - ii. What countries fought in world war II?
  - iii. What where the turning points of world war II?
  - iv. Why did Hitler started World war II?
- 4. What did You know about Adolf Hitler?How was he as a human? What he did with Jews and Gypsies were right or wrong?Explain. Write a noteon Hitler according to your belief and understanding.
- 5. In a chart paper paste some pictures(4-6) of world war II.Describe thosepicture and the situation of Germany.

#### **MATHEMATICS**

1. If  $x = 15\sqrt{-2}$ , find the value of  $X^3-3X^2+2X+5$ 

2. Factorise: X<sup>2</sup>+1/X<sup>2</sup>+2-2X-2/X.

3. At what point does the graph of the linear equation x + y = 5 meet a line which is parallel to the y-axis, at a distance 2 units from the origin and in the positive direction of x-axis.

4. Ram and Ravi have the same weight. If they each gain weight by 2 kg, how will their new weights be compared ?

5. In the Figure, if PQ || ST,  $\angle$ PQR = 110° and  $\angle$ RST = 130°, find  $\angle$ QRS. [Hint: Draw a line parallel to ST through point R.



6. If two parallel lines are intersected by a transversal, prove that the bisectors of the two pairs of interior angles enclose a rectangle.

7. ABC and DBC are triangles on the same base BC such that A and D lie on the opposite side of BC, AB = AC and DB = DC .show that AD is the perpendicular bisectors of BC.

8. E and F are respectively the mid points of the non-parallel sides AD and BC of a trapezium ABCD. Prove that  $EF \parallel AB$  and EF = 1/2 (AB + CD)

9. Prove that, The angle subtended by an arc at the centre is double the angle subtended by it at any point on the remaining part of the circle.

10. If two circles intersect at two points, prove that their centers lies on the perpendicular bisector of the common chord.

**ARTIFICIAL INTELLIGENCE** 

Q.1) Complete the book until page number 35 as directed in the class. (Write the questions which are told to be done in the notecopy.)

### <u>CLASS X</u>

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#### **ARTIFICIAL INTELLIGENCE**

\*Prepare the notes of Unit 04-Data Science and Unit-05 Computer Vision.

#### **Artificial Intelligence:**

<u>Unit 04 - Data Science</u>	<u>Unit 05 – Computer Vision</u>
Applications of Data Sciences	Applications of Computer Vision
Getting Started	Computer Vision: Getting Started
Revisiting AI Project Cycle	Computer Vision Tasks
Data Collection	Classification
Data Access	Classification + Localisation
Basic Statistics with Python	Object Detection
Data Visualisation	Instance Segmentation
Data Sciences: Classification Model	Basics of Images
Personality Prediction	Basics of Pixels

K-Nearest Neighbour: Explained	Image Features
	Introduction to OpenCV
	Convolution
	Convolution : Explained
	Convolution Neural Networks (CNN)
	Introduction
	What is a Convolutional Neural Network?
	Convolution Layer
	Rectified Linear Unit Function
	Pooling Layer
	Fully Connected Layer

# SOCIAL SCIENCE

1. Prepare 10 objective questions from each chapters. Total 15 chapters

# **CHEMISTRY**

1	For making cake, baking powder is taken. If at home your mother uses baking soda instead of baking powder in cake, (a) how will it affect the taste of the cake and why? (b) how can baking soda be converted into baking powder? (c) what is the role of tartaric acid added to baking soda? A metal carbonate X on reacting with an acid gives a gas which when passed through a solution Y
	gives the carbonate back. On the other hand, a gas G that is obtained at anode during electrolysis of brine is passed on dry Y, it gives a compound Z, used for disinfecting drinking water. Identity X, Y, G
	and Z.
3	A dry pellet of a common base B, when kept in open absorbs moisture and turns sticky. The compound is also a by–product of chloralkali process. Identify B. What type of reaction occurs when B is treated with an acidic oxide? Write a balanced chemical equation for one such solution.
4	A sulphate salt of Group 2 element of the Periodic Table is a white, soft substance, which can be moulded into different shapes by making its dough. When this compound is left in open for some time, it becomes a solid mass and cannot be used for moulding purposes. Identify the sulphate salt and why does it show such a behaviour? Give the reaction involved.
5	<ul> <li>(i)Write down short note 0n following topics-</li> <li>Bleaching powder, POP &amp; gypsm</li> <li>(ii) Explain chlor-alkali process.</li> <li>(iii) Breifly explain the importance of PH in everyday life.</li> </ul>
6	Write down the reaction of metal with – oxygen and water with exception cases(mention chemical reaction also)
7	Mention the reactivity series of metals .
8	Revise the chpater – Chemical reaction and equation.

## **BIOLOGY**

Sample Question Paper 2023-24		
Science (Subject Code – 086)		
Max.	Marks: 80 Time Allowed: 3 hours	
<ul> <li>General Instructions: <ol> <li>This question paper consists of 39 questions in 5 sections.</li> <li>All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.</li> <li>Section A consists of 20 objective type questions carrying 1 mark each.</li> <li>Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.</li> <li>Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.</li> <li>Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.</li> <li>Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts</li> </ol></li></ul>		s. A to 1 with
	Section-A	
	Select and write the most appropriate option out of the four options given for each of the questions 1 - 20. There is no negative mark for incorrect response.	
Q. Nos.	los. Questions Ma	
1	Identify the product which represents the solid state in the above reaction. a) Barium chloride b) Barium sulphate c) Sodium sulphate d) Sodium sulphate	1
2	The colour of the solution observed after 30 minutes of placing zinc metal to copper sulphate solution is a) Blue b) Colourless c) Dirty green d) Reddish Brown	1

3	Mild non-corrosive basic salt is	1
	a) Ca (OH)2	
	b) NaCl	
	c) NaOH	
	d) NaHCO3	

1		
4	On adding dilute sulphuric acid to a test tube containing a metal 'X', a colourless gas is produced when a burning match stick is brought near it. Which of the following correctly represents metal 'X'? a) Sodium b) Sulphur c) Copper d) Silver	1
5	Which one of the following correctly represents Sodium oxide? (a) $ha^{+2} = \left[ \begin{bmatrix} xx \\ x \\ xx \\ xx \\ xx \\ xx \\ xx \\ xx$	1
6	An element with atomic number will form a basic oxide. a) 7 (2,5) b) 17 (2,8,7) c) 14 (2,8,4) d) 11 (2,8,1)	1
7	An element 'M' has 50% of the electrons filled in the 3 <sup>rd</sup> shell as in the 2nd shell. The atomic number of 'M' is: a) 10 b) 12 c) 14 d) 18	1
8	Generally food is broken and absorbed within the body of organisms. In which of the following organisms is it done outside the body? a) <i>Amoeba</i> b) Mushroom c) Paramoecium d) Lice	1

9	Receptors are usually located in sense organs. Gustatory receptors are present in a) tongue b) nose c) eye d) ear	1
10	A farmer wants to grow banana plants genetically similar enough to the plants already available in his field. Which one of the following methods would you suggest for this purpose? a) Regeneration b) Budding c) Vegetative propagation d) Sexual reproduction	1

2		
11	<ul> <li>Height of a plant is regulated by:</li> <li>a) DNA which is directly influenced by growth hormone.</li> <li>b) Genes which regulate the proteins directly.</li> <li>c) Growth hormones under the influence of the enzymes coded by a gene. d) Growth hormones directly under the influence a gene.</li> </ul>	1
12	<ul> <li>A sportsman, after a long break of his routine exercise, suffered muscular cramps during a heavy exercise session. This happened due to:</li> <li>a) lack of carbon dioxide and formation of pyruvate.</li> <li>b) presence of oxygen and formation of ethanol.</li> <li>c) lack of oxygen and formation of lactic acid.</li> <li>d) lack of oxygen and formation of carbon dioxide.</li> </ul>	1
13	<ul> <li>An object is placed in front of a convex mirror. Its image is formed :</li> <li>a) at a distance equal to the object distance in front of the mirror.</li> <li>b) at twice the distance of the object in front of the mirror.</li> <li>c) half the distance of the object in front of the mirror.</li> <li>d) behind the mirror and it's position varies according to the object distance.</li> </ul>	1
14	When light enters the atmosphere it strikes on extremely fine particles, which deflect the rays of light in all possible directions, This is due to - a) reflection of light b) atmospheric refraction c) scattering of light d) dispersion of light	1

