

**Khaitan Public School, Sahibabad**  
**Winter Holiday HomeWork -2020**  
**Class-XI(Science)**

**Maths**

1. Evaluate:  $\lim_{x \rightarrow 4} \frac{(x^2 - x - 12)^{18}}{(x^3 - 8x^2 + 16x)^9}$ .
2.  $\lim_{x \rightarrow \sqrt{3}} \frac{x^4 - 9}{x^2 + 4\sqrt{3}x - 15}$
3. Prove that:  $\lim_{x \rightarrow \sqrt{10}} \frac{\sqrt{7-2x} - (\sqrt{5} - \sqrt{2})}{x^2 - 10} = -\frac{(\sqrt{5} + \sqrt{2})}{6\sqrt{10}}$
4. Prove That:  $\lim_{x \rightarrow 1} \frac{(x + x^2 + x^3 + \dots + x^n) - n}{x - 1} = \frac{n(n+1)}{2}$
5. If  $\lim_{x \rightarrow a} \frac{x^9 + a^9}{x + a} = 9$ , find the value of a.
6. If  $\lim_{x \rightarrow a} \frac{x^3 - a^3}{x - a} = \lim_{x \rightarrow 1} \frac{x^4 - 1}{x - 1}$ , find all possible value of a.
7. Evaluate:  $\lim_{x \rightarrow 0} \frac{\tan 2x - \sin 2x}{x^3}$
8.  $\lim_{x \rightarrow 0} \frac{\sin(a+x) + \sin(a-x) - 2\sin a}{x \sin x}$
9.  $\lim_{x \rightarrow \frac{\pi}{6}} \frac{2 - \sqrt{3} \cos x - \sin x}{(6x - \pi)^2}$
10. If  $\alpha, \beta$  are the roots of  $ax^2 + bx + c = 0$ , then prove:  $\lim_{x \rightarrow \beta} \frac{1 - \cos(ax^2 + bx + c)}{(x - \beta)^2} = \frac{a^2(\beta - \alpha)^2}{2}$
11. Find the derivative of  $f(x) = 2x^2 + 3x - 5$  at  $x = -1$ . Also, prove that  $f'(0) + 3f'(-1) = 0$
12. Differentiate the following functions with respect to x from principles  
 (i)  $\sin \sqrt{x}$     (ii)  $\sin x^2$     (iii)  $\sin \sqrt{x}$     (iv)  $x^2 \cos x$     (v)  $(\tan x)^{\frac{1}{3}}$
13. Using first principles, prove that  $\frac{d}{dx} \left\{ \frac{1}{f(x)} \right\} = \frac{-f'(x)}{|f(x)|^2}$ .
14. If  $y = \sqrt{\frac{x}{a}} + \sqrt{\frac{a}{x}}$ , prove that  $2xy \frac{dy}{dx} = \left( \frac{x}{a} - \frac{a}{x} \right)$
15. Differentiate the following functions with respect to x:

(i)  $\frac{x^3 \sin x}{\cos x}$  (ii)  $(x + \sec x)(x - \tan x)$  (iii)  $(x + \cos x)(x - \tan x)$  (iv)  $(x^2 + 1) \cos x$   
 (v)  $(ax^2 + \sin x)(p + q \cos x)$  (vi)  $\frac{x \tan x}{\sec x + \tan x}$  (vii)  $\frac{x \sin x}{1 + \cos x}$   
 (viii)  $\frac{\sin x - x \cos x}{x \sin x + \cos x}$  (ix)  $\frac{\sqrt{a} + \sqrt{x}}{\sqrt{a} - \sqrt{x}}$

## PHYSICS

- Complete NCERT Back exercises of Thermal Properties of Matter and Thermodynamics.
- Prepare a presentation of any Physics topic of your choice and include the traditional art forms of Arunachal Pradesh or Meghalaya as a means for expression. You can use their dance forms (record short video 30 s and embed in ppt), Music, painting, calligraphy, memes, doodling culinary art, role play or any other artistic way of expression. The content matter should be from your Class XI Physics Syllabus. However, the way in which you want to express depends on you. Do provide a small write up (70-80 words) about the art form that you choose along with the presentation.

