

KARNAL SHER KHAN CADET COLLEGE SWABI

SUMMER VACATIONS TASK (HOME WORK) FOR CLASS 11TH, SESSION 2026/27

NOTE: All cadets are required to complete following tasks/home work during summer vacations. These tasks (homework) carry 25% marks of the exam that will be conducted after summer vacations. The exam will consist of course taught in college and homework assigned for summer vacations. So properly prepare homework and study the topics taught in the college.

Parents are required to sign each task after completion, otherwise will not be accepted.

BIOLOGY

Visual Work																	
1.	Watch and study Video Lectures of Selected topics from 1 st , 2 nd and 3 rd Chapters. CH 01 Cell Structure and Function Cell Wall and Plasma Membrane Cytoplasm Cytoplasmic Organelles Prokaryotic and Eukaryotic Cell CH 02 Biological molecules <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Carbohydrates</td> <td style="width: 50%;">Proteins</td> </tr> <tr> <td>Lipids</td> <td>Nucleic Acid</td> </tr> </table> CH 03 Enzymes <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Enzymes and Their Nature</td> <td style="width: 50%;">Characteristics of Enzymes</td> </tr> <tr> <td>Enzyme Structure</td> <td>Mechanism of Enzyme Action</td> </tr> <tr> <td>Enzyme Activation Energy</td> <td>Induced Fit Model</td> </tr> <tr> <td>Effect of PH On Enzyme Activity</td> <td>Lock And Key Theory</td> </tr> <tr> <td>Effect of Temperature on Enzyme Activity</td> <td>Co-Factors</td> </tr> <tr> <td>Effect of Enzyme and Substrate Concentration on Enzyme Activity</td> <td></td> </tr> </table>	Carbohydrates	Proteins	Lipids	Nucleic Acid	Enzymes and Their Nature	Characteristics of Enzymes	Enzyme Structure	Mechanism of Enzyme Action	Enzyme Activation Energy	Induced Fit Model	Effect of PH On Enzyme Activity	Lock And Key Theory	Effect of Temperature on Enzyme Activity	Co-Factors	Effect of Enzyme and Substrate Concentration on Enzyme Activity	
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Diagrammatic Work																	
2.	Draw labelled and neat diagrams of selected topics (above) of 1 st Three Chapters.																
Assignment																	
3.	Prepare 25 MCQS (ETE/MDCAT pattern) of selected topics (above) of 1 st Three chapters. Prepare practical notebooks. Attempting practice of selected topics (above) of recent three years Board papers and submission.																
Projects/Models/ Creative Work																	
Note: Prepare a model/project from the following or prepare model/project on any biological topic/idea of your interest:																	
4.	Design and prepare any three model/projects of the following. <ol style="list-style-type: none"> a. Self-Watering Garden Bed b. Human Lungs Model c. Animal and plant cell 3D Model: A 3D Model of a plant and animals' cells with their different organelles d. Heart Pumping Working Model (A model of heart pump using syringes and tubing) e. Enzyme Catalysis Model (Lock and Key Model and Induced Fit Model) f. Animal Pyramid Model (A model of land, air and water animals) 																
5.	Chapter wise (Chapter 1, 2, 3) reckoners/flow charts are required to be prepared.																

Contact No. Dr. Ateeq Ahmad 0308-3321411

CHEMISTRY

CHAPTER 7: CHEMICAL EQUILIBRIUM

1. Reversible reaction: Define + 3 examples with \rightleftharpoons arrow. Ex: $\text{H}_2 + \text{I}_2 \rightleftharpoons 2\text{HI}$
2. Dynamic equilibrium: "Both reactions happen, but rates equal". Draw 2 stick figures running opposite directions on treadmill at same speed.
3. Law of Mass Action + K_c : For $a\text{A} + b\text{B} \rightleftharpoons c\text{C} + d\text{D} \rightarrow K_c = \frac{[\text{C}]^c[\text{D}]^d}{[\text{A}]^a[\text{B}]^b}$. Write units + when K_c has no units.
4. K_p & relation: $K_p = K_c(\text{RT})^{\Delta n}$. Explain $\Delta n = \text{moles gas products} - \text{moles gas reactants}$. Give 1 example where $K_p = K_c$.