15	<ul> <li>In 1987, an agreement was formulated by the United Nations Environment Programme (UNEP) to freeze the production of "X" to prevent depletion of "Y".</li> <li>"X" and "Y" respectively referred here are:</li> <li>a) Ozone; CFCs</li> <li>b) CFCs; rays UV</li> <li>c) CFCs; Ozone</li> <li>d) UV rays; Diatomic oxygen</li> </ul>	1
16	Which of the following features relates to biodegradable substances? a) Broken down by biological processes b) Remain inert c) Persist in environment for long time d) May harm the ecosystem	1
	<ul> <li>Question No. 17 to 20 consist of two statements – Assertion (A) and Reason (R).</li> <li>Answer these questions selecting the appropriate option given below:</li> <li>a) Both A and R are true, and R is the correct explanation of A.</li> <li>b) Both A and R are true, and R is not the correct explanation of A.</li> <li>c) A is true but R is false.</li> <li>d) A is false but R is true.</li> </ul>	
17	Assertion: Rusting of Iron is endothermic in nature. Reason: As the reaction is slow, the release of heat is barely evident.	1
18	Assertion: Probability of survival of an organism produced through sexual reproduction is more than that of organism produced through asexual mode. Reason: Variations provide advantages to individuals for survival.	1

3		
19	Assertion : A compass needle is placed near a current carrying wire. The deflection of the compass needle decreases when the magnitude of the current in the wire is increased. Reason : The strength of a magnetic field at a point near the conductor increases on increasing the current.	1
20	Assertion: Biodegradable substances result in the formation of compost and natural replenishment. Reason: It is due to breakdown of complex inorganic substances into simple organic substances.	1
Section-B		
	Question No. 21 to 26 are very short answer questions	
21	Dil. HCl is added to Zn granules." How will you prove that chemical change has taken place here? Support your response with two arguments.	2
22	State the post-fertilisation changes that lead to fruit formation in plants.	2
23	What is the purpose of making urine in the human body? Name the organs that stores and releases the urine.	2
	OR	

	Why do arteries have thick and elastic walls whereas veins have valves?	
24	The refractive indices of three media are given below: <u>Medium Refractive Index</u> <u>A 1.6</u> <u>B 1.8</u> <u>C 1.5</u> A ray of light is travelling from A to B and another ray is travelling from B to C. (a) In which of the two cases the refracted ray bends towards the normal? (b) In which case does the speed of light increase in the second medium? Give reasons for your answer.	2
25	A piece of wire of resistance R is cut into three equal parts. These parts are then connected in parallel. If the equivalent resistance of this parallel combination is R <sub>1</sub> , what is the value of the ratio R <sub>1</sub> : R? <b>OR</b> Refer to the image below and state how the magnetic field pattern indicates regions where the magnetic field is stronger outside the magnet? What happens to the magnetic field when the current in the circuit is reversed?	2

26	Study the food chain given below and answer the questions that follow:	2
	b) Is it possible to have 2 more trophic levels in this food chain just before the fourth trophic level? Justify your answer.	
	Section-C Question No. 27 to 33 are short answer questions	
27	The given reaction shows one of the processes to extract the metals like Iron and Manganese. $MnO_2 (s) + Al(s) \rightarrow Mn(l) + Al_2O_3(s) + Heat$ a) Give reason why the above reaction is known as a <i>thermite</i> <i>reaction</i> . b) Identify the substance oxidised and reduced in the above reaction. c) Give a reason why Aluminium is preferably used in thermite reactions.	3
28	An element 'M' with electronic configuration 2 8 3 combines separately with Cl <sup>-</sup> , SO4 <sup>-2</sup> anions. Write the chemical formulae of the compounds formed. Predict with the suitable reason the nature of the bond formed by element 'M' in general. How will the electrical conductivity of the compounds formed vary with respect to 'M'? <i>OR</i> A reddish-brown metal 'X', when heated in air, gives a black compound 'Y', which when heated in presence of H <sub>2</sub> gas gives 'X' back. 'X' is refined by the process of electrolysis; this refined form of 'X' is used in electrical wiring. Identify 'X' and 'Y'. Draw a well-labeled diagram to represent the process of refining 'X'.	3
29	We are advised to take iodised salt in our diet by doctors. Justify it's importance in our body.	3
30	What is the probability of a girl or a boy being born in a family? Justify your answer.	3

31	(i) Explain why the refractive index of any material with respect to air is always greater 1. (ii) In the figure below a light ray travels from air into the semi-circular plastic block. Give a reason why the ray does not deviate at the semi-circular boundary of the plastic block.		
	plastic block normal		
	(iii)Complete the ray diagram of the above scenario when the light ray comes out of the plastic block from the top flat end.		
32	<ul> <li>(i) State the law that explains the heating effect of current with respect to the measurable properties in an electrical circuit.</li> <li>(ii) List the factors on which the resistance of a conductor depends.</li> </ul>	2+1	

	5	
33	Anannya responded to the question: Why do electrical appliances with metallic bodies are connected to the mains through a three pin plug, whereas an electric bulb can be connected with a two pin plug? She wrote: Three pin connections reduce heating of connecting wires. (i) Is her answer correct or incorrect? Justify.	2+1
	Section-D	
	Question No. 34 to 36 are long answer questions.	
34	<ul> <li>a) Rehmat classified the reaction between Methane and Chlorine in presence of sunlight as a substitution reaction. Support Rehmat's view with suitable justification and illustrate the reaction with the help of a balanced chemical equation.</li> <li>b) Chlorine gas was prepared using electrolysis of brine solution. Write the chemical equation to represent the change. Identify the other products formed in the process and give one application of each.</li> </ul>	5
	OR	
	Raina while doing certain reactions observed that heating of substance 'X' with vinegar like smell with a substance 'Y' (which is used as an industrial solvent) in presence of conc. Sulphuric acid on a water bath gives a sweet-smelling liquid 'Z' having molecular formula $C_4H_8O_2$ . When heated with caustic soda (NaOH), 'Z' gives back the sodium salt of and the compound 'Y'.	
	Identify 'X', 'Y', and 'Z'. Illustrate the changes with the help of suitable chemical equations.	

35	<ul> <li>Given below are certain situations. Analyze and describe its possible impact on a person: a) Testes of a male boy are not able to descend into scrotum during his embryonic development.</li> <li>b) Vas deferens of a man is plugged.</li> <li>c) Prostate and seminal vesicles are not functional.</li> <li>d) Egg is not fertilised in a human female.</li> <li>e) Placenta does not attach to the uterus optimally.</li> </ul>	5
	OR	
	a) A doctor has advised Sameer to reduce sugar intake in his diet and do regular exercise after checking his blood test reports. Which disease do you think Sameer is suffering from? Name the hormone responsible for this disease and the organ producing the hormone.	3+2
	b) Which hormone is present in the areas of rapid cell division in a plant and which hormone inhibits the growth?	
36		1+2+2
	The above image shows a thin lens of focal length 5m.	
	(i) What is the kind of lens shown in the above figure?	
	(ii) If a real inverted image is to be formed by this lens at a distance of 7m from the optical centre, then show with calculation where should the object be placed?	
	(iii) Draw a neatly labelled diagram of the image formation	
	A 10 cm long pencil is placed 5 cm in front of a concave mirror having a radius of curvature of 40 cm.	2+1+2

6	
<ul> <li>(i) Determine the position of the image formed by this mirror.</li> <li>(ii) What is the size of the image?</li> <li>(iii)Draw a ray diagram to show the formation of the image as mentioned in the part (i).</li> </ul>	
SECTION - E Question No. 37 to 39 are case-based/data -based questions with 2 to 3	
short sub-parts. Internal choice is provided in one of these sub-parts.	





# <u>ENGLISH</u>

### **General Instructions**

- It is compulsory for all to prepare the project file.
- The Internal Assessment of Session Ending Exam will be in the form of Project Portfolio/Project Report and Viva.
- The Internal Assessment of Session Ending Exam will be conducted by an internal/external examiner.
- The Project Report is needed to be completed in/around 1000 words in your own handwriting.
- The Project Report must be submitted on or before 5<sup>th</sup> January 2023.

#### Project File

The Project-Portfolio may include the following:

Page 1 : COVER PAGE, WITH TITLE OF PROJECT, SCHOOL DETAILS/DETAILS OF STUDENTS. Page 2 : STATEMENT OF ACKNOWLEDGEMENT/PURPOSE/OBJECTIVES.

Page 3 : CERTIFICATE OF COMPLETION.

Page 4 : ACTION PLAN FOR THE COMPLETION OF ASSIGNED TASKS.

Mid Pages : PROJECT/REPORT DETAILS, Graphics and pictures to be pasted on left hand side and content of the report to be written in your own handwriting on the right hand side of the page.

Last Page : LIST OF RESOURCES/BIBLIOGRAPHY

**Note :** The students are instructed to make pictorial as well as graphical presentation on left hand side of the file. All data should be collected authentically and hand written write ups of 1000 words on right side.

	_	ASSIGNED PROJECT TOPICS	-
S. N.	TOPIC	TASK	ROLL NO.