## CHEMISTRY

### Read the Instructions Carefully:

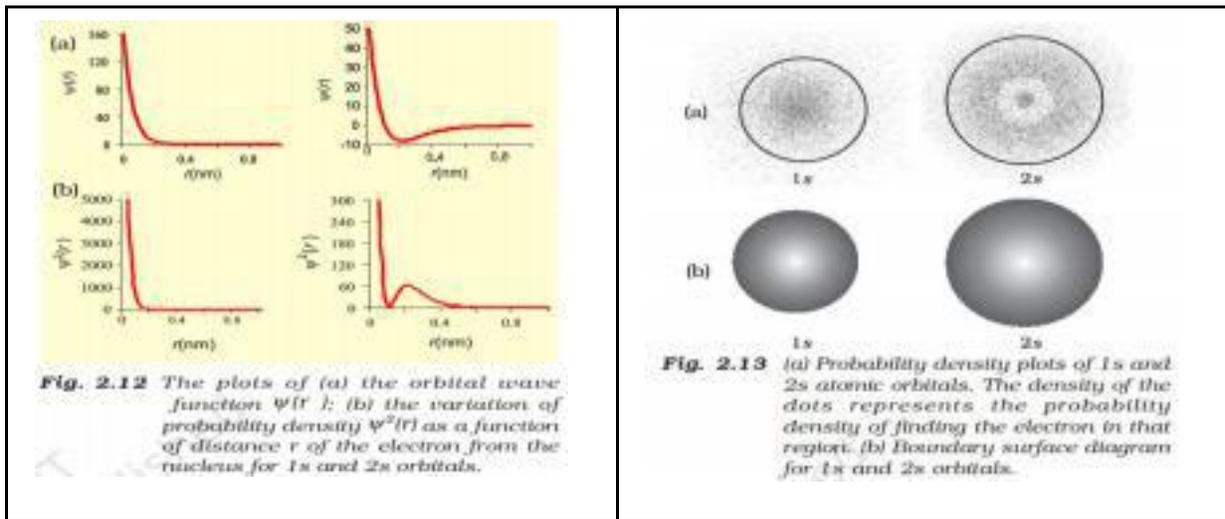
1. There are 33 questions in this assignment.
2. Section A: Q. No. 1 to 16 are objective type questions. Q. No. 1 and 2 are passage-based questions.
3. Section B & C: Q. No. 17 to 30 are short answer questions..
4. Section D: Q. No. 31 to 33 are long answer questions .

### SECTION - A

#### 1. Read the passage given below and answer the following questions:

*“The orbital wave function or  $\Psi$  for an electron in an atom has no physical meaning. It is simply a  $\square\square$  mathematical function of the coordinates of the electron. However, for different orbitals the plots of corresponding wave functions as a function of  $r$  (the distance from the nucleus) are different. Fig. 2.12(a), gives such plots for  $1s$  ( $n = 1, l = 0$ ) and  $2s$  ( $n = 2, l = 0$ ) orbitals.*

*According to the German physicist, Max Born, the square of the wave function at a point gives the probability density of the electron at that point. The variation of  $\Psi^2$  as a function of  $r$  for  $1s$  and  $2s$  orbitals is given in Fig. 2.12(b). Here again, you may note that the curves for  $1s$  and  $2s$  orbitals are different.*



It may be noted that for 1s orbital the probability density is maximum at the nucleus and it decreases sharply as we move away from it. On the other hand, for 2s orbital the probability density first decreases sharply to zero and again starts increasing. After reaching a small maxima it decreases again and approaches zero as the value of  $r$  increases further. The region where this probability density function reduces to zero is called nodal surfaces or simply nodes. In general, it has been found that  $ns$ -orbital has  $(n - 1)$  nodes, that is, number of nodes increases with increase of principal quantum number  $n$ . In other words, number of nodes for 2s orbital is one, two for 3s and so on.

These probability density variation can be visualised in terms of charge cloud diagrams [Fig. 2.13(a)]. In these diagrams, the density of the dots in a region represents electron probability density in that region.