5. Le Chatelier's Principle Chart

Make table, not paragraph:

Factor.....	Change.....	Equilibrium Shift.....	Example: $N_2 + 3H_2 \rightleftharpoons 2NH_3 + \text{Heat}$
Concentration	Add N_2	Right \rightarrow more NH_3	Product increases
Temperature	Increase T	Left \rightarrow less NH_3	Because reaction is exothermic
Pressure	Increase P	Right \rightarrow less gas moles	4 moles \rightarrow 2 moles
Catalyst	Add Fe	No shift, faster	Only speeds up

Creative work – Equilibrium Seesaw

Draw big seesaw. Left side "Reactants", Right side "Products". Balance point = Equilibrium. Below write 4 lines: "At equilibrium rate forward = rate reverse. But reactions don't stop. Amount of R & P constant. It's dynamic not static."

Solved Numericals + Concept Questions

Do 5 questions with steps + answer boxed:

1. K_c for $2HI \rightleftharpoons H_2 + I_2$ is 0.25. $[HI]=0.8M$. Find $[H_2]$ and $[I_2]$ if equal
2. For $N_2O_4 \rightleftharpoons 2NO_2$, $K_p=0.14$ at $100^\circ C$. Find K_c . $R=0.0821$, $T=373K$
3. Define homogeneous vs heterogeneous equilibrium with 1 example each
4. Why is pure solid/liquid not written in K_c expression?

5. Real life: Explain how opening soda bottle shifts CO_2 equilibrium

CHAPTER 8: ACIDS, BASES & SALTS

Theories Mind Map

Draw big circle "Acids & Bases". 3 branches:

1. Arrhenius: Acid = H^+ producer in water. Base = OH^- producer. Ex: HCl, NaOH. Limitation: Only in water
2. Bronsted-Lowry: Acid = H^+ donor, Base = H^+ acceptor. Ex: $NH_3 + H_2O \rightleftharpoons NH_4^+ + OH^-$. Here H_2O is base
3. Lewis: Acid = e^- pair acceptor, Base = e^- pair donor. Ex: $BF_3 + NH_3 \rightarrow BF_3NH_3$. BF_3 is Lewis acid

pH Scale + Calculations

1. Draw 0-14 pH scale. Color it: 0-3 red strong acid, 4-6 orange weak acid, 7 green neutral, 8-10 light blue weak base, 11-14 dark blue strong base
2. Formulas: $pH = -\log[H^+]$, $pOH = -\log[OH^-]$, $pH + pOH = 14$, $K_w = 1 \times 10^{-14}$
3. Solve 3 questions:
 - a) pH of 0.001M HCl
 - b) pH of 0.00001M NaOH \rightarrow find pOH first
 - c) If $pH=4$, find $[H^+]$

Salt Hydrolysis Table + Activity

Table:

Salt..... \rightarrow Made from..... \rightarrow Solution pH..... \rightarrow Reason + Reaction

NaCl HCl + NaOH 7 Neutral No hydrolysis

NH_4Cl HCl + NH_4OH <7 Acidic $NH_4^+ + H_2O \rightleftharpoons NH_3 + H_3O^+$

CH_3COONa $CH_3COOH + NaOH$ >7 Basic $CH_3COO^- + H_2O \rightleftharpoons CH_3COOH + OH^-$

Creative work : "Salt Detective" – Write 4 lines: If solution of salt turns blue litmus red, then salt is acidic. Name 2 acidic salts: NH_4Cl , $CuSO_4$

Buffer + Real Life Link

1. Buffer definition: Solution that resists pH change. Ex: CH_3COOH/CH_3COONa
2. Blood buffer: Draw blood drop. Write reaction: $CO_2 + H_2O \rightleftharpoons H_2CO_3 \rightleftharpoons H^+ + HCO_3^-$. Write 3 lines why pH 7.4 is important for enzymes.