1.	A Letter to God	<ul> <li>Elaborate the theme of Faith and Belief and Irony and Human Nature.</li> <li>Collect data about crops destroyed by natural calamity.</li> <li>Imagine that you are in Lencho's shoes and write a letter to God, similar to the one he wrote in the story.</li> </ul>	1, 11, 21, 31
2.	Nelson Mandela - Long Walk to Freedom	<ul> <li>Describe Nelson Mandela's Leadership and Impact.</li> <li>Collect the data of the atrocities and exploitations undergone by people. How are children engaged in various kinds of work (Below 14)?</li> <li>Imagine that you are in Nelson Mandela's shoes and write a speech, similar to the one he has delivered in the chapter.</li> </ul>	2, 12, 22, 32
3.	A Tiger in the Zoo	<ul> <li>Analyze the poem and provide examples from the poem to support your interpretation.</li> <li>Conduct research on the issues of wildlife conservation, the preservation of natural habitats, and the ethical concerns associated with keeping wild animals in captivity.</li> <li>Comparing the Caged Tiger's Life with Wild Tigers.</li> </ul>	3, 13, 23, 33
4.	The Ball Poem	<ul> <li>Analyze the psychological aspects of loss and growing up as portrayed in the poem.</li> <li>Reflect on a personal experience of loss or growing up and create a short story that relates to the themes presented in the poem.</li> <li>Conduct a survey to find students own experiences of loss and how they've grown as a result.</li> </ul>	4, 14, 24, 34
5.	A Triumph of Surgery	<ul> <li>Create a document analyzing the transformation of Tricki, the small dog, from an overweight and ailing pet to a healthy, active member of a pack of dogs.</li> <li>Conduct a survey related to pet health and nutrition aimed at pet owners, emphasizing the importance of maintaining a balanced diet and regular exercise for their animals.</li> <li>Create a graph showing the health condition of Trick at different phases in chronicle order. And write analysis of the same.</li> </ul>	5, 15, 25
6.	The Thief's Story	<ul> <li>Explore the character development and moral dilemmas faced by the protagonist in the passage.</li> <li>Write a drama exploring moral dilemmas, choices, and consequences.</li> <li>Interview the elders or the counselor to know the problems reasons that leads one to rob others.</li> </ul>	6, 16, 26
7.	The Midnight Visitor	<ul> <li>Create detailed character profiles for the characters of Ausable, Fowler, Max, and the waiter.</li> <li>Draft a story continuing from the end of the lesson to show diverse interpretations and implications of different conclusions.</li> <li>Collect the data of various detective shows on the television and show the distribution of viewer's percentage by a pie-chart.</li> </ul>	7, 17, 27
8	Two Stories About Flying	<ul> <li>Write an article "The Journey of Courage – Analyzing 'The Young Seagull".</li> <li>Conduct a research by field observations, and analysis behavior related to avian.</li> <li>Conduct a group discussion to investigate similar unsolved aviation mysteries, gather information about radar technology.</li> </ul>	8, 18, 28
9	Glimpses of India	<ul> <li>Write an essay on 'Unity in Diversity' in India.</li> <li>Conduct a research and present the findings about this unique aspect of Goan heritage.</li> <li>Imagine that you met Rajvir and discussed with him more about tea plantation. Develop the conversation.</li> </ul>	9, 19, 29
10	Footprints Without Feet	<ul> <li>Write a letter to the editor expressing your openion on 'Science is Boon or Bane'.</li> <li>Prepare a chronicle of events based on the story.</li> <li>Collect the data of science used for constructive and destructive purpose in the world, present it in form of table/chart and write analytical paragraph of the same.</li> </ul>	10, 20, 30

#### <u>HINDI</u>

नोट:-

- यदि कोई पुरानी कॉपी हो जिसमे पर्याप्त रिक्त पेज हों उसका प्रयोग कर सकते हैं नयी कॉपी खरीदने की आवश्यकता नहीं है |
- सभी प्रश्नों को पूरा लिखना अनिवार्य है, क्रमश: प्रश्न के पश्चात उत्तर लिखेंगे।
- पाठ्यपुस्तक सम्बंधित उत्तर को कही से न देखकर, स्वविवेक से लिखने का प्रयास करेंगे जिससे बोर्ड परीक्षाओं में सहायता मिलेगी।
- अवकाश के पश्चात् विद्यालय प्रारम्भ होने के दिन सभी कार्य पूर्ण कर कॉपी जमा करेंगे।
- (1) क) वाक्य की परिभाषा लिखिए |
  - ख) रचना के आधार पर वाक्य के कितने भेद होते हैं 5-5 उदाहरण सहित सबकी परिभाषा लिखिए | ग) उपवाक्य किसे कहते हैं ? 3-3 उदाहरण सहित सभी की व्याख्या कीजिये |
- (2) क) वाच्य किसे कहते हैं ?
   ख) पांच-पांच उदाहरण सहित सभी भेदों की व्याख्या करिए ।
   ग) स्वयं से कोई 10 कर्त वाक्य लेकर उनका कर्म तथा भाव वाच्य में रूपांतरण कर लिखिए |
- (3) संज्ञा, सर्वनाम, विशेषण, क्रिया-विशेषण, काल, अव्यय की परिभाषा प्रकार एवं उदाहरण लिखिए।
- (4) सुरदास पाठ को पढ़कर उसके आधार पर उत्तर दीजिए।
  - क) "तुम बहुत बडभागी हो" किसने किससे कहा ? और क्यों कहा ?
  - ख) तेल से चुपड़ी घड़े की तुलना किससे की गयी और क्यों की गयी ?
  - ग) प्रीति नदीँ में पाऊं न बोर्यों में कौन सा अलंकार है ?
  - घ) गुड़ और चींटी की तुलना किन-किन के लिए किया गया है और क्यों ?
  - ङ) विरहाग्नि का क्या अर्थ होता है ?
  - च) 'मरजादा न लही' में किनके मर्यादा के विषय में बात की जा रही है? और क्या ?
  - छ) हरिल की लकरी का क्या अर्थ होता है ? इसका काव्य में किस भाव में प्रयोग हुआ है ?
  - ज) "जिनके मन चकरी" का भाव स्पष्ट कीजिये |
  - झ) गोपियों के अमुसार राज-धर्म क्या होता है ?
- (5) राम-लक्ष्मण परसुराम संवाद के आधार पर उत्तर दीजिए
  - क) "जिसने भी यह शिव धनुष तोड़ा है वह आप ही का कोई सेवक है।" किसने किससे कहा ?
  - ख) "जिसने भी यह शिव धनुष तोड़ा है वह सहस्तंबाहु के सामान मेरा शत्रु है।" किसने किससे कहा ?
  - ग) "बचपन में हमने बहुत से धनुष तोड़ा पर किसी स्वामी ने ऐसा क्रोध नहीं किया।" किसने किससे कहा ?
  - य) "राम नयन के भोले है छूते ही उनसे शिव धनुष टूट गया उसमें राम का कोई दोष नहीं है |" किसने किससे कहा ?
  - ङ) कौन क्षत्रिय कूल के द्रोही के रूप में विश्वविदित हैं और क्यों ?
  - च) "वीर पुरुष अपनी वीरता का प्रदर्शन युद्ध भूमि में करते हैं उनके मुख पर गाली शोभा नहीं देती है |" किसने किससे कहा ?
  - (6) आत्मकथ्य पाठ के आधार पर उत्तर दें-
    - क) कोई तीन कारण पंक्तिबद्ध कर लिखिए की कवि अपनी आत्मकथा क्यों नहीं लिखना चाहते ?
    - ख) "आलिंगन में आते-आते मुसक्या कर भाग गया" उक्त पंक्ति में कवि ओने किस दुःख की और संकेत कर रहे हैं ?
    - ग) "स्मृति पाथेय बनी है थके पथिक की पंथा की" भाव स्पष्ट कीजिए |
  - (7) नेताजी के चश्मा पाठ के आधार पर उत्तर दें -
    - क) सरकंडे का चश्मा देखकर हालदार साहब किस विचार से भाव-विभोर हो गए |
    - ख) नेताजी का चश्मा के आधार पर कैप्टन का एक शब्दचित्र प्रस्तुत करिए |
    - ग) हालदार साहब ने किस विचार के कारण अपने ड्राइवर को करबे में रुकने से मना किया था ?
    - ध) "वो लंगड़ा क्या जायेगा फौज में पागल है, पागल !" किसने किससे कहा था ?
  - (8) लखनवी अंदाज पाठ के आधार पर उत्तर दें
    - क) लेखक ने ऐसा क्यों कहा की बिना विचार,घटना और पात्रों के, लेखक की इच्छा मात्र से 'नयी-कहानी' बन सकती है ?
    - ख) "खीर लजीज होता है लेकिन होता है सकील, नामुराद मैदे पर बोझ दल देता है।" किसने किससे कहा था ?
  - (9) एक कहानी यह भी पाठ के आधार पर उत्तर दें
    - क) कई बार हमारा अपने घर के किसी बड़े के साथ वैचारिक टकराव हो जाता है | उस समय आपके मन की स्थिति कैसी रहती है स्वयं के अनुभव से लिखिए तथा इस टकराव का कारण पता कर लिखने का प्रयास कीजिये |
    - ख) प्रिंसिपल के बुलावे पर लेखिका के पिता कॉलेज नहीं जाना चाहते थे पर वहाँ ऐसा क्या हुआ कि वे खुश होकर लौटे?
  - (10) आप एक योग प्रशिक्षण केंद्र खोलना चाहते हैं। इस संबंध में युवाओं को आकर्षित करने वाला एक विज्ञापन तैयार कीजिए।
  - (11) आपको अपनी पुरानी मोटर साइकिल बेचनी हैं। इसके लिए विज्ञापन तैयार कीजिए।
  - (12) आपके क्षेत्र में सरकारी जमीन पर गैर कानूनी ढंग से मकान बनाए जा रहे हैं इनकी रोकथाम के लिए जिलाधिकारी को ई-मेल लिखिए।

