AUTUMN HOLIDAY HOMEWORK - CHE

1.Complete the all exercise questions from chapter equilibrium

2.Solve the following sample paper questions

Section A – Very Short Answer Questions (1 mark × 7 = 7 marks)

(Answer in 1–2 sentences)

1. Define the term *mole*.
2. State Avogadro's law.
3. Write the formula of ammonium phosphate.
4. What is the value of Planck's constant?
5. Define ionisation enthalpy.
6. What is hybridisation?
7. Give one example of a redox reaction.

Section B – Short Answer Questions (2 marks × 7 = 14 marks)

(Answer in 30–40 words)

8. Differentiate between empirical and molecular formula with an example.
9. State and explain Hund's rule of maximum multiplicity.
10. Write any two differences between sigma and pi bonds.
11. Explain the term *limiting reagent* with a simple example.
12. What are isobars? Give one example.

13. State the postulates of Dalton's atomic theory (any two).

14. Explain the concept of electronegativity.

Section C – Short Answer Questions (3 marks × 7 = 21 marks)

(Answer in 60–80 words)

15. Derive the ideal gas equation from Boyle's and Charles' laws.

16. Explain the shapes of the following molecules using VSEPR theory:
(a) $BeCl_2$ (b) NH_3 (c) H_2O

17. Calculate the empirical formula of a compound containing 40% carbon, 6.7% hy drogen, and 53.3% oxygen.

18. Discuss the quantum numbers and write the set of quantum numbers for the $3p^1$ electron.

19. Explain the trends in atomic radius across a period and down a group.

20. Describe the formation of NaCl and MgO using the concept of electron transfer.

21. State and explain the law of chemical combination (any three laws).

Section D – Long Answer Questions (5 marks × 4 = 20 marks)

(Answer in 120–150 words)

22. (a) Explain the Bohr model of the hydrogen atom.
(b) Derive the expression for the energy of an electron in the *nth* orbit.

23. Discuss the hybridisation, geometry, and bond angles of the following molecules
(i) CH_4 (ii) C_2H_4 (iii) C_2H_2

24. (a) Explain the periodic trends in ionisation enthalpy and electron gain enthalpy.
(b) Give reasons for the anomalies observed in Group 13 and Group 16 elements.

25. (a) State the postulates of the kinetic theory of gases.
(b) Derive the relation between root-mean-square speed and temperature.

Section E – Long Answer (Numerical) (8 marks × 1 = 8 marks)

26. (a) 2.76 g of silver is deposited when a current is passed through $AgNO_3$ solution for 30 minutes. Calculate the current used. (Ag = 108 g/mol, 1 Faraday = 96500 C)

(b) A gaseous mixture contains 0.4 mol of O_2, 0.6 mol of N_2, and 1.0 mol of CO_2. Calcula te the partial pressure of each gas if the total pressure is 1.5 atm.

Section A – Very Short Answer Questions (1 mark × 7 = 7 marks)

(Answer in 1–2 sentences)

1. Define *equivalent mass* of an element.
2. State Heisenberg's uncertainty principle.
3. Write the electronic configuration of Fe^{2+}.
4. What is the coordination number of atoms in a bcc lattice?
5. Define *electron affinity*.
6. What is the shape of the d_{z^2} orbital?
7. Write the formula of the conjugate base of $H_2PO_4^-$.

Section B – Short Answer Questions (2 marks × 7 = 14 marks)

(Answer in 30–50 words)

8. Explain why real gases deviate from ideal behaviour at high pressure.
9. Differentiate between *bond enthalpy* and *lattice enthalpy* with examples.
10. State Pauli's exclusion principle and explain its significance in electronic configu ration.
11. Define *formal charge* and calculate the formal charge on oxygen in the carbonate ion.
12. Explain why ionisation enthalpy of nitrogen is higher than that of oxygen.
13. What is the significance of the de Broglie equation?
14. Explain the term *hydration enthalpy* and its trend in alkali metals.