3. Real life: 2 uses of acids – HCl in stomach, H_2SO_4 in batteries. 2 uses of bases – NaOH in soap, $Mg(OH)_2$ in antacid

Concept Map + Conclusion

Draw concept map connecting: Equilibrium \rightarrow K_c \rightarrow Le Chatelier \rightarrow Industrial use

Connect: Acids/Bases \rightarrow pH \rightarrow Salt \rightarrow Buffer \rightarrow Daily life

Note : write down first ten practical in your practical Note book

COMPUTER SCIENCE

1. Reading/Understanding. Kindly study and understand the following topics from the KP textbook (Class 11th) or any other book you have as these are the topics already discussed and studied in class 9th.

Sr	Chapters	Topics
1	Chapter No. 1 (Overview of Computer System)	1. Computer and its basic Operations 2. Classification of computers 3. Hardware and Software 4. Types of Software 5. Input devices (Discuss some input devices) 6. Output devices (Discuss some output devices) 7. Difference between softcopy and hardcopy.
2	Chapter No. 4 (Inside System Unit)	1. CPU and System Unit 2. Computer Casing - Desktop Casing - Tower Casing 2. Exploring the System Unit - Power Supply - Motherboard 3. Important components on motherboard (BIOS, Ports, Expansion slots, Ribbon Cable, IDE Cable, SATA Cable, FD Cable & Memory Slots etc) 4. Types of Ports and Expansion cards

2. Written work

- Prepare 30 MCQs in the topics of each chapter other than exercise.
 - Watch the video lectures of the above topics by visiting www.sabq.pk and prepare notes of all topics in writing (in a separate notebook) and bring it along with after summer vacations.
 - Post Summer Test will be conducted in the above topics.
3. Presentation. Prepare a presentation on the Topic "What is Chatgpt? What are the advantages and disadvantages of Using Chatgpt for students".

Note: In case of any query please contact on 03369908747 through WhatsApp.

Mr. Jawad Ali Khan, Assistant Professor

ENGLISH**INSTRUCTIONS FOR CADETS**

- This summer task is credited and carries 25 marks in 1st Term Exam.
- The task shall be completed in all respects before it is submitted to the subject teacher/OIC.
- Cadets are required to exhibit originality in completing the task, especially, the creative writing portion.
- The handwriting should be neat and clear for better understanding.
- Cadets may take guidance from respective teachers, parents, friends and surf the internet to make the task more effective and relevant.
- The book you choose for writing its review must be submitted (along with review) to the concerned subject teacher.
- Cadets failing to submit the task will not be awarded the allotted marks.

Book Review

Write a Book Review of any book of your choice. All the cadets will get a book from the College Library/Bookshop and will return the book and book review after summer vacations.

Format of Book Review:

(Steps to follow when writing a book review)

- Introduce the book (briefly)
- Give your personal opinion about the book.
- Write conclusion that summarizes everything.
- Give outlines of its content
- Write conclusion that summarizes everything.

Writings Practice (Creative Writing)

1. Write an essay\short story\poem\travelogue for the annual **Sherian Magazine**.
2. Write a letter to the editor of a newspaper about the importance of English Language.
3. Write a letter to the editor of a newspaper about climate change.
4. Write a letter to the editor of a newspaper about importance of co-curricular activities.
5. Write a letter to the editor of a newspaper about suggesting individual measures to address water crisis.
6. Write a letter to the editor of a newspaper about Misuse of social media.

