

# **B.B.S. INTERNATIONAL SCHOOL**

**GOHRI, PHAPHAMAU, PRAYAGRAJ**

## **SUMMER VACATION HOME WORK-2020-21**

### **CLASS : XII (SCIENCE)**

#### **English**

##### **PART-A (Writing Skill)**

1. Your school is holding a summer camp for training students in Table-Tennis. Write a notice in not more than 50 words to be displayed in the notice board. Invent necessary details, Sign yourself as Hema/Rajesh. The Head Girl/The Head Boy of the school.
2. Covid-19 has unfortunately become lethiferous to all. Create a poster on theme "Awareness of Covid-19".
3. Write articles in about 150-200 words on the following topics:
  - (a) The Rise of online learning during Covid-19 pandemic.
  - (b) Road Rage and Violence.
4. List all literary devices/figures of speech. Write the definition of the following literary devices giving four examples of each:  
Simile, Metaphor, Personification, Apostrophe, Hyperbole, Irony, Alliteration, Onomatopoeia,

##### **PART-B (Long Reading Novel : Speaking Skill)**

5. Read the six chapters of the Novel "The Invisible Man" by H.G. Wells. Write any one of the character and their description.

#### **Physics**

1. State Gauss's Law. Use it to deduce the expression for the electric field due to a uniformly charged thin spherical shell at points (i) Inside and (ii) Outside the Shell
2. An electric dipole of dipole moment  $\vec{p}$  is held in a uniform electric field  $E$ .
  - (i) Prove that no translatory force acts on the dipole
  - (ii) Hence prove that the torque acting on the dipole is given by  $pE \sin\theta$ , indicating the direction along which it acts.
3. Define an equipotential surface. Draw equipotential surfaces (i) in the case of single points charge (ii) in a constant electric field in z direction
4. A cell of emf  $E$  and internal resistance  $r$  is connected across a variable resistor  $R$ . Plot a graph showing variation of terminal voltage  $V$  of the cell versus the current  $I$ . Using the plot, show how the emf of the cell and its internal resistance can be determine.
5. Four charges  $+q, -q, +q$  and  $-q$  are to be arranged respectively at the four corners of a square ABCD of side  $a$ .
  - (a) Find the work required to put together this arrangement.
  - (b) A charge  $q_0$  is brought to the centre of the square, the four charges being held fixed. How much extra work is needed to do this?
6. State the Kirchoff's Law.
7. A battery of 10V and negligible internal resistance is connected across the diagonally opposite corners of a cubical network consisting of 12 resistors each of resistance  $1\Omega$ . Determine the equivalent resistance of the network and current along each edge of the cube.
8. What will be the total flux through the faces of the cube with the side of length  $a$  if a charge  $q$  is placed at (i) A : a corner of the cube (ii) B : Mid-point of an edge of the cube (iii) C : Centre of a face of the cube (iv) D : Mid-point of B and C

## Chemistry

1. State Henry's law and its two applications. What helps in the existence of aquatic life?
2. Miscible liquid pairs often show negative or positive deviation from Raoult's law. What is the reason for such deviations? Explain with examples.
3. 'Crystalline solids are anisotropic in nature.' What does this statement mean?
4. Determine the number of atoms in a unit cell of face centred cubic lattice.
5. Explain the electrical properties of conductor and semi conductor substances on the basis of band theory.
6. How will you distinguish between the following pairs of terms:
7. (i) tetrahedral and octahedral voids (ii) Crystal lattice and unit cell
8. (i) Write the type of magnetism observed when the magnetic moments are oppositely aligned and cancel out each other.  
(ii) Which stoichiometric defect does not change the density of the crystal?

## Mathematics

1. Let  $f : R \rightarrow R : f(x) = 4x + 3$  for all  $x \in R$ . Show that  $f$  is invertible and find  $f^{-1}$
2. Let  $f : N \rightarrow Y : f(x) = 4x^2 + 12x + 15$  and  $y = \text{range}(f)$ . Show that  $f$  is invertible and find  $f^{-1}$ .
3. Show that the function  $f$  in  $A = R - \left\{ \frac{2}{3} \right\}$  defined as  $f(x) = \frac{4x+3}{6x-4}$  is one one and onto. Hence, find  $f^{-1}$ .
4. Let  $A = R - \{3\}$  and  $B = R - \{1\}$ . Consider the function  $f : A \rightarrow B$  defined as  $f(x) = \frac{x-2}{x-3}$ . Show that  $f$  is one - one and onto and hence find  $f^{-1}$ .
5. Let  $f : R - \left\{ -\frac{3}{5} \right\} \rightarrow R$  be a function defined  $f(x) = \frac{2x}{5x+3}$ , find  $f^{-1} : \text{Range of } f \rightarrow R - \left\{ -\frac{3}{5} \right\}$
6. Consider  $f : R_+ \rightarrow [-5, \infty)$  given by  $f(x) = 9x^2 + 6x - 5$ . Show that  $f$  is invertible. Find the inverse of  $f$ .
7. Let  $A = \begin{bmatrix} 0 & -\tan \frac{\alpha}{2} \\ \tan \frac{\alpha}{2} & 0 \end{bmatrix}$  and  $I$  is the identity matrix of order 2.  
  