#### PHYSICS

- 01. Calculate the resistance of 1 km long copper wire of radius 1 mm. (Resistivity of copper =  $1.72 \times 10^{-8}$ )
- 02. A lamp can work on a 50 volt mains taking 2A. What value of the resistance must be connected in series with it so that it can be operated from 200V mains giving the same power.
- 03. Calculate the work done in moving a charge of 5 coulombs from a point at a potential of 210 volts to another point at 240 volts.
- 04. A 4 ohm resistance wire is doubled on it . Calculate the new resistance of the wire.
- 05. Why is a normal eye not able to see clearly the objects placed closer than 25 cm?

06. The magnification produced by a plane mirror is +1. What does it mean ? 07. A doctor has prescribed a corrective lens of power + 1.5 D. Find the focal length of the lens. Is the prescribed lens diverging or converging. 08. What does the sky appear dark instead of blue to an astronaut ? 09. Which uses more energy a 250W tv set in 1 hr or a 1200W toaster in 10 minutes.

10. How many 176 ohm resisters (paralled) are required to carry 5A on a 220V line ?

### MATHEMATICS

1. What will be the least possible number of planks, if three pieces of timber 42 m, 49 m, and 63 m long have to be divided into planks of the same length.

2. Prove that 3 + 7 is an irrational.

3. If  $\alpha$  and  $\beta$  are the zeroes of the polynomial  $21x^2 - x - 2$ , find the quadratic polynomial whose zeroes are  $2\alpha$  and  $2\beta$ .

4. If one zero of the zeroes of the polynomial  $(a^2 + 9) x^2 + 13x + 6a$  is reciprocal of the other, find the value of a.

5. A plane left 30 minutes late than its scheduled time and in order to reach the destination 1500 km away in time, it had to increase its speed by 100 km/h from the usual speed. Find its usual speed.

6. A sum of ₹ 700 is to be used to give seven cash prizes to students of a school for their overall academic performance. If each prize is Rs 20 less than its preceding prize, find the value of each of the prizes.

7. Given a  $\triangle$ ABC, D and E lie on the sides AC & BC such that DE // AB and CE=x, DA=3x+19 , BE=3x+4 , CD=x+3.Find x ?

8. If x = b Cos A - a Sin A and y = a Cos A + b Sin A, then prove that  $x^2 + y^2 = a^2 + b^2$ .

9. If *tanA=ntanB* and *sinA=msinB* show that  $cos^2A = \frac{m^2 - 1}{n^2 - 1}$ 

10. From balloon vertically above a straight road the angle of depression of two cars at an instant are found to be 30° and 45° if the cars are 80 m apart. Find the height of the balloon.

### <u>CLASS XI</u>

#### **CHEMISTRY**

	bond moments and the resultant dipole moment in CO2, NF3 and CHCl3.		
2	Use the molecular orbital energy level diagram to show that N2 would be expected to have a triple bond, F2, a single bond and Ne2, no bond.		
3	Briefly describe the valence bond theory of covalent bond formation by taking an example of hydrogen. How can you interpret energy changes taking place in the formation of dihydrogen?		
4	Describe hybridisation in the case of PCI5 and SF6. The axial bonds are longer as compared to equatorial bonds in PCI5 whereas in SF6 both axial bonds and equatorial bonds have the same bond length. Explain		
5	Discuss the concept of hybridisation. What are its different types?		
6	Write Lewis structure of the following compounds and show formal charge on each atom. HNO3, NO2, H2SO4		
7	Explain the non linear shape of H2S and non planar shape of PCI3 using valence shell electron pair repulsion theory.		
8	Explain the shape of BrF5.		
9	Explain the theromdynamics ist law with the help of & how it can be obtained by the help of internal energy , work & heat relation.as well mention why internal energy is a state function.		
10	Write down the following practical in practical notebook Qualitative analysis of one cation & one anion in given salt. Cations- Pb2+, Cu2+, As3+, Al3+, Fe3+, Mn2+, Ni2+, Zn2+, Co2+ , Ca2+, Sr2+, Ba2+, Mg2+, NH4 + Anions – CO3 2 , S 2- , NO2 - , SO3 2, SO4 2- , NO3 - , Cl- , Br-, I-, PO4 3- , , CH3COO		
11	Revision of -Some Basic Concepts of Chemistry chapter - Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula,		

# <u>ENGLISH</u>

RO LL NO	NAME OF STUDENTS	INDIVIDUAL TOPICS	PSA TASK
1	ABHASH PANDEY	TRAVEL AND TOURISM	Your friend is very shy and doesn't take part in extracurricular activities/sports at school. His parents are worried that he doesn't
2	AKSHAT AMBASTA	HOBBIES AND	mix with others but studies all the time. With your partner discuss; what might be the reason for this and what you can say or do to encourage your friend to interact with others.
3	ANISHA NIRALA	HISTORY AND LEGEND	Your friend lives with his grandparents who are unwell. He reaches school late because he needs to help them in the morning. He is
4	ANSHUL KUMAR NAG	CULTURE AND MUSIC	frequently penalised by the teacher. Discuss with your partner; what you could do to assist your friend, and how he could resolve his situation.

5	ARADHANA	SPORTS AND GAMES	Your friend has a hearing disability. She is teased by her classmates and is hurt and annoved by their behaviour. You feel
6	ARNAV KUMAR AMBASTHA	ENVIRONMENT	that the matter has to be addressed before it becomes serious and affects her deeply. Discuss with your partner: how you can help your friend, and how you should address the matter.
7	ARPIT EKKA	DIGITAL INDIA	Your friend is good at English, History and Geography. However, his parents feel he should continue to pursue Science and become
8	ARYAN KUMAR TIGGA	INTERNET PRIVACY	a doctor, even though he is not very good at Science. Discuss with your partner; what your friend can do to convince his parents, and what career options he could pursue.
9	ASHISH YADAV	POPULATION EXPLOSION	Your brother is part of the school's hockey team and is its best player. His friend is also part of the team, but he tries to keep your
10	ASHUTOSH VISHWAKARMA	TREND OF PIRACY IN INDIA	brother out of practice sessions and tournaments. Your brother is hurt but does not want to offend his friend. Discuss with your partner; what you could do to help your brother, and what steps you would suggest to resolve the issue.
11	BHONIDHI SAHU	SUSTAINABLE DEVELOPMENT	Your elder sister learnt pottery as a hobby in college but is now keen to start her own pottery studio/shop and earn her living. Your
12	IMMANUWEL TIGGA	POVERTY IN INDIA	parents feel that she should continue to study and choose a safe career. Discuss with your partner; what you could do to help your sister, and what steps you would suggest to help resolve the issue.
13	ISHITA SAHU	CURRUPTION: A HURDLE IN DEVELOPMENT	Every morning your friend is late getting ready, so, the school bus waits for several minutes for him. Since the driver keeps the engine running, fuel is wasted; everyone is annoyed with your
14	JAHANVI SINGH	POLITICS AND RELIGION	friend because they are kept waiting. Discuss with your partner; how you would explain to your friend the resultant problems, and what steps you would suggest to help resolve the issue.
15	JEYANG MINJ	CHILD LABOUR	During summer, when there is scarcity of water, you notice that your immediate neighbours use water liberally to wash their
16	KANAK SHRIVASTAVA	global Warming	vehicle and their front yard. Discuss with your partner; what advice you would give to them, and what steps you would suggest to help resolve the issue.
17	KRITI PANDEY	MEDIA AND COMMUNICATI ON	Your friend is very shy and doesn't take part in extracurricular activities/sports at school. His parents are worried that he doesn't
18	KRRISH KHUTIYA	BETTER TO DIE ON FEET THAN TO LIVE ON KNEES	mix with others but studies all the time. With your partner discuss; what might be the reason for this and what you can say or do to encourage your friend to interact with others.
19	MAYANK SINGH	CRAZE OF SOCIAL NETWORKING SITES	Your friend lives with his grandparents who are unwell. He reaches school late because he needs to help them in the morning. He is frequently penalised by the teacher. Discuss with your partner; what you could do to assist your friend, and how he could resolve
20	MD RAFIUDDIN ANSARI	IMPORTANCE OF ENGLISH	his situation.
21	NISHANT BHAGAT	ANCIENT EDUCATIOIN OR MODERN EDUCATION	Your friend has a hearing disability. She is teased by her classmates and is hurt and annoyed by their behaviour. You feel that the matter has to be addressed before it becomes serious and