Section C – Short Answer Questions (3 marks × 7 = 21 marks)

(Answer in 60–90 words)

15. Derive the relation between density of a gas and its molar mass using the ideal g as equation.

16. Explain the shapes of the following using hybridisation and VSEPR theory:
(a) SF_6 (b) PCl_5 (c) ClF_3

17. A compound contains 54.5% carbon, 9.1% hydrogen, and 36.4% oxygen. Its vapo ur density is 44. Determine its molecular formula.

18. Discuss the variation of electron gain enthalpy across a period and down a group , giving reasons for anomalies in halogens and noble gases.

19. Explain the Aufbau principle and discuss two exceptions in transition elements.

20. Derive the relationship between work done and pressure–volume change for an isothermal reversible expansion.

21. Explain the formation of the following using MO theory:
(a) O_2 (b) O_2^- (c) O_2^{2-} (Comment on magnetic behaviour)

Section D – Long Answer Questions (5 marks × 4 = 20 marks)

(Answer in 120–150 words)

22. (a) Derive the de Broglie wavelength expression for an electron accelerated throu gh a potential difference V.
(b) Calculate the wavelength of an electron accelerated through 500 V.

23. Discuss the periodic trends in:
(i) Atomic radius
(ii) Ionisation enthalpy
(iii) Electronegativity
(iv) Electron gain enthalpy
Give reasons for at least four anomalies.

24. (a) Explain the Born–Haber cycle for the formation of an ionic compound.
(b) Using the cycle, explain why $MgCl_2$ is stable but MgCl is not.

25. (a) State the postulates of kinetic theory of gases.
(b) Derive the expression for pressure exerted by an ideal gas using kinetic theory.

Section E – Long Answer (Numerical) (8 marks × 1 = 8 marks)

26. **(a)** A gaseous mixture contains 2 g of H_2, 56 g of N_2, and 44 g of CO_2 in a 10 L vess el at 300 K.
Calculate:
(i) Mole fraction of each gas

(ii) Total pressure
(iii) Partial pressure of each gas

(b) 0.5 mol of a gas expands isothermally and reversibly from 5 L to 20 L at 300 K. Calculate the work done. ($R = 8.314\ J\ mol^{-1}\ K^{-1}$)

3.Complete the investigatory projects allotted to each student

4.Work should be done ONLY in A4 size paper

MODEL QUESTION PAPER CLASS: XI SUBJECT: ENGLISH CORE (301)

Time Allowed: 3 Hours
Maximum Marks: 80

SECTION A: READING SKILLS (20 Marks)

Q1. Read the following passage carefully and answer the questions that follow: (12 Marks)

> Nature has its own quiet language, written in the subtle rustle of leaves, the rhythmic tumble of waves against the shore, and the gentle patter of raindrops falling upon parched earth. Every droplet that condenses high above in the cool clouds carries with it a journey—a metamorphosis from invisible vapor into life-giving water. As it falls through the sky, it connects the heavens to the soil, nourishing plants, replenishing rivers, and renewing ecosystems.
> In our fast-paced modern life, we often overlook these quiet wonders. Engaging deeply with literature, nature, and thoughtful discourse allows us to pause and reflect on our place within the larger environment. When we listen to the stories of inspirational thinkers, athletes, and leaders, or read impactful books, we gain perspective on our shared human experience and our interconnectedness with the natural world.

Answer the following questions based on the passage above:
* (1 Mark) What transformation does a raindrop undergo before reaching the earth?
* (1 Mark) According to the passage, how does nature communicate with us?
* (2 Marks) Explain how connecting with nature and literature can benefit human perspective.
* (2 Marks) Find words/phrases from the passage that mean:
* (a) A change of physical form or structure (Paragraph 1)
* (b) Restoring or refilling something (Paragraph 1)

* (6 Marks) Multiple Choice / Short Answer Questions:
* (a) What is the primary function of raindrops mentioned in paragraph 1?
* (b) How can modern individuals regain a sense of reflection?