Boundary surface diagrams of constant probability density for different orbitals give a fairly good representation of the shapes of the orbitals. In this representation, a boundary surface or contour surface is drawn in space for an orbital on which the value of probability density  $\psi^2$  is constant. In principle many such boundary surfaces may be possible. However, for a given orbital, only that boundary surface diagram of constant probability density\* is taken to be good representation of the shape of the orbital which encloses a region or volume in which the probability of finding the electron is very high, say, 90%. The boundary surface diagram for 1s and 2s orbitals are given in Fig. 2.13(b). One may ask a question : Why do we not draw a boundary surface diagram, which bounds a region in which the probability of finding the

electron is, 100 %? The answer to this question is that the probability density  $|\psi^2|$  has always some value, howsoever small it may be, at any finite distance from the nucleus. It is therefore, not possible to draw a boundary surface diagram of a rigid size in which the probability of finding the electron is 100%. Boundary surface diagram for a  $s$  orbital is actually a sphere centred on the nucleus. In two dimensions, this sphere looks like a circle. It encloses a region in which probability of finding the electron is about 90%.

Thus, we see that 1s and 2s orbitals are spherical in shape. In reality all the  $s$ -orbitals are spherically symmetric, that is, the probability of finding the electron at a given distance is equal in all the directions. It is also observed that the size of the  $s$  orbital increases with increase in  $n$ , that is,  $4s > 3s > 2s > 1s$  and the electron is located further away from the nucleus as the principal quantum number increases.”[SOURCE NCERT]

**The following questions are multiple choice questions. Choose the most appropriate answer:(i)  $\psi^2$  is**

- (a) The square of the wave function
- (b) A mathematical function
- (c) 100% probability to find an electron

(d) probability density is less than zero

(ii) The region where this probability density reaches zero is called as

(a) orbital

(b) node

(c)  $\Psi$

(d)  $\Psi^2$

(iii) Number of nodes for 4s orbital is

(a) 4

(b) 5

(c) 3

(d) 2

(iv) Boundary surface diagram of means

(a) A region in which probability of finding electron is about 60%

(b) A region in which probability of finding electron is about 95%

(c) A region in which probability of finding electron is about 99%

(d) A region in which probability of finding electron is about 90%

(vi) The wave function  $\Psi$  has

(a) only physical meaning

(b) a physical as well as chemical meaning

(c) only chemical meaning

(d) no physical meaning

**2. Read the passage given below and answer the following questions:**

### ***Periodic Trends and chemical Reactivity***

*We have observed the periodic trends in certain fundamental properties such as atomic and ionic radii, ionization enthalpy, electron gain enthalpy and valence. We know by now that the periodicity is related to electronic configuration. That is, all chemical and physical properties are a manifestation of the electronic*

*configuration of elements. We shall now try to explore relationships between these fundamental properties of elements with their chemical reactivity*

*The atomic and ionic radii, as we know, generally decrease in a period from left to right. As a consequence, the ionization enthalpies generally increase (with some exceptions as outlined in section 3.7.1(a)) and electron gain*

enthalpies become more negative across a period. In other words, the ionization enthalpy of the extreme left element in a period is the least and the electron gain enthalpy of the element on the extreme right is the highest negative (note: noble gases having completely filled shells have rather positive electron gain enthalpy values). This results into high chemical reactivity at the two extremes and the lowest in the centre. Thus, the maximum chemical reactivity at the extreme left (among alkali metals) is exhibited by the loss of an electron leading to the formation of a cation and at the extreme right (among halogens) shown by the gain of an electron forming an anion. This property can be related with the reducing and oxidizing behaviour of the elements which you will learn later. However, here it can be directly related to the metallic and non-metallic character of elements. Thus, the metallic character of an element, which is highest at the extremely left decreases and the non-metallic character increases while moving from left to right across the period. The chemical reactivity of an element can be best shown by its reactions with oxygen and halogens. Here, we shall consider the reaction of the elements with oxygen only. Elements on two extremes of a period easily combine with oxygen to form oxides. The normal oxide formed by the element on extreme left is the most basic (e.g.,  $\text{Na}_2\text{O}$ ), whereas that formed by the element on extreme right is the most acidic (e.g.,  $\text{Cl}_2\text{O}_7$ ). Oxides of elements in the centre are amphoteric (e.g.,  $\text{Al}_2\text{O}_3$ ,  $\text{As}_2\text{O}_3$ ) or neutral (e.g.,  $\text{CO}$ ,  $\text{NO}$ ,  $\text{N}_2\text{O}$ ). Amphoteric oxides behave as acidic with bases and as basic with acids, whereas neutral oxides have no acidic or basic properties.