		ADVANTAGES	your friend, and how you should address the matter.
22	PRIYANSHI	OF	
	DWIVEDI	CO-EDUCATIO	
		N	
23	RAHUL	BRAIN DRAIN	Your friend is good at English, History and Geography, However,
	PRABHAKAR		his parents feel he should continue to pursue Science and become
		SWACHH	a doctor, even though he is not very good at Science. Discuss with
24			your partner; what your friend can do to convince his parents, and
		BUADAT	what career options he could pursue.
			Your brother is part of the school's bockey team and is its best
25	ROMA TIGGA		player. His friend is also part of the team, but he tries to keep your
			brother out of practice sessions and tournaments. Your brother is
	SANSKRITI	RESOURCES	hurt but does not want to offend his friend. Discuss with your
26	манто	FOR NEED NOT	partner; what you could do to help your brother, and what steps
		FOR GREED	you would suggest to resolve the issue.
		TECHNOLOGY	Your elder sister learnt notten, as a hobby in college but is now
27	SHABHAGITA	AND	keen to start her own pottery studio/shop and earn her living. Your
21	MINJ	UNEMPLOYME	parents feel that she should continue to study and choose a safe
		NT	career. Discuss with your partner: what you could do to help your
28	SHAYMA NAAZ	SUSTAINABLE	sister, and what steps you would suggest to help resolve the issue.
	-	DEVELOPMENT	
	SHOURYA	PROBLEM OF	Every morning your friend is late getting ready, so, the school bus
29	GUPTA		waits for several minutes for him. Since the driver keeps the
			friend because they are kept writing. Discuss with your partner:
20	SHREYANSH	CLIMATE	bow you would explain to your friend the resultant problems, and
30	VERMA	CHANGE	what steps you would suggest to help resolve the issue
	SHREYANSHI	PRESERVATIO	During summer, when there is scarcity of water, you notice that
31	MISHRA	N OF WILDLIFE	your immediate neighbours use water liberally to wash their
			vehicle and their front yard. Discuss with your partner; what advice
32	SHUBHAM SAHU	SAVE WATER	you would give to them, and what steps you would suggest to help
			resolve the issue.
		PROBLEM OF	Your friend is very shy and doesn't take part in extracurricular
33	SONAM KUMARI	OVERPOPULAT	activities/sports at school. His parents are worried that he doesn't
		ION	mix with others but studies all the time. With your partner discuss:
		IMPORTANCE	what might be the reason for this and what you can say or do to
34	SUDHA BANJUA	OF READING	encourage your friend to interact with others.
		BOOKS	
35	SUHANA SINGH		rour triend lives with his grandparents who are unwell. He reaches
			frequently penalised by the teacher. Discuss with your partner:
36	SUMIT KUMAR	VS SMART	what you could do to assist your friend, and how he could resolve
	BANJUA	WORK	his situation.
	SURBHI SUNIDHI	GENERATION	Your friend has a hearing disability. She is teased by her
37	BAXLA	GAP	classmates and is hurt and annoved by their behaviour. You feel
		IMPORTANCE	that the matter has to be addressed before it becomes serious and
38		OF YOGA IN	affects her deeply. Discuss with your partner: how you can help
50	GUPTA	ONE'S LIFE	your friend, and how you should address the matter.

39	vaibhav Upadhyay	CASHLESS INDIA	Your friend is good at English, History and Geography. However, his parents feel he should continue to pursue Science and become
40	VAISHNAVI GUPTA	SCIENCE AND FUTURE	a doctor, even though he is not very good at Science. Discuss with your partner; what your friend can do to convince his parents, and what career options he could pursue.
41	VIVEK SAHU	IMPORTANCE OF OUTDOOR GAMES	Your brother is part of the school's hockey team and is its best player. His friend is also part of the team, but he tries to keep your brother out of practice sessions and tournaments. Your brother is hurt but does not want to offend his friend. Discuss with your partner; what you could do to help your brother, and what steps you would suggest to resolve the issue.
NOT	E. Both individual to	price and problem	solving assessment tasks must be written in a stick file and be

NOTE: Both individual topics and problem solving assessment tasks must be written in a stick file and be submitted.

### MATHEMATICS

- 1. Let A and B be sets. If  $A \cap X = B \cap X = \phi$  and  $A \cup X = B \cup X$  for some set X, show that A = B.
- 2. Solve  $6 \le -3(2x-4) \le 12$ .
- 3. Prove that  $\tan 4x = \frac{4\tan x (1 \tan^2 x)}{1 6\tan^2 x + \tan^4 x}$
- 4. Find the sum to n terms of the sequence 8, 88, 888, 8888, ...
- 5. How many numbers greater than a million can be formed by using the digits 1,2,0,2,4,2,4?
- 6. Prove that  $\cos 2x \cos \frac{x}{2} \cos 3x \cos \frac{9x}{2} = \sin 5x \sin \frac{5x}{2}$

7. Find 
$$(x + 1)^6 + (x - 1)^6$$
. Hence, evaluate  $(\sqrt{2} + 1)^6 + (\sqrt{2} - 1)^6$ .

- 8. Find the domain and range of the real function f (x) =  $\sqrt{9} x^2$ .
- 9. The sum of two numbers is 6 times their geometric mean, show that numbers are in the ratio

$$(3 + 2\sqrt{2})$$
 :  $(3 - 2\sqrt{2})$ 

10. If 
$$\tan x = \frac{3}{4}$$
,  $\pi < x < \frac{3\pi}{2}$ , find the values of  $\sin \frac{x}{2}$ ,  $\cos \frac{x}{2}$ ,  $\tan \frac{x}{2}$ ?

11. Using the letters of the word DAUGHTER, answer the following questions:

How many words can be formed with or without meaning,

(i) each of 2 vowels and 3 consonants?

- (ii) there are always 4 letters between D and R, assuming that no letter is repeated?
- (iii) all the consonants occur together?
- (iv) no two vowels come together?
- (v) vowels occupy even places only?
- 12. Let R be a relation from Q to Q defined by R = {(a, b):  $a, b \in Q$  and  $a b \in Z$ }.

Show that (i)  $(a, a) \in R$  for all  $a \in Q$  (ii)  $(a, b) \in R$  implies that  $(b, a) \in R$ 

(iii) (a, b)  $\in$  R and (b, c)  $\in$  R implies that (a, c)  $\in$  R

13. Find the value of n so that  $\frac{a^{n+1}+b^{n+1}}{a^n+b^n}$  may be the geometric mean between a and b.

14. Prove that  $(\cos x - \cos y)^2 + (\sin x - \sin y)^2 = 4 \sin^2(\frac{x-y}{2})$ .

15. Show that A U B = A  $\cap$  B implies A = B.

16. A manufacturer has 600 litres of a 12% solution of acid. How many litres of a 30% acid solution must be add to it so that the acid content in the resulting mixture will be more than 15% but less than 18%?

17. Prove that  $\cos^2 x + \cos^2 (x + \frac{\pi}{3}) + \cos^2 (x - \frac{\pi}{3}) = \frac{3}{2}$ 

18. The sum of first three terms of a G.P. is  $\frac{13}{12}$  and and their product is -1. Find the common ratio and the terms.

19. If  $(x + iy)^3 = u + iv$ , then show that  $\frac{u}{x} + \frac{v}{y} = 4(x^2 - y^2)$ 

20. Let f = {(x,  $\frac{x^2}{1+x^2}$ ): x  $\in$  R} be a function from R into R. Determine the range of f.

## <u>HINDI</u>

निर्देश:- सभी प्रश्न अनिवार्य हैं। साफ - सफाई का विशेष ध्यान रखें।

1.'गलता लोहा' पाठ के आधार पर एक अध्यापक के रूप में त्रिलोक सिंह का व्यक्तित्वा आपको कैसा लगता है? अपनी समझ में उनकी खूबियों और खामियों पर विचार प्रकट करें।

2.'घर कि याद' कविता के आधार पर कविता में पूर्वी प्रदेशों की स्त्रियों की किस विडम्बनात्मक स्थिति का वर्णन हुआ है? लिखें।

3.आखिरी शेर में गुलमोहर कि चर्चा हुई है।क्या उसका आशय एक खास तरह के फूलदार वृक्ष से है या कोई सांकेतिक अर्थ निहित है? समझाकर लिखें।

4.'राजस्थान की रजत बूँदें' (वितन) पाठ को पढ़कर पाठ का सार वा शब्दार्थ लिखें?