Q2. Read the following passage and write a summary/notes: (8 Marks) (Passage on a contemporary topic such as technology, environment, or art integration)
* (a) Note-Making: Make notes on the passage using headings, sub-headings, and recognizable abbreviations where necessary. (5 Marks)
* (b) Summary: Write a brief summary of the passage in about 50 words. (3 Marks)

SECTION B: GRAMMAR & CREATIVE WRITING SKILLS (30 Marks)

Q3. Grammar Practice (10 Marks) (A) Gap Filling (Tenses & Clauses)

Fill in the blanks using the correct form of the verb or relative/subordinate clause given in brackets:

* By the time the train arrived at the station, we _____ (wait) for over two hours.
* The student _____ project was selected for the state level received an award.
* If she _____ (study) harder last month, she would have passed the exam easily.

(B) Reordering of Sentences Rearrange the following jumbled words/phrases to form meaningful sentences: *

natural / plays / water / an / life / in / essential / role / cycle / all

* should / we / preserve / future / our / resources / for / natural / generations

(C) Sentence Transformation (Reported Speech, Voice, Conjunctions/Linkers) Transform the following sentences as directed:

* Reported Speech: The teacher said to the students, "Have you completed your project on chapter themes?"
* Passive Voice: The team recorded an interview with a famous sports person.
* Conjunctions/Linkers: He worked extremely hard. He failed to complete the book review on time. (Combine using 'Although')

(D) Sentence Correction & Vocabulary

* Correction: Correct the error in the sentence: "Neither of the two books were available in the library."
* Vocabulary: Choose the word nearest in meaning to 'Eminent' (as used in competitive exams):

* (a) Hidden * (b) Famous / Distinguished * (c) Temporary * (d) Ordinary

Q4. Creative Writing Tasks (20 Marks)

* Creative Monologue / Descriptive Writing: (5 Marks)

* Write a creative monologue from the perspective of a single raindrop, illustrating its journey from the clouds, down through the atmosphere, onto a autumn leaf, and finally into the river. (120–150 words)

* Book Review / Report Writing: (5 Marks)
* Write a formal book review of a novel you have recently read, covering the plot summary, key themes, character analysis, and your overall recommendation. (120–150 words)

* Interview Script / Podcast Preparation: (5 Marks)
* Draft a 3–5 minute imaginary interview script between a host and a famous sports personality/celebrity, focusing on their achievements, challenges, and advice for students. (150–200 words)

* TED Talk Summary & Reflection: (5 Marks)

* Write a concise summary and analytical reflection based on an inspirational TED talk you watched recently. Highlight the main speaker's main thesis, core arguments, and takeaways. (120–150 words)

SECTION C: LITERATURE & PROJECT BASED QUESTIONS (30 Marks)

Q5. Project & Investigatory / Art-Integrated Tasks (10 Marks)

* Choose one key theme from your Class XI English textbook chapters (e.g., The Portrait of a Lady, We're Not Afraid to Die..., or The Voice of the Rain) and outline an Art-Integrated / Investigatory Project proposal addressing:
* Title and Theme
* Objectives
* Art Integration element (e.g., poster design, illustration, drama script, or collage)
* Real-world relevance / Key lessons

Q6. Short Answer Questions (Literature & Themes) (10 Marks) (Answer any 5 out of 6 in 40–50 words each)

* How does the theme of nostalgia play out in The Portrait of a Lady?
* What contrast is drawn between human life and nature in the poem A Photograph?
* Describe the courage displayed by the crew in We're Not Afraid to Die....
* How does the poem The Voice of the Rain parallel the water cycle with the birth and return of poetry?
* What central message does The Adventure convey regarding parallel worlds/history?
* Explain the significance of art and spirituality in Landscape of the Soul.

Q7. Long Answer Question (10 Marks) (Answer any 1 out of 2 in 120–150 words)

* Discuss how nature serves as a healer and teacher across your literature lessons, referencing poems like The Voice of the Rain and Childhood.
* Prepare a detailed project presentation structure comparing traditional values versus modern lifestyle based on the themes studied in your syllabus.

PM SHRI KENDRIYA VIDYALAY-BOWENPALLY

CLASS XI-MATHEMATICS –AUTUMN BREAK HOLIDAY HOMEWORK

Instructions:

PART-A Do the written work on A4-size sheets.