Among transition metals (3d series), the change in atomic radii is much smaller as compared to those of representative elements across the period. The change in atomic radii is still smaller among inner-transition metals (4f series). The ionization enthalpies are intermediate between those of s- and p-blocks. As a consequence, they are less electropositive than group 1 and 2 metals.

In a group, the increase in atomic and ionic radii with increase in atomic number generally results in a gradual decrease in ionization enthalpies and a regular decrease (with exception in some third period elements as shown in section 3.7.1(d)) in electron gain enthalpies in the case of main group elements. Thus, the metallic character increases down the group and non-metallic character decreases. This trend can be related with their reducing and oxidizing property which you will learn later. In the case of transition elements, however, a reverse trend is observed. This can be explained in terms of atomic size and ionization enthalpy.

[SOURCE: NCERT]

In these questions (Q. No (i) to (v)), a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

(i) **Assertion:**  $\text{As}_2\text{O}_3$  is acidic in nature

**Reason:** Oxides of elements in the centre of the periodic table are amphoteric (a)  
Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements. But, reason is not correct explanation for assertion.

(c) Assertion is correct statement. But, reason is wrong statement.

(d) Assertion is wrong statement. But, reason is correct statement.

(ii) **Assertion:** Chemical reactivity is maximum at the extremes and lowest in the centre of the periodic table

**Reason:** Extreme left is exhibited by the loss of an electron leading to the formation of cation and at the extreme right shown by the gain of an electron forming an anion.

(a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements. But, reason is not correct explanation for assertion.

(c) Assertion is correct statement. But, reason is wrong statement.

(d) Assertion is wrong statement. But, reason is correct statement.

(iii) **Assertion:** Transition metals are less electropositive than group 1 and group 2

**Reason:** Ionization enthalpies are intermediate between s and p blocks.

(a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements. But, reason is not correct explanation for assertion.

(c) Assertion is correct statement. But, reason is wrong statement.

(d) Assertion is wrong statement. But, reason is correct statement.

(iv) **Assertion:** Ionisation enthalpy of Extreme left is high

**Reason:** The metallic character of an element which is highest at the extreme left.

(a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements. But, reason is not correct explanation for assertion.

(c) Assertion is correct statement. But, reason is wrong statement.

(d) Assertion is wrong statement. But, reason is correct statement.

(v) **Assertion:** The electron gain enthalpy of the element on the extreme right is the highest negative.

**Reason:** Noble gases having completely filled shells have positive electron gain enthalpy (a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements. But, reason is not correct explanation for assertion.

(c) Assertion is correct statement. But, reason is wrong statement.

(d) Assertion is wrong statement. But, reason is correct statement.

3. Molarity (M) can be defined as

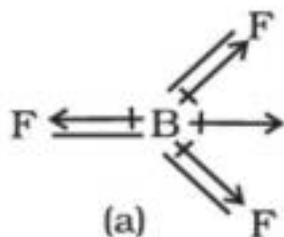
(a) Number of moles of solute present in 1 Litre of the solvent.

(b) Number of moles of solute present in 1 Litre of the solution

(c) Number of moles of solute present in 1 Kg of solvent

(d) Number of moles of solute present in 1 Kg of Solution

4. What is the Dipole moment of  $\text{BF}_3$  molecule?



- (a) 0
- (b) 120
- (c) 90
- (d) 180

5. Equal volumes of all gases under the same conditions of temperature and pressure contain equal number of molecules.

- (a) Avogadro's Law
- (b) Boyle's Law
- (c) Charles' Law
- (d) Gay Lussac's Law

OR

At constant volume, pressure of a fixed amount of gas varies directly with the temperature.

- (a) Avogadro's Law
- (b) Boyle's Law
- (c) Charles' Law
- (d) Gay Lussac's Law

6. "Enthalpy change which occur when one mole of an ionic compound dissociates into its ions in

gaseous state"

- (a) Standard enthalpy of combustion
- (b) Enthalpy of atomization
- (c) Bond Enthalpy
- (d) Lattice Enthalpy

7. Dihydrogen gas is obtained from natural gas by partial oxidation with steam as per following reaction:  $\text{CH}_4(\text{g}) + \text{H}_2\text{O}(\text{g}) \rightleftharpoons \text{CO}(\text{g}) + 3\text{H}_2(\text{g})$  What will happen to the equilibrium by increasing pressure?