Show that  $(I+A)(I-A) = \begin{bmatrix} \cos \alpha & -\sin \alpha \\ \sin \alpha & \cos \alpha \end{bmatrix}$
8. Find the values of  $x$  and  $y$ , when  $\begin{bmatrix} 2 & -3 \\ 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 1 \\ 3 \end{bmatrix}$ .
9. If  $\begin{bmatrix} x & 4 & 1 \\ 2 & 1 & 2 \\ 1 & 0 & 2 \\ 0 & 2 & -4 \end{bmatrix} \begin{bmatrix} x \\ 4 \\ -1 \end{bmatrix} = 0$ , find  $x$ .
10. If  $A = \begin{bmatrix} 3 & -2 \\ 4 & -2 \end{bmatrix}$ , find  $k$  so that  $A^2 = kA - 2I$ .

## Biology

1. Why are offspring of oviparous animals at a greater risk as compared to offspring of viviparous animals?
2. Define asexual reproduction. Also mention different types of it.
3. Explain the pre-fertilisation events.
4. Show diagrammatically stages of embryonic development from Zygote to implantation in human as the embryo moves through the fallopian tube.
5. State the differences between meiosis-I and meiosis-II of Spermatogenesis and oogenesis.
6. Mention advantage and disadvantage of natural method of contraception over artificial method.
7. Comment on the reproductive and child health care programme of the government to improve reproductive health of the people.
8. Explain the following terms: (a) Parthenocarpic Fruits (b) Apomixis (c) Ex-albuminous Seeds
9. Draw labeled diagrams for:  
(a) Angiospermic dicot embryo (b) Longitudinal section of a flower showing growth of pollen tube.
10. Explain pollination and its various types with suitable example.

## **Physical Education**

1. Elucidate the Pre, during and post game responsibilities of officials of various committee or organizing a sports tournament management.
2. Draw a Knockout fixture of 21 teams meeting. Write all the steps involved.
3. What do you mean by intramurals? Mention significance of intramurals for school.
4. Vitamins are essential for our metabolic pathway. What happens when the vitamins get deficient in our diet?
5. Discuss the role of nutrition on the performance of a sports person.
6. Discuss Asanas as preventive measures in daily life.
7. Elaborate the procedure and benefits of Tadasana and Pawanmuktasana.
8. What is obesity? How we can come to know that we are obese?

## **Computer Science**

1. Write a python program using: \* if statement \* for statement
2. Write a python program for Bubble sort? Take 10 inputs
3. Explain the difference between the list, tuples and dictionaries with example.
4. Draw a flow chart for the program to check either a given number is odd or even?
5. Write a program or Algorithm for insertion sort.
6. Write a python program to show the difference between the break and continue statement.
7. Write a program to show the nested loop of if then else.
8. Write the function about the string(). Explain with example.
9. What is the difference between the Compiler and interpreter?
10. Explain about 5 Mathematical function by python with example.

## **Hindi**

1. कोरोना वायरस (कोविड-19) पर एक शिक्षाप्रद पोस्टर तैयार करें।  
अथवा  
फसलों पर टिड्डा का आक्रमण। इस विषय पर पोस्टर तैयार करें।
2. वर्तमान परिस्थिति में ऑनलाइन शिक्षा कितनी प्रासंगिक है। इस विषय पर एक अनुच्छेद लिखें। (फाइल में)
3. किसानों पर आई कीट आपदा का विवरण प्रस्तुत करते हुए आपदा प्रबंधन अथवा कृषि मंत्रालय दिल्ली को पत्र लिखकर उचित कार्यवाही करने का आग्रह कीजिए।
4. निम्नलिखित प्रश्नों के उत्तर लिखिए—  
(क) अंशकालिक पत्रकार किसे कहते हैं?  
(ख) पीत पत्रकारिता किसे कहते हैं?  
(ग) रेडियो लोकप्रियता के दो कारणों का उल्लेख कीजिए।  
(घ) खोजपरक पत्रकारिता से आप क्या समझते हैं?
5. हाल ही में पढ़ी गई किसी कहानी की समीक्षा करें।
6. कोरोना वायरस (कोविड-19) वैश्विक महामारी पर एक 'फीचर' फाइल पेज पर लिखकर रखें।

**Note: All H. W. should be done in a separate Holiday H.W. Copy and to be submitted within three days when school re-opens after summer vacation.**

# **Happy Summer Vacation**