1. Using Venn diagrams, prove that:

- (i) $(A \cup B)' = A' \cap B'$
- (ii) $(A \cap B)' = A' \cup B'$

2. Define the following functions, draw their graphs, and write their domains and ranges:

- (i) Modulus function
- (ii) Signum function
- (iii) Greatest integer function

- Exercise 2.3: Question 2(ii)
- Miscellaneous Exercise 2: Questions 2, 6
- Exercise 3.2: Questions 4, 9
- Page 65: Example 14
- Exercise 3.3: Questions 22, 23, 25
- Page 71: Example 22
- Miscellaneous Exercise 3: Questions 4, 6, 9
- Exercise 4.1: Questions 9, 14
- Miscellaneous Exercise 4: Questions 6, 10, 7, 12
- Exercise 5.1: Questions 23, 25
- Miscellaneous Exercise 5: Questions 11, 12, 13
- Page 106: Example 8
- Exercise 6.3: Questions 2, 7, 8
- Exercise 6.4: Questions 1, 7
- Pages 121–122: Examples 22, 23
- Miscellaneous Exercise 6: Questions 3, 11
- Exercise 7.1: Questions 2, 6, 11, 13, 14
- Exercise 8.1: Questions 7, 14
- Exercise 8.2: Questions 11, 12, 18, 25, 28
- Miscellaneous Exercise 8: Questions 10, 11

PART-B

Complete the record book

कक्षा XI – हिंदी अवकाश गृहकार्य

विषय: अभिव्यक्ति और माध्यम

निर्देश: निम्नलिखित सभी प्रश्नों के उत्तर अपनी हिंदी गृहकार्य उत्तर-पुस्तिका (Homework Notebook) में स्वच्छ एवं स्पष्ट लिखावट में लिखिए।

1. जनसंचार क्या है? जनसंचार के प्रमुख माध्यमों का वर्णन कीजिए।

2. संचार प्रक्रिया के प्रमुख घटकों का उल्लेख कीजिए।

3. पत्रकारिता क्या है? पत्रकारिता के प्रमुख उद्देश्यों को स्पष्ट कीजिए।

4. समाचार लेखन में छह ककारों (क्या, कौन, कब, कहाँ, क्यों और कैसे) का क्या महत्त्व है?

5. समाचार और फीचर में क्या अंतर है? स्पष्ट कीजिए।

6. रेडियो समाचार की भाषा की प्रमुख विशेषताएँ लिखिए।

7. टेलीविजन समाचार लेखन की प्रमुख विशेषताओं का वर्णन कीजिए।

8. इंटरनेट को जनसंचार का प्रभावशाली माध्यम क्यों माना जाता है?

9. रचनात्मक लेखन से आप क्या समझते हैं? इसकी प्रमुख विशेषताएँ बताइए।

10. औपचारिक लेखन के अंतर्गत कार्यालयी पत्र और व्यावसायिक पत्र की विशेषताओं का वर्णन कीजिए।

11. एक स्वरचित कविता विद्यालय पत्रिका के लिए लिखिए।

MODEL QUESTION PAPER CLASS XI – BIOLOGY

Time Allowed: 3 Hours

General Instructions: * All questions are compulsory.

* Section A contains 2-Mark Questions (Short Answer Type I).
* Section B contains 3-Mark Questions (Short Answer Type II).
* Section C contains 5-Mark Questions (Long Answer Type).
* Draw neat and labelled diagrams wherever necessary.

SECTION A:

2-Mark Questions (Short Answer Type I)

* Define taxonomic hierarchy. Write the standard sequence of taxonomic categories in descending order.

* What are the primary criteria used by R.H. Whittaker for classifying organisms in the five-kingdom system?

* Differentiate between liverworts and mosses based on their plant body structure and rhizoids.

* Distinguish between chordates and non-chordates based on any two major diagnostic features.

* Define placentation. Name any two types of placentation found in flowering plants. * Anatomy of Flowering Plants: What is the structural and functional difference between open and closed vascular bundles?

* Cell: The Unit of Life: Why are lysosomes commonly referred to as the "suicide bags" of the cell?