- (a) Equilibrium shift towards the left
- (b) Equilibrium shift towards the right
- (c) No change in equilibrium
- (d) Reaches equilibrium fast

**OR**

Dihydrogen gas is obtained from natural gas by partial oxidation with steam as per following endothermic reaction:  $\text{CH}_4(\text{g}) + \text{H}_2\text{O}(\text{g}) \rightleftharpoons \text{CO}(\text{g}) + 3\text{H}_2(\text{g})$  What will happen to the equilibrium by increasing temperature?

- (a) Equilibrium shift towards the left
- (b) Equilibrium shift towards the right
- (c) No change in equilibrium
- (d) Reaches equilibrium fast

8. Name the catalyst used for the preparation of ammonia from Hydrogen and Nitrogen?

- (a) Fe
- (b) Pt
- (c) Pd
- (d) Ni

**OR**

Isotopes are elements having

- (a) Same atomic number and Same mass number
- (b) Same atomic number but, different mass number
- (c) Different atomic number and different mass number
- (d) Different atomic number but, same mass number

9. Lithium showing diagonal relationship with

- (a) Beryllium
- (b) Magnesium
- (c) Sodium
- (d) Hydrogen

10. Maximum oxidation state shown by P-Block elements is total valence electrons of :

- (a) Sum of P electrons
- (b) Sum of S and P electrons
- (c) Sum of S electrons
- (d) Sum of S, P and D electrons

11. First members of the P block elements differ from the rest of the group members based on the following (i) Small size (ii) Absence of d orbitals (iii) Charge (iv) Shielding effect . Choose the correct option.

- (a) (i) & (ii)
- (b) (i), (ii), (iii) & (iv)
- (c) (ii) & (iv)
- (d) (i), (ii) & (iii)

12. Flame colour produced by Sodium metal in flame photometry

- (a) Violet
- (b) Red
- (c) Yellow
- (d) Blue

13. **Assertion:** Hydrogen has one electron in its orbit but it produces several spectral lines.

**Reason:** There are many excited energy levels available.

- (a) Assertion and reason both are correct statements and reason is correct explanation for assertion.
- (b) Assertion and reason both are correct statements, but reason is not correct explanation for assertion
- (c) Assertion is correct statement but reason is wrong statement.
- (d) Assertion is wrong statement but reason is correct statement

14. **Assertion:** Three states of matter are the result of balance between intermolecular forces and

thermal energy of the molecules.

**Reason:** Intermolecular forces tend to keep the molecules together but thermal energy of molecules tends to keep them apart.

(a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements, but reason is not correct explanation for assertion

(c) Assertion is correct statement but reason is wrong statement.

(d) Assertion is wrong statement but reason is correct statement

15. **Assertion:** Reaction quotient ( $Q_c$ ) of a reaction at any time decides the direction in which the

reaction will proceed.

**Reason:** The value of reaction quotient ( $K_c$ ) cannot be greater than the equilibrium constant. (a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements, but reason is not correct explanation for assertion

(c) Assertion is correct statement but reason is wrong statement.

(d) Assertion is wrong statement but reason is correct statement

16. **Assertion:**  $TlCl_3$  is more stable than  $TlCl$

**Reason:** +1 oxidation state of Tl is more stable than +3

(a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

(b) Assertion and reason both are correct statements, but reason is not correct explanation for assertion

(c) Assertion is correct statement but reason is wrong statement.

(d) Assertion is wrong statement but reason is correct statement

### **SECTION - B**

17. Define Photoelectric effect.

Calculate the energy of one photon whose frequency is  $1 \times 10^{15}$  Hz

18. Define electronegativity. How does it differ from electron gain enthalpy?

19. (a) Define Boyle's Law

(b) A balloon is filled with hydrogen at room temperature. It will burst if pressure exceeds 0.2 bar. If at 1 bar pressure the gas occupies 2.27 L volume, up to what volume can the balloon be

expanded?

20. (a) Explain adiabatic system

(b) Explain extensive property. Give an example.

21. (a) Define Standard enthalpy of formation.

(b) Define Hess's law of constant heat summation.