5.'पत्रकारिता के विविध आयाम' पाठ के अंतर्गत पत्रकारिता, समाचार, समाचार के तत्व तथा संपादन प्रकरणों पर संक्षिप्त नोट तैयार करें।

# PHYSICS

# 1. Explain why?

The blood pressure in humans is greater at the feet than at the brain.

2.Fill in the blanks using the words from the list appended with each statement: a) Surface tension of

liquids generally ...... with temperatures (increases / decreases)

b) Viscosity of gasses...... with temperature. Whereas Viscosity of liquids...... with temperature.(increases /decreases)

c) for the model of a plane in a wind tunnel, turbulence occurs at a.....speed for turbulence for an actual plane.(greater/smaller)

3. A 50 kg girl wearing high heel shoes balances on a single heal. The heel is circular with a diameter 1.0cm. What is the pressure exerted by the heel on the horizontal floor?

4. Does it matter if one uses gauge instead of absolute pressures in applying Bernoulli's equation? Explain.

5. A hydraulic automobile lift is designed to lift cars with a maximum mass of 3000 kg. The area of cross Section of the piston carrying the load is 425 cm<sup>2</sup> what maximum pressure would be smaller piston have to bear?

6. The radius of a drop of mercury is 6mm. if the surface tension of the mercury is 0.465 N/m calculate the pressure inside the drop of mercury.

# **COMPUTER SCIENCE**

Prepare a Detailed Notes of the following :

- □ <u>Computer System & Organization</u> :
- 1. Input and Output devices.
- 2. Memory Organization.
- 3. Operating System Assembler , Compiler, Interpreter.
- 4. Boolean Algebra.
- 5. Logic Gates and Logic Circuits.
- Depthon Programming :
- 1. Input two numbers and display the larger/smaller number.
- 2. Input three numbers and display the largest / smallest number.
- 3. Generate the following patterns using nested loop :

Pattern-1	Pattern-2	Pattern-3
*	12345	А
**	1234	AB
***	123	ABC
****	12	ABCD
****	1	ABCDE

- □ Write a program to input the value of x and n and print the sum of the following series :
- 1.  $1 + x + x^2 + x^3 + x^4 + \dots x^n$
- 3.  $x \frac{x^2}{2} + \frac{x^3}{3} \frac{x^4}{4} + \dots x^n$
- 4.  $x + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots + \frac{x^n}{n!}$

# <u> PHE</u>

- 1. Aims and Objectives of physical education.
- 2. Ancient Olympics concept.
- 3. Motto, Flag and symbol of Olympics.

- 4. Meaning and importance of Yoga.
- 5. Meaning and types of disability.
- 6. P.R.I.C.E.

# **CLASS XII**

### PHYSICS

1. A small red colour dot on a paper is observed through a glass slab of thickness 12cm and refracted index 1.5. The distance through which the dot appear to be raised will be...

(a) 2 cm. (b) 4cm (c) 6cm. (d) 8cm

2. A particle which has zero rest mass and a non zero energy and momentum must travel with a speed

(a) equal to c, the speed of light in vaccum. (b) greater than c

(c) less than c (d) trending to infinity.

3. In a transformer, the voltage is stepped up from 200v to 500v. If the current in the primary coil was 5.0A, that in the secondary should be ?

4. Iron has been used as the core of the transformer to reduce the loss due to ..?

5. The effective Value of current in a 50 cycle ac circuit is 5.0 Amp. What is the value of the current 1/300 sec after it is zero.

6. If a domestic appliance draws 2.5A from a 220V 60-Hz power supply, find (a) the average

current. (b)the average of the square of the current. (c) the current amplitude. (d) the Supply

Voltage amplitude.

7. The height of a tall man is 6 feet. He wants to see his complete image in the plane mirror, then the minimum height of the mirror will be....

8. Which of the following has the shortest wavelength...

(a) X-ray. (b) gamma ray (c) Alfa ray. (d) beta ray 9. Capacitor stops, direct current

why?

10. Only neutron is more suitable for nuclear fission. Why?

#### ENGLISH

### **General Instructions**

- It is compulsory for all to prepare the project file.
- The Internal Assessment of Session Ending Exam will be in the form of Project Portfolio/Project Report and Viva.
- The Internal Assessment of Session Ending Exam will be conducted by an internal/external examiner.
- The Project Report is needed to be completed in/around 1000 words in your own handwriting.
- The Project Report must be submitted on or before 5<sup>th</sup> January 2023.

### Project File

The Project-Portfolio may include the following:

Page 1 : COVER PAGE, WITH TITLE OF PROJECT, SCHOOL DETAILS/DETAILS OF STUDENTS.

Page 2 : STATEMENT OF ACKNOWLEDGEMENT/PURPOSE/OBJECTIVES.

Page 3 : CERTIFICATE OF COMPLETION.

Page 4 : ACTION PLAN FOR THE COMPLETION OF ASSIGNED TASKS.

Mid Pages : PROJECT/REPORT DETAILS, Graphics and pictures to be pasted on left hand side and content of the report to be written in your own handwriting on the right hand side of the page.

Last Page : LIST OF RESOURCES/BIBLIOGRAPHY

**Note :** The students are instructed to make pictorial as well as graphical presentation on left hand side of the file. All data should be collected authentically and hand written write ups of 1000 words on right side.

	ASSIGNED PROJECT TOPICS			
S. N.	TOPIC	TASK	ROLL NO.	
1.	The Last Lesson	<ul> <li>Elaborate the theme of Linguistic Chauvinism and Procrastination and importance of Time Management.</li> <li>Collect data about countries where people have these tendencies.</li> <li>How do they give importance to their mother tongue?</li> </ul>	1, 14, 27	
2.	Lost Spring	<ul> <li>Collect data about various slums in our country and living conditions there.</li> <li>Also elaborate whether children have access of education there.</li> <li>How children are engaged in various kinds of work (Below 14)?</li> <li>Collect all information about biggest slums.</li> </ul>	2, 15, 28	
3.	Deep Water	<ul> <li>Elaborate your any personal experience about any kind of fear haunted you yet.</li> <li>How did you overcome that fear?</li> <li>Collect data about types of fear people have in your locality and how they are trying to overcome it</li> </ul>	3, 16, 29	
4.	My Mother At Sixty-six	<ul> <li>Explain the importance of parents in the family.</li> <li>On the context of the poem how do you love and care your mother?</li> <li>Collect data about condition of old age homes in our country, living condition there, number of old age homes.</li> </ul>	4, 17,	
5.	Keeping Quiet	<ul> <li>Collect reasons of environmental degradation.</li> <li>How far is man harming the Earth?</li> <li>Focus on relevance of meditation and introspection.</li> </ul>	5, 18,	
6.	The Third Level	<ul> <li>Why 'hurry and worry' are trademarks of modern men?</li> <li>How far today life is insecure? Why do modern men want to escape?</li> <li>Interview your school principal or the counselor to know the problems (stress, fear, anxiety etc.) faced by the students in the virtual platform.</li> </ul>	6, 19,	
7.	Indigo	<ul> <li>Collect all about different kinds of freedom movements of our country.</li> <li>What was the importance of Champaran Movement?</li> <li>You can write about autobiography of any freedom fighter.</li> </ul>	7, 20,	
8	A Thing Of Beauty	<ul> <li>Write all about benefits of going amidst nature.</li> <li>Why do people find peace and solidarity there?</li> <li>Collect data of important natural destinations of our country.</li> </ul>	8, 21,	
9	A Roadside Stand	<ul> <li>Conduct an interview with the poor and deprived people and pen down the difference between their expectations and realities.</li> <li>Write a report on the attitude of rich and city people towards the poor.</li> <li>Collect the data to show the cause of poverty and suggest measures to</li> </ul>	9, 22,	

		eradicate it.	
10	Memories	<ul> <li>Write an article on 'Casteism is a Curse'.</li> </ul>	10, 23,
	of	<ul> <li>Compare and contrast between Zitkala Sa and Bama.</li> </ul>	
	Childhood	<ul> <li>Collect the data of 'child exploitation' in the world and suggest measures to eradicate it.</li> </ul>	
11	On The	<ul> <li>Interview a physically challenged person and write about his views on the</li> </ul>	11, 24,
	Face Of It	problems he faced due to his condition.	
		<ul> <li>What is the attitude of the society towards him?</li> </ul>	
		• Collect data on the condition of rehabilitation centers in India and how people are	
		living there?	
12	The Rattrap	• Interview a lonely person, note down the series of thoughts that come to his mind	13, 25
		and find his attitude towards the world.	
		<ul> <li>Collect data on the causes of crimes committed in India.</li> </ul>	
		Conduct a survey to make preference between probation and imprisonment.	
13	Aunt	<ul> <li>Write an essay on the status of women in India.</li> </ul>	13, 26
	Jennifer's	<ul> <li>Interview a woman of such society and put down the constraints faced by them.</li> </ul>	
	Tiger	• Compare and contrast by collecting the data on the condition of women in	
	-	patriarchal and matriarchal society.	