Social work Assignment

Write a report on any of the following social work activities, which you performed during the summer vacation:

1. Community Cleanliness campaign
2. Plantation campaign in your vicinity
3. Blood Donation awareness campaign
4. Charity collection for the poor strata of society
5. Arranging distribution of books campaign in an impoverished area

Adoption of Sports Activity

Draft a brief report on sports activities that you participated during the summer vacation. These sports activities may include:

1. Swimming
2. Excursion trips(trekking)
3. Cricket, football, volleyball etc.

Topics for Public Speaking. The cadets are required to express their views in front of friends, family members etc. during summer vacations.

1. The impact of social media on teenagers
2. Why environmental conservation is crucial
3. The role of technology in education
4. My dream career and how to achieve it
5. The power of reading books
6. The importance of time management for students
7. The benefits of extracurricular activities
8. The importance of English Language
9. The role of youth in nation building
10. The significance of cultural diversity in schools

These topics are relatable, encourage critical thinking, and provide opportunities for students to express their views confidently. If you need help developing a speech for any of these, let me know!

Sherian Journal\ Diary

Write regularly the activities of your daily routine, discussing daily chores, overview of above activities and personal input, in a diary during the summer vacation.

Mr. Asad Ali AP English

Contact No. 0345-445503

PHYSICS

Note: Write and memorize exercise of Chapter 01 “Measurements”, Chapter 02 “Vectors and equilibrium” and chapter 03 “Farce and motion.

Exercise includes MCQS, Conceptual questions, Comprehensive questions and Numerical problems.

Syllabus for 1st Term exam after summer vocations is Chapter 01, 02 and 03.

Hussain Ahmed, Lec in Physics, contact No. 0314-9699508

MATHEMATICS

■ Textbook Overview

The Mathematics textbook of Class XI contains 12 chapters in total.

Basic concepts of the following chapters have already been introduced in previous classes:

- Chapter 01: Complex Numbers - Chapter 02: Matrices and Determinants - Chapter 08: Functions and Graphs

✓ Task 01: Video Lectures on Chapters 01 & 02

★ **Objective:** Watch and understand lectures from the YouTube channel “Concept Mathematics with Sartaj”:

⇒ YouTube Channel: <https://www.youtube.com/channel/UCd8vgBvliZqNL7cCq6PGe0Q>

📁 Chapter 01 – Complex Numbers - Total Video Lectures: 16

- All videos are available on the above YouTube channel.

📁 Chapter 02 – Matrices and Determinants

- Total Video Lectures: 29

- All videos are uploaded on the same channel.

✔ **Task 02: Video Lectures on Chapter 08**

🎯 **Objective:** Watch and understand Chapter 08 – Functions and Graphs:

📁 Chapter 08 – Functions and Graphs

- Total Video Lectures: 22 - Available on the same YouTube channel.

📁 **Home Assignment**

1. **Make Lecture Notes:**

- Prepare neat and complete notes of all the video lectures in a separate notebook.

- Include definitions, examples, solved exercises, and key concepts.

2. **Solve Exercises:**

- Practice all solved and unsolved examples from the book.

- Complete the exercises discussed in the video lectures.

If you face any difficulty during your preparation, feel free to contact WhatsApp: +92-313-9053536

Mr. Sartaj Ali Lec in Mathematics

Islamiyat Summer Task

Memorization

- **Chapter 3:** Complete **Uswa-e-Rasool-e-Akram (ﷺ)**
- **Chapter 4:** **Selected Ayat and Ahadith** with **Urdu Translation and Tafseer**

Instructions

1. Read and memorize **Chapter 3** completely.
2. Learn and understand the **Selected Ayat and Ahadith** of **Chapter 4** along with their **Urdu translation and Tafseer**.
3. Revise important points regularly for better understanding and retention

MQ Summer Task

Memorization & Revision

1. Revise and memorize **Surah Al-Anfal:**
 - a) Word meanings
 - b) Main themes
 - c) Main points of **Ghazwa-e-Badr**
2. Study and memorize **Ghazwa-e-Tabook:**
 - a) Causes
 - b) Important events
 - c) Lessons and significance

Instructions

- Learn the translation and key concepts of Surah Al-Anfal.
- Understand the major lessons from Ghazwa-e-Badr and Ghazwa-e-Tabook.
- Revise regularly to strengthen memorization and understanding.