**OR**

The standard enthalpies of formation of  $\text{CO}_2$  (g),  $\text{H}_2\text{O}$  (g) and  $\text{CH}_4$  (g) are -393.5 and -286.2 and -74.8  $\text{kJ mole}^{-1}$ , respectively. Calculate the enthalpy of combustion of methane.

22. Explain disproportionation reaction with a suitable example.

23. Justify that the reaction:

$2\text{Cu}_2\text{O} (\text{s}) + \rightarrow \text{Cu}_2\text{S} (\text{s}) + 6\text{Cu} (\text{s}) + \text{SO}_2 (\text{g})$  is a redox reaction.

Identify the species oxidized/reduced, which acts as an oxidant and which acts as a reductant.

24. Differentiate between hard and soft water. List one disadvantage of hard water

List some the physical properties of water

25. Balancing the given Redox Reaction based on Ion electron or Half reaction method:

Reaction between nitric acid and iodide to give hydro-iodic acid and nitrogen(IV) oxide

### **SECTION - C**

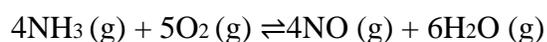
26. (a) Write the Lewis dot structure for atom of Oxygen

(b) Write one limitation of octet rule.

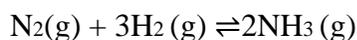
(c) How do you express the bond strength in terms of bond order?

27. (a) Define Equilibrium Law

(b) Write the equilibrium constant ( $K_c$ ) for the reaction:



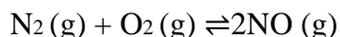
(c) Write the equilibrium constant ( $K_p$ ) for the given reaction in terms of  $K_c$



**OR**

(a) Explain the term 'dynamic equilibrium'

(b) At equilibrium, the concentration of  $\text{N}_2 = 3.0 \times 10^{-3} \text{M}$ ,  $\text{O}_2 = 4.2 \times 10^{-3} \text{M}$  and  $\text{NO} = 2.8 \times 10^{-3} \text{M}$  in a sealed vessel at 800K. What will be  $K_c$  for the reaction



28. (a) What is the oxidation state of K in  $\text{KO}_2$

(b) What is the colour of Na (sodium) to an oxidizing flame

(c) Give one point of difference between Lithium (Li) and other alkali metals

29. (a) What is the oxidation state of Na in  $\text{Na}_2\text{O}_2$

(b) What is the colour of K (potassium) to an oxidizing flame.

(c) Give one point of difference between Beryllium (Be) and other alkaline earth

metals. 30. (a) Boron trifluoride behaves as a Lewis acid – Justify

(b) Explain the term 'Inert Pair effect'

(c) "Half-life of Carbon – 14 is 5770 years" What do you understand from this?

### **SECTION - D**

31. (a) Calculate the molecular mass of glucose

(b) What do you mean by limiting reagent

(c) Calculate the amount of water (g) produced by the combustion of 16 g of methane

(d) Calculate the molecular mass of sulphuric acid

(e) What do you mean by empirical formula

(f) The density of 3M solution of NaCl is  $1.25 \text{ g mL}^{-1}$ . Calculate the molality of the solution. [Mass of Na = 23 u ; Cl = 35.5 u]

32. (a) Draw the geometrical structure of  $\text{BF}_3$ ; What is the name of this geometrical shape

(b) Explain  $sp^3$  hybridization with an example.

- (c) What do you mean by Bond angle
- (d) Calculate the bond order of  $O_2^+$
- (e) Explain Intermolecular hydrogen bond with an example.

33 (a) Draw the geometrical structure of  $NH_3$  ; What is the name of this geometrical shape

- (b) Explain  $sp^3d$  hybridization with an example
- (c) What do you mean by bond length
- (d) Calculate the bond order of  $O_2$
- (e) Explain intramolecular hydrogen bond with an example.

**-END-**

## **BIOLOGY**

1. Complete your practical file and project and submit the same offline either in person or send at the reception (second day after the school reopens)
2. Complete all the questions from the following Chapters-
  - (I) Body fluid and circulation
  - (ii) Excretory products and their elimination

## **ENGLISH**

**Traveling** is one of the best ways to enhance personal growth. It enables one to do things different from one's daily routine activities. When you travel, you step out from your comfort zone to a different environment which makes you become more responsible and gives a sense of independence. To take you to the world of nostalgia we want you to make a '**Travelogue**' based on the journey to any place visited by you. Take the help of the chapter '**Silk Road**' to write the travelogue.