# **BIOLOGY**

- In higher vertebrates the immune system can distinguished self cells from nonself ones .If this property is lost due to genetic abnormality and it attacks self cells, it leads to 
   (a) Active immunity
   (b) Allergic response
   (c) Graft rejection
   (d) Autoimmune disease .
- 2. Which one of the following alcoholic drinks is produced without distillation ?
  (a) Wine
  (b) Whisky
  (c) Rum
  (d) Brandy
- 3. Use of bioresources by multinational companies and organization without authorization from the concerned country and its people is called
  - (a) Biodegradation (b) Biopiracy (c) Bio-infringement (d) Bio-exploitation \*\*\*\*(A) Both assertion and Reason are true and R is the correct explanation of A.
    - (B) Both assertion and Reason are true and R is not the correct explanation of A.
    - (C) A is true but R is false
    - (D) A is false but R is true
- 4. Assertion –The functional ADA c DNA gene must be inserted in the lymphocytes at the early embryonic stage .

Reason --- Cells in the embryonic stage are mortal ,differentiated and easy to manipulate .

- Assertion :-- Releasing dragonflies in areas where there is an outbreak of malarial disease can be an environment friendly method of control.
   Reason : Dragonflies are dominant species and will not allow mosquitoes to reproduce.
  - Reason :-- Dragonflies are dominant species and will not allow mosquitoes to reproduce .
- Assertion :-- The immune system of old person becomes weak . Reason :-- Thymus degenerates in old individuals resulting in decreased production of thymosine .
- 7. Why do the toxic insecticidal proteins secreted by Bacillus thuringiensis kill the insect and not the bacteria itself?
- 8. Name an opioid drug and its source plant .How does the drug affect the human body .
- 9. Identify A,B,C and D in the replication of HIV :---



- 10. Lactic acid bacteria sets milk into curd and also plays a very beneficial role in human health . Give any two suitable reasons .
- 11. Name a free living and a symbiotic bacterium that serve as biofertiliser .Why are they so called ?
- 12. How did Eli Lilly synthesise the human insulin ?Mention one difference between this insulin and the one produced by the human pancreas .
- 13. What do you meant by genetically modified organism ? List any two possible advantages of a GMO to a farmer .
- 14. (a) Name the respective forms in which the malarial parasite gains entry into (i) Human body (ii) Body of female Anopheles.

(b) Name the hosts where the sexual and the asexual reproductions of malarial parasites occur respectively

(c) Name the toxin responsible for the appearance of symptoms of malaria in humans .Why do these symptoms occur periodically ?

15. Identify a,b,c ,d ,e and f in the table given below :---

SN	Organism	Bioactive molecule	Use
(i)	Monascus purpureus	A	В
(ii)	С	D	Antibiotic
(iii)	E	Cyclosporin A	F

- 16. Describe how bio gas is generated from activated sludge .List the components of biogas .
- 17. The data below shows the symptoms of common cold by an individual after the exposure of causative virus .



- (ii) How does the virus enter the body of an individual ?
- (iii) How do antibiotics help to fight common cold ?

#### Or

With reference to the above graph explain the pattern of sneezing incommon cold .

- 18. (i) Tobacco plants are damaged severely when infested with Meloidegyne incognitia .Name and explain the strategy that is adapted to stop this infestation .
- (ii) Name the vector used for introducing the nematode specific gene in tobacco plant .
- (iv) Why is the introduction of genetically engineered lymphocytes into a ADA deficiency patient not a permanent cure ?Suggest a possible permanent cure .

#### **MATHEMATICS**

1. If  $x\sqrt{1+y} + y\sqrt{1+x} = 0$ , for -1 < x < 1, prove that  $\frac{dy}{dx} = \frac{-1}{(1+x)^2}$ . 2. (i) If  $y^x = e^{y-x}$ , prove that  $\frac{dy}{dx} = \frac{(1+\log y)^2}{\log y}$ (ii) If  $y = x^x$ , prove that  $\frac{d^2y}{dx^2} - \frac{1}{y}\left(\frac{dy}{dx}\right)^2 - \frac{y}{x} = 0$ . (iii) If  $y = x^{tanx} + \sqrt{\frac{x^2+1}{2}}$ , find  $\frac{dy}{dx}$ . (iv) If  $x^m$ .  $y^n = (x+y)^{m+n}$ , prove that  $\frac{dy}{dx} = \frac{y}{x}$  and  $\frac{d^2y}{dx^2} = 0$ . 3. If  $\sqrt{1-x^2} + \sqrt{1-y^2} = a(x-y)$ , prove that  $\frac{dy}{dx} = \sqrt{\frac{1-y^2}{1-x^2}}$ . 4. (i) Find  $\frac{dy}{dx}$ , if  $x = a(\cos t + \log \tan \frac{t}{2})$ ,  $y = a \sin t$ . (ii) If  $x = a(\cos t + t \sin t)$  and  $y = a(\sin t - t \cos t)$ , find  $(\frac{d^2y}{dx^2})_{at t = \frac{\pi}{4}}$ .

5. A ladder 5 m long is leaning against a wall. The bottom of the ladder is pulled along the ground, away from the wall, at the rate of 2cm/s. How fast is its height on the wall decreasing when the foot of the ladder is 4 m away from the wall ?

6. Sand is pouring from a pipe at the rate of  $12 \text{ cm}^3$  /s. The falling sand forms a cone on the ground in such a way that the height of the cone is always one-sixth of the radius of the base. How fast is the height of the sand cone increasing when the height is 4 cm?

7. A man of height 2 meters walks at a uniform speed of 5 km/h away from a lamp post which is 6 meters high. Find the rate at which the length of his shadow increases.

8. A water tank has the shape of an inverted right circular cone with its axis vertical and vertex lowermost. Its semi-vertical angle is  $\tan^{-1}(0.5)$ . Water is poured into it at a constant rate of 5 cubic meter per hour. Find the rate at where level of the water is rising at the instant when the depth of water in the tank is 4 m.

9. Find the intervals in which the following functions are strictly increasing or decreasing:

(i)  $f(x) = \sin x + \cos x$ ,  $0 \le x \le 2\pi$  (ii)  $f(x) = (x + 1)^3 (x - 3)^3$  (iii)  $f(x) = \frac{3}{10}x^4 - \frac{4}{5}x^3 - 3x^2 + \frac{36}{5}x + 11$ 10. Find the points at which the function f given by  $f(x) = (x - 2)^4 (x + 1)^3$  has

- (i) local maxima (ii) local minima (iii) point of inflexion.
- 11. Show that height of the cylinder of greatest volume which can be inscribed in a right circular cone of height h and semi vertical angle  $\alpha$  is one-third that of the cone and the greatest volume of cylinder is  $\frac{4}{27}\pi h^3 tan^2 \alpha$ .
- 12.Prove that the volume of the largest cone that can be inscribed in a sphere of radius R is
  - $\frac{8}{27}$  of the volume of the sphere.
- 13.Show that the right circular cone of least curved surface and given volume has an altitude equal to  $\sqrt{2}$  time the radius of the base.

14. Show that the semi-vertical angle of the cone of the maximum volume and of given slant -height is  $\tan^{-1\sqrt{2}}$ . 15. If length of three sides of a trapezium other than base are equal to 10cm, then find the area of the trapezium when it is maximum.