Mr. M. Zahid Ullah AP Islamiyat

Contact No. 03348284319

	جماعت یازدہم - سال 2025ء	گھر کا کام برائے تعطیلات گرما	
	جماعت یازدہم - سال 2026ء	گھر کا کام برائے تعطیلات گرما	
1- مکالمہ نویسی:	-	دو دوستوں کے مابین امتحان کی تیاری پر مکالمہ	-
2- آپ بیتیاں:	-	ایک کتاب کی آپ بیتی	-
3- زوداد نویسی:	-	الوداعی تقریب کی روداد	-
	-	امتحانی نتائج پر باپ بیٹے کے مابین مکالمہ	-
	-	کرسی کی آپ بیتی	-
	-	سیرت النبی ﷺ کا نفرنس کی روداد	-

- 4- رسیدیں: ا- موٹر سائیکل کے فروخت کی رسید ب- رسید برائے وصولی کرایہ مکان
- 5- اصنافِ نثر: افسانوی نثر: ناول، افسانہ، ڈراما، لوک کہانی
- غیر افسانوی نثر: نثاریہ، آپ بیتی، لوک کہانی، خاکہ نگاری، مضمون نگاری کی تعریفات
- اصنافِ سخن (شاعری) نظم، آزاد نظم، معریٰ نظم، پابند نظم، حمد، نعت، مثنوی، سانیٹ، قطعہ، قصیدہ، رباعی کی تعریفات
- اور کم از کم ایک ایک مثال خوش خط لکھ کر لائیں۔

- 6- علم بیان (تشبیہ، استعارہ، مجازِ مرسل، کنایہ) کی تعریفیں اور مثالیں خوش خط لکھ کر لائیں۔
- 7- اُردو صنعتیں (تضاد، تلمیح، مراعاتِ النظر، لف و نشر، حُسنِ تعلیل، تضمین، عاقبتہ الاعداد) کی تعریفیں اور کم از کم دو دو مثالیں خوش خط لکھ کر لائیں۔
- *نوٹ: (علم بیان / صنعتوں کی تعریفیں اور مثالیں اردو کتاب میں موجود ہیں۔)

ہدایات برائے کیڈٹس اور والدین:

- 1- ہر سوال کے لیے الگ صفحات استعمال کریں، دل جمعی اور دل چسپی کے ساتھ خوشخط اور صاف ستھرا لکھیں۔
- 2- تمام سوالات کے الگ الگ نمبرات دیے جائیں گے۔ پریزنٹیشن (Presentation) صفائی اور خوش خطی کے الگ نمبرات ہوں گے۔
- 3- مضامین اور تقریر لکھنے میں انٹرنیٹ سے (copy to copy)، کتاب یا کسی بھی دوسرے کیڈٹ سے نقل کر کے لکھنا قابل قبول نہیں۔ اس صورت میں کیڈٹ سزا کا مستحق قرار پائے گا اور متعلقہ کام منسوخ تصور کیا جائے گا۔
- 4- اگر سہولت موجود ہو تو تقریر ٹائپ کر کے لائیں دوسری صورت میں ہاتھ سے صاف ستھرا اور خوش خط لکھیں۔
- 5- والدین سے گزارش ہے کہ تعطیلات کے دوران اپنے بیٹے پر خصوصی توجہ مرکوز کریں تاکہ دیا گیا کام وقت پر مکمل کیا جاسکے۔
- 6- کوئی مشکل درپیش ہو تو اس نمبر 0344-8378780 پر واٹس ایپ کر کے پوچھ لیں۔

محمد علی ساگر لیکچرار اردو (کرنل شیر خان کیڈٹ کالج صوابی)