Follow the instructions given below while preparing the travelogue:

- Make a word document of 2-3 pages. Use your creativity to make it presentable.
- To make your travelogue attractive do not forget to attach the photographs as well.
- The link to submit your word document will be shared by your subject teacher.
- Keep the hard copy (print out) safe with you for future reference.

## **ECONOMICS**

**Assignment will be shared by concerned teacher based on**

## 1. PROBLEMS BASED ON COST

## 2. PROBLEMS BASED ON SUPPLY AND ELASTICITY OF SUPPLY

### PSYCHOLOGY

#### ATTEMPT THE FOLLOWING QUESTIONS

1. \_\_\_\_\_ psychologists work with persons who suffer from motivational and emotional problems. 1
2. Is it possible to conduct an experiment to study the effect of nutritional deficiency on intelligence level of children? Yes/No 1
3. The attitude of people towards family planning, the attitude towards giving powers to the Panchayati raj institutions for running programmes related to health, education, sanitation, can be assessed by \_\_\_\_\_ research. 1
4. \_\_\_\_\_ system governs activities which are normally not under direct control of individuals. 1
5. \_\_\_\_\_ refers to an attitude in which there is little possibility or interest in one's cultural maintenance, and little interest in having relations with other cultural groups. 1
6. According to Piaget approximate age of sensorimotor stage is: 1  
(a) 0-3 years  
(b) 0-2 years
7. Personal Fable is one of the components of adolescent egocentrism. T/F 1
8. The process through which certain stimuli are selected from a group of others is generally referred to as \_\_\_\_\_. 1
9. \_\_\_\_\_ reflects a phenomenon by which distant objects appear to be closer together than the nearer objects. 1
10. In \_\_\_\_\_ conditioning, the US precedes the onset of CS. 1
11. In serial learning experiments, recalling the words of a category together is called \_\_\_\_\_. 1
12. The incoming information first enters the \_\_\_\_\_ memory. 1
13. The method of loci is particularly helpful in remembering items in a serial order. T/F 1
14. How is psychology related to the field of medicine? 2

5.	Define psychological test. What is meant by objectivity in test?	2
6.	In what ways does substance abuse become a concern in adolescence?	2
7.	Describe three symptoms of learning disability.	3
8.	What is chunking? Which memory can be strengthened by its use?	3
9.	Write a note on the features of old age.	4
10.	What is LTM? What are the different kinds of LTM?	4

## ACCOUNTANCY

Make a PPT on financial statements for winter break as AIL Project having weightage of 10 marks in Annual Examination.

Keep in view following points:

1. Definitions of Financial Statement
2. Revenue & Capital expenditure & income with examples.
3. Direct & Indirect expenditure & Income with examples.
4. Format of Trading A/c , Profit & Loss A/c , Balance Sheet.
4. Include art work related to Meghalaya or Arunachal Pradesh in slides while preparing PPT.

## COMPUTER SCIENCE

### Important Instructions:

1. All exercises **MUST** be written in **COMPUTER SCIENCE PRACTICAL RECORD FILE**.
2. Each exercise **MUST** start from a fresh page.
3. Exercise number and topic given **MUST** be written clearly for each exercise given.
4. All coding **MUST** be in Python language and as per the version and concept taught in class (CBSE curriculum).
5. All the exercises are **MANDATORY** to attempt.

**Write the Python program for the following:**

### Python fundamentals:

- Ex.1.** WAP in Python to accept a number and check it is even or not.
- Ex.2.** WAP in Python to accept two numbers from user and display the smallest one.
- Ex.3.** WAP in Python to accept two numbers and display their sum, difference and product.
- Ex.4.** WAP in Python to accept three numbers and display the greatest among them.
- Ex.5.** WAP in Python to accept a number and check it is a two or three digit number or not.
- Ex.6.** WAP in Python to accept a number and display all the numbers starting from 1 upto given number.
- Ex.7.** WAP in Python to accept two numbers as start and end and display all the numbers from start to end.
- Ex.8.** WAP in Python to display Fibonacci series upto 100.
- Ex.9.** WAP in Python to display Fibonacci series upto nth term. The nth term will be given by user.