# **CHEMISTRY**

	CHAPTER: COORDINATION COMPOUNDS
1	Write IUPAC name of the following: 1) [Pt(NH3)2Cl2] 2) [CoBr2(en)2]+ 3) [Ni(NH3)6]Cl2 4) K4[Fe(CN)6]3+ 5) [NiCl4]2- 6) [CrCl2(en)2]Cl
	Write the formulas in the following cases. 1) Tetrahydroxozincate (II), 2) Hexaamminecobalt (III) sulphate 3) Hexaammineplatinum (IV), 4) Pentaamminenitrito-N-cobalt (III)
2	Give the formula of each of the following coordination entities: (a) Co3+ ion is bound to one Cl-, one NH3 molecule and two bidentate ethylene diamine(en) molecules. (b) Ni2+ ion is bound to two water molecules and two oxalate ions Write the name and magnetic behavior of each of the above coordination entities.
3	Why does a tetrahedral complex of the type [MA2B2] do not show geometrical isomerism?
4	Show the possible isomers of the following coordination entities? (i) [Cr(C2O4)3]3- (ii) [Co(NH3)3Cl3] (iii) [Co(en)2Cl2]Cl
5	Using valence bond theory, predict the geometry and hybridization of [Cr(NH3)6]3+ ion, {Fe(CN)6]3- (paramagnetic due to single unpaired electron) and [FeF6]3- (paramagnetic due to 5 unpaired electron) [Cr = 24, Fe=26].
6	How many ions are produced from the complex [Co (NH3)6] Cl2 in aqueous phase.
7	What is spectrochemical series? Explain the difference between a weak field ligand and a strong field ligand.
8	Draw a sketch to show the splitting of d- orbitals in an octahedral crystal field. State for a d6 ion how the actual configuration of the split d- orbitals in an octahedral crystal field is decided by the relative values of $\Delta o$ and P
9	Give reasons: 1) K3[Fe(CN)6] is weakly paramagnetic whereas K3[FeF6] is highly paramagnetic. 2) Though CO is a weak lewis base yet it forms a number of stable metal carbonyls . Explain.
10	Compare the following complexes with respect to their shape, magnetic behaviour and the hybrid orbitals involved: (i) [CoF4]2-, (ii)[Cr(H2O)2(C2O4)2]- (Atomic number Co = 27, Cr =24
11	Discuss briefly giving an example in each case the role of coordination compounds in: (i) biological systems (ii) medicinal chemistry (iii) analytical chemistry (iv) metallurgy of metals.
12	(a) What is a ligand? Give an example of a bidentate ligand. (b) Explain as to how the two complexes of nickel, [Ni(CN)4]2- and Ni(CO)4, have different structures but do not differ in their magnetic behaviour. (Ni =28)

	Explain the following: (a) The π-complexes are known for transition elements only. (b) Nickel(II) does not form low spin octahedral complexes. (c) [Fe(CN)6]4- and [Fe(H2O)6]2+ are of different colours in dilute solutions.
14	(i)Draw the geometrical isomers of complex [Co(en)2Cl2]+. (ii) On the basis of crystal field theory, write the electronic configuration for d4 ion if $\Delta 0 > P$ . (iii) [NiCl4]2_ is paramagnetic while [Ni(CO)4] is diamagnetic, though both are tetrahedral. Why? (Atomic number of Ni = 28)

15	What is meant by crystal field splitting energy? On the basis of crystal field theory, write the electronic configuration of d4 in terms of tgg and eg in an octahedral field when (i) $\Delta$ 0 > P (ii) $\Delta$ 0 < P
	CHAPTER- HALOALANES & HALOARENES
1	Arrange each set of compounds in the order of increasing boiling points. a) Bromomethane, Bromoform, Chloromethane, Dibromomethane. b) 1-Chloropropane, Isopropyl chloride, 1- chlorobutane.
2	Which alkyl halide from the following pairs would you expect to react more rapidly by an SN 2 mechanism? Explain your answer
3	What are ambident nucleophiles? Explain with an example.
4	Which compound in each of the following pairs will react faster in SN 2 reaction with OH? (i) CH3Br or CH3I (ii) (CH3)3 CCI or CH3CI
5	Explain why (i) the dipole moment of chlorobenzene is lower than that of cyclohexyl chloride? (ii) alkyl halides, though polar, are immiscible with water? (iii) Grignard reagents should be prepared under anhydrous conditions?
6	Arrange the compounds of each set in order of reactivity towards SN2 displacement: a) 2-Bromo-2-methylbutane, 1-Bromopentane, 2-Bromopentane. b) 1-Bromo-3-methylbutane, 2-Bromo-2-methylbutane, 2-Bromo-3-methylbutane. c) 1-Bromobutane, 1-Bromo-2, 2-dimethylpropane, 1-Bromo-2-methylbutane, 1-Bromo3- methylbutane.
7	p-Dichlorobenzene has higher melting point and lower solubility than 0- and misomers. explain
8	What are chiral and achiral objects? What is plane polarized light? What do you understand by the term optical activity of compounds?

9	Explain as to why haloarenes are much less reactive than haloalkanes towards nucleophilic substitution reactions.
	What are enantiomers? Draw the structures of the possible enantiomers of 3- methylpent 1-ene.
11	Answer the following: a) Haloalkanes easily dissolve in organic solvents, why? b) What is known as a racemic ixture? Give an example. c) Or the two bromoderivatives, C6H5CH(CH3)Br and C6H5CH(C6H5)Br, which one is more reactive in SN1 substitution reaction and why?
12	<ul> <li>Give reasons:</li> <li>a) tert-Butyl chloride reacts with aqueous sodium hydroxide by SN1 mechanism while nbutyl chloride reacts by SN2 mechanism.</li> <li>b) Alkyl halides, though polar, are immiscible with water.</li> <li>c) Vinyl chloride is unreactive in nucleophilic substitution reactions.</li> </ul>

d) Neo-pentyl bromide undergoes nucleophilic substitution reaction very slowly. e) 3-Bromocyclohexene is more reactive than 4-bromocyclohexene in hydrolysis with aqueous NaOH.
f) Iodoform is obtained by reaction of acetone with hypoiodite ion but not iodide ion

IST WEEK OF NOVEMBER THERE WILL BE CLASS TEST OF FOLLOWING CHAPTERS D & F BLOCK ELEMENTS COORDINATION COMPOUNDS HALOALKANES & HALOARENES

<u> PHE</u>

Khelo India / Fit India programme

- 1. Fixtures(Knockout and League)
- 2. Role played by different committees
- 3. Kyphosis and Lordosis
- 4. Some common asanas for obesity and diabetes. 5. Paralympics.

6. Macro and Micro nutrients

# <u>HINDI</u>

निर्देश:-सभी प्रश्न अनिवार्य हैं।

कृपया साफ - सफाई का विशेष ध्यान दें ।

1. अम्बेंडकर के जाति प्रथा के भीतर पेशे के मामले में शेखर जोशी की कहानी 'गलता लोहा' पर पुनर्विचार कर लेख तैयार करें।

2 .कवि (साहित्याकार) के के लिए अनासक्त योगी की स्थिर प्रज्ञता और विदग्ध प्रेमी का हृदय एक साथ आवश्यक है। ऐसा विचार प्रस्तुत कर लेखक ने साहित्य कर्म के लिए बहुत ऊंचा मानदंड निर्धारित किया है विस्तार पूर्वक समझाएं।

3.पेट ही को बचत, बच का बेटा बेटी तुलसी के युग का ही नहीं आज के युग का भी सत्य है।भुखमरी में किसानों की आत्महत्या और संतानों खासकर बेटियों को भी बीच डालने की हृदय विदारक घटनाएं हमारे देश में घटती रही हैं । वर्तमान परिस्थितियों और तुलसी के युग की तुलना कर अपने विचार प्रकट करें।

4.परियोजना कार्य

मीडिया की संवेदनहीनता और वर्तमान मीडिया के कर्तव्य व दायित्व बोध पर अपने विचार प्रकट करते हुए लेख लिखें।

1.	Read a text file line by line and display each word separated by a #.
2.	Read a text file and display the number of vowels/consonants/uppercase/lowercase characters in the file.
3.	Remove all the lines that contain the character 'a' in a file and write it to another file.
4.	Create a binary file with name and roll number. Search for a given roll number and display the name, if not found display appropriate message.
5.	Create a binary file with roll number, name and marks. Input a roll number and update the marks.
6.	6. Write a random number generator that generates random numbers between 1 and 6 (simulates a dice).
7.	Write a Python program to implement a stack using list.
8.	Create a CSV file by entering user-id and password, read and search the password for given user- id.

# **COMPUTER SCIENCE**

# PROJECT WORK

General Instructions :

- 1. It is compulsory for all to prepare the project file.
- 2. There is separate allotment of (08) marks for the project work and file submission.
- 3. The Internal Assessment of the Session Ending Examination will be conducted by an Internal/External Examiner.

4. The project report must be submitted on or before 10th January, 2024 .

## Project File Contents:

- 1. Title Page : Containing project title, logo of school, name(s) of the candidate(s), name of the guide, school name-details.
- 2. Certificate (1) : As per the format.
- 3. Certificate (2) : Will be signed by the Examiner.
- 4. Declaration : As per the format.
- 5. Acknowledgement : As per the format.
- 6. Contents : Indexing of the report.
- 7. Conclusion.
- 8. Bibliography/Reference(s) : Last page.

### Suggested project list :

- 1. Alarm Clock Application.
- 2. Contact Management System.
- 3. To-Do List Organizer.
- 4. Alumni Information System.
- 5. Time Table Generator.

\*Student(s) can choose any one of the above projects in group of three or two or individual. Student(s) can also work the project of their choice by prior informing to their Subject Teacher.