* Photosynthesis in Higher Plants: State Blackman’s Law of Limiting Factors.

SECTION B:

3-Mark Questions (Short Answer Type II)

* Biological Classification: Write three salient features of Kingdom Fungi regarding their habitat, mode of nutrition, and cell wall composition.

* Plant Kingdom: Explain the life cycle pattern shown by bryophytes and pteridophytes with reference to alternation of generations.

* Morphology of Flowering Plants: Describe racemose and cymose types of inflorescence with one suitable example for each.

* Biomolecules: What are enzymes? Explain the effect of temperature and pH on enzyme activity.

* Cell Cycle and Cell Division: Differentiate between mitosis and meiosis based on the site of occurrence, number of daughter cells produced, and genetic variation.

* Structural Organisation in Animals: Give three points of distinction between skeletal muscle, smooth muscle, and cardiac muscle.

* Photosynthesis in Higher Plants: Differentiate between cyclic and non-cyclic photophosphorylation with respect to involvement of photosystems and formation of NADPH.

SECTION C:

5-Mark Questions (Long Answer Type)

* Cell: The Unit of Life: Draw a neat and labeled diagram of the ultrastructure of a mitochondrion. Explain its structural adaptations and role as the powerhouse of the cell.

* Photosynthesis in Higher Plants: Describe the Calvin cycle (C_3 pathway) in detail, highlighting its three major phases: carboxylation, reduction, and regeneration.

* Biomolecules: Explain the levels of protein structure. Differentiate between primary, secondary, tertiary, and quaternary structures of proteins with bonding details.

* Plant Kingdom: Give a comparative account of the three main classes of Algae—Chlorophyceae, Phaeophyceae, and Rhodophyceae—based on major pigments, stored food, and flagellar number.

* Cell Cycle and Cell Division: Explain the various sub-stages of Prophase I of Meiosis (Leptotene, Zygotene, Pachytene, Diplotene, and Diakinesis) with key events occurring in each. End of Question Paper Would you like me to generate full answer keys/solutions or marking schemes for any of these sections?

COMPUTER SCIENCE, HOLIDAY HOME WORK(2026-27)

SECTION A (1 × 21 = 21 Marks)

1. Which component of the computer performs all arithmetic and logical operations?
   (A) Control Unit (B) ALU (C) Cache (D) Register
2. Which of the following is a valid Python identifier?
   (A) 3value (B) total-sum (C) _temp (D) class
3. 1 MB is equal to:
   (A) 1024 bytes (B) 1024 KB (C) 1024 GB (D) 1000 bytes
4. Which of the following data types is immutable in Python?
   (A) List (B) Dictionary (C) Tuple (D) Set
5. Which of the following is system software?
   (A) MS Excel (B) Device driver (C) Tally (D) VLC Media Player
6. What will be the output of: `print(10 // 3)`
   (A) 3.33 (B) 3 (C) 3.0 (D) 1
7. Which language translator converts source code line-by-line and stops at the first error?
   (A) Compiler (B) Assembler (C) Interpreter (D) Linker
8. Which operator checks whether a value exists in a list?
   (A) exists (B) has (C) in (D) within
9. The output of a NOR gate is 1 only when:
   (A) both inputs are 1 (B) both inputs are 0 (C) any input is 1 (D) inputs are different
10. Which operator checks if two variables refer to the same object in memory?
    (A) == (B) = (C) in (D) is
11. The hexadecimal equivalent of $(11101)_2$ is:
    (A) 1D (B) 2E (C) 1C (D) 2D
12. Which of the following functions returns the length of a string?
    (A) size() (B) length() (C) len() (D) count()
13. Which encoding scheme was specifically developed in India to represent Indian language scripts?
    (A) ASCII (B) Unicode (C) ISCII (D) UTF-32
14. Identify the type of error in the following statement: `print("Result" + 5)`
    (A) Syntax error (B) Logical error (C) Runtime/Type error (D) No error
15. Which of the following is the fastest form of memory?
    (A) Cache memory (B) Primary memory (C) Secondary memory (D) Pen drive
16. Which list method arranges the elements of a list in ascending order, in place?
    (A) sorted() (B) sort() (C) order() (D) arrange()
17. Simplify using De Morgan's Law: (A.B)' =
    (A) A' + B' (B) A' . B' (C) A + B (D) A . B
18. Which keyword is used to iterate over a sequence in Python?
    (A) loop (B) for (C) repeat (D) each
19. Which of the following is an input device?
    (A) Plotter (B) Scanner (C) Monitor (D) Speaker
20. **Assertion (A):** Cache memory is used to speed up the overall processing of the CPU.