- Ex.10.** WAP in Python to accept a number and check if it's a prime number or not.
- Ex.11.** WAP in Python to display all the odd numbers for the given range.
- Ex.12.** WAP in Python to accept a base and a power value and display the result.
- Ex.13.** WAP in Python to accept any three-digit number and check if it's an Armstrong number or not.
- Ex.14.** WAP in Python to accept any number (number must be greater than 10) and check if it's a palindrome number or not.
- Ex.15.** WAP in Python to accept any alphabet and check if it's a vowel or not.

## Looping exercises:

- Ex.16.** WAP in Python to print all numbers from 1 to 10.
- Ex.17.** WAP in Python to print all numbers from 10 to 1.
- Ex.18.** WAP in Python to print all numbers starting from 1 up to given number N.
- Ex.19.** WAP in Python to print all numbers from N to M where N and M is given by user.
- Ex.20.** WAP in Python to accept a number and calculate the factorial of a given number.
- Ex.21.** WAP in Python to generate a Fibonacci series up to 50th term.

## String function programs-

- Ex.22.** WAP in Python to accept a string and display its length.

```
s=input("Enter string:")  
print("Length is:", len(s))
```

- Ex.23.** WAP in Python to accept a string and display it in reverse order.
- Ex.24.** WAP in Python to accept a string and display it in CAPS.
- Ex.25.** WAP in Python to check if the given string is in Title case or not.
- Ex.26.** WAP in Python to accept a string and count how many alphabets, digits and symbols it contains.
- Ex.27.** WAP in Python to accept a string and check if it's a palindrome or not.
- Ex.28.** WAP in Python to accept a string and count how many vowels it contains.
- Ex.29.** WAP in Python to accept a string and count how many words it contains.
- Ex.30.** WAP in Python to accept a name from user and display in following half-pyramid formation.

e.g Input: RAMESH

output:

```
R  
R A  
R A M  
R A M E  
R A M E S  
R A M E S H
```

- Ex.31.** WAP in Python to accept a string from user and validate the entry as per the following rules-
- String must contain at least 8 characters.
  - String must contain at least one uppercase and two lowercase letters.
  - String must not contain any space.
  - String must contain at least one symbol.

## List based programs in Python:

- Ex.32.** WAP to accept two items from user and add them in an empty list.

**Ex.33.** WAP to accept N items from user and display the list.

**Ex.34.** WAP to accept N items from user and display the list in reverse order.

**Ex.35.** WAP to accept N items from user and a search content to find it exists or not.

**Ex.36.** WAP to accept 10 numbers from user and create a list. Find the maximum and minimum value in given list.

**Ex.37.** WAP to find the no. of occurrence for each item in a list.

**Ex.38.** WAP to insert an item in a particular position in a list. User will give the position to insert and an item.

**Ex.39.** WAP to delete an item given by user from a list.

**Ex.40.** WAP to create two different lists and create another list by merging the both. Items will be given by user for both the primary lists.

**Ex.41.** WAP to offer a choice to user to sort a list in ascending or descending order depending on the user's choice. Display the sorted list on screen.

## **INFORMATION PRACTICES**

Complete the Python Practical File (Practical List Shared on MS Teams)

## **B. STUDIES**

Make a PPT on Business services for winter break as AIL Project having weightage of 10 marks in Annual Examination.

Keep in view following points:

1. Definition and features of Business services
2. Explain all types of services
3. Explain Banking, Insurance and warehousing effectively.
4. Include art work related to Meghalaya or Arunachal Pradesh in slides while preparing PPT.

## **FRENCH**

(It may be a power point presentation or an illustrated file) The project may be on one of the following themes:

1. A French/ francophone writer
2. A French region

## **GEOGRAPHY**

**COMPLETE PRACTICAL WORK OF CH – 6,7,8**

## **HISTORY**

1. Make a PPT. containing 20-25 slides on one of the following topics.

- A. Modernization in JAPAN
- B. Modernization in China

C. Modernization in India

D. Modernization in South Korea.

## **POLITICAL SCIENCE**

1. Make a PPT. containing 15- 20 slides on any one of the following ideas and values:-

A. Equality

B. Social Justice

C. Freedom of Expression

D. Indian Secularism Vs Western Secularism

E. How different countries in World are tackling problem of COVID 19.