Reason (R): Cache memory is larger in size but slower in speed than primary memory.
(A) Both A and R are true, and R is the correct explanation of A.
(B) Both A and R are true, but R is not the correct explanation of A.
(C) A is true, but R is false.
(D) A is false, but R is true.

21. **Assertion (A):** In Python, a list can store elements of different data types.
Reason (R): A list is a mutable sequence, so it can be modified after creation.
(A) Both A and R are true, and R is the correct explanation of A.
(B) Both A and R are true, but R is not the correct explanation of A.
(C) A is true, but R is false.
(D) A is false, but R is true.

SECTION B (2 × 7 = 14 Marks)

22. Differentiate between primary memory and secondary memory (any two points).
23. Draw the truth table for the XOR gate and the NOR gate.
24. Convert the decimal number $(255)_{10}$ into its binary and hexadecimal equivalents.
25. The following Python code has errors. Rewrite the correct code, underlining each correction.

```
num = 10
if num > 0
    print('Positive)
Else:
   print("Non-positive")
```

26. Differentiate between a syntax error and a logical error, with one example of each.
27. What is the difference between the `append()` and `extend()` methods of a list? Illustrate with a suitable example.
28. State the data type of the result of each of the following expressions:
(i) `5 + 2.0` (ii) `7 == 7.0` (iii) `"5" + "2"` (iv) `10 / 2`

SECTION C (3 × 3 = 9 Marks)

29. Convert the following numbers from one base to another (attempt any three):
(i) $(101101)_2 = (\ )_{10}$
(ii) $(87)_{10} = (\ )_8$
(iii) $(2F)_{16} = (\ )_2$
(iv) $(144)_8 = (\ )_{16}$
30. Draw a flowchart to find the largest of three numbers entered by the user.
(OR)
Write an algorithm to check whether a number entered by the user is divisible by both 3 and 5.
31. Predict the output of the following Python code:

```
s = "COMPUTER"
res = ""
for i in range(0, len(s), 2):
    res = res + s[i]
print(res)
print(s[::-1])
```

SECTION D (4 × 4 = 16 Marks)

32. Write a Python program to generate the following pattern using nested loops:

```
1
1 2
1 2 3
1 2 3 4
```

33. Write a Python program to accept a string from the user and count the number of uppercase letters, lowercase letters and digits present in it. *(OR)* Write a Python program to find the factorial of a positive number entered by the user, using a loop.
34. Write a Python program to calculate the sum of the following series using a loop: 1 + 1/2 + 1/3 + 1/4 + ... + 1/10 *(OR)* Write a Python program to check whether a number entered by the user is divisible by both 4 and 6.
35. Write a Python program to accept a list of numbers from the user and display the frequency of each distinct element present in the list, without using the `count()` method.

SECTION E (5 × 2 = 10 Marks)

36. Consider the following list: `L = [15, 42, 8, 23, 42, 16, 9]` Write Python statements to perform the following operations:
    (a) Count the number of times the value 42 appears in the list.
    (b) Arrange the elements of the list in descending order.
    (c) Remove the last element of the list.
    (d) Insert the value 50 at index position 2.
    (e) Find the sum and average of all the elements in the list.
37. A teacher has stored the scores of six students in a list: `Scores = [45, 67, 23, 89, 56, 90]` Write Python code to:
    (a) Find and display the maximum, minimum and mean of the scores. *(2)*
    (b) Perform a linear search for a score entered by the user, and display whether it is Found or Not Found, along with its index if found. *(2)*
    (c) Count and display how many scores are above the mean. *(1)*
