

Cadet College Muzaffarabad, AJ&K

Summer Vacation Work 2025

Class 11th

اردو

سبق 5 مشق لکھیں اور خلاصہ تحریر کریں۔

نظم، 2، 1 اور 3 کی تشریح کریں اور مشق حل کریں۔

غزل 1 تا 2 کی مکمل تشریح کریں۔ اور مشق حل کریں۔

جملہ مرکبات، اسم معرفہ، اسم نکرہ، جملہ حروف، تشبیہ، استعارہ، مجاز مرسل، مراۃ النظر، حسن تعلیل، صنعت تضاد، صنعت تکرار، صنعت لف و ثر، صنعت تجنیس، کنایہ کی تعریف لکھیں اور بہتر تفہیم کے لیے مثالیں تحریر کریں۔

ممتاز مفتی کی کتاب لبیک کا مطالعہ کریں اور تحریری تجزیہ کریں۔

فہم القرآن

* سورۃ الانبیاء، سورۃ الحج اور سورۃ المؤمنون کے تراجم تیار کریں۔

* پہلے چار اسباق کی مشقیں حل کر کے خوشخط لکھیں اور یاد کر کے آئیں۔

* چھٹیوں کے بعد قرآن و حدیث اور سیرت کوئز منعقد ہوگا لہذا چھٹیوں میں کوئز کی بھرپور تیاری کریں، سوال و جواب کی

کاپی آپ کے متعلقہ گروپس میں بھیج دی جائے گی۔

اسلامیات

1۔ علوم قرآن۔

2۔ علوم الحدیث

3- توحید

4- رسالت محمدی

5- فرشتوں پر ایمان

6- آسمانی کتب پر ایمان

7- آخرت پر ایمان

ان تمام اسباق کو یاد کر کے لانا ہے مختصر سوالات تفصیلی سوالات سمیت جو کچھ پڑھا ہے لکھ کر لانا ہے،

Physics

Chapter	Revise & prepare all the 5 chapters.
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English

01.	Figures of Speech 1. Simile 2. Metaphor 3. Person Information 4. Apostrophe 5. Alliteration 6. Imagery 7. Hyper bole 8. Irony
02	Idioms & Phrases 50 each
03	Job Applications 05

Chemistry

Chapter-01.	Prepare First 6 Chaps thoroughly for term exams after summer vacations.
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Biology

Biology (11 th)	a. Write 20 short questions (marked) 10 from each chapter 1,3 & 15.. b. 2 long questions marked from each chapter 1,3 & 15. c. Make all MCQs minimum 50 from chapter 1,3 & 15. d. Draw the well labeled diagrams of chapter 1.
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(Mathematics)

Dear Cadets,

You are advised to prepare and understand all the following chapters thoroughly and solve the following questions on sheets properly.

Chapter#01

Short Question

1. Write the complex number $(3, 2) \div (3, -1)$ in $x + iy$.
2. Write the complex number $(3 + 2i)(4 - 3i)$ in $x + iy$.
3. Simplify: $(1 + i)^{-2} + (1 - i)^{-2}$
4. Simplify: $(2 + i)^2 + \frac{7 - 4i}{2 + i}$
5. Find the values of real numbers x and y when: $\frac{x}{1 + i} + \frac{y}{1 - 2i} = 1$
6. Find real and imaginary parts of the complex number $\left(\frac{7 + 2i}{3 - i}\right)^{-1}$
7. For $z_1 = -3 + 2i$ and $z_2 = 1 - 3i$ verify $\overline{\left(\frac{z_1}{z_2}\right)} = \frac{\overline{z_1}}{\overline{z_2}}$
8. For $z_1 = -3 + 2i$ and $z_2 = 1 - 3i$ verify $\overline{z_1 z_2} = \overline{z_1} \overline{z_2}$
9. Factorize the polynomial $2z^2 + 18$ into linear functions.
10. Factorize the polynomial $z^2 - 7z - 8$ into linear functions.

Long questions

1. Find the values of real numbers x and y when: $\frac{x}{2 + i} = \frac{1 - 5i}{3 - 2i} + \frac{y}{2 - i}$
2. Find the complex number z if $4z - 3\overline{z} = \frac{1 - 18i}{2 - i}$
3. Find the conjugate of the complex number $\left(\frac{5 - 4i}{5 + 4i}\right)^2$

- Find real and imaginary parts of the complex number $\left(\frac{4+2i}{2+5i}\right)^{-2}$
- Write the complex number $2+i2\sqrt{3}$ in the polar form.
- Write the complex number $3-i\sqrt{3}$ in the polar form.
- Write the complex number $2\left(\cos\frac{3\pi}{2}+i\sin\frac{3\pi}{2}\right)$ in the algebraic form.
- Write the complex number $\sqrt{2}\left(\cos\frac{3\pi}{4}+i\sin\frac{3\pi}{4}\right)$ in the algebraic form.

Chapter 02

Short Questions

- Construct a matrix $A = [a_{ij}]$ of order 2×2 for which: $a_{ij} = \frac{i+3j}{2}$
- Construct a matrix $A = [a_{ij}]$ of order 2×2 for which: $a_{ij} = \frac{i}{j}$
- If $A = \begin{bmatrix} 3 & -1 & 2 \\ 0 & 6 & 1 \\ -1 & 0 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 1 & 7 \\ 0 & 2 & -1 \\ -3 & 4 & 2 \end{bmatrix}$ then find a matrix C such that: $A+B+C=0$
- If $\begin{bmatrix} xy & 4 \\ 0 & x+y \end{bmatrix} = \begin{bmatrix} 8 & z \\ t & 6 \end{bmatrix}$ then find the values of z , t and x^2+y^2 .
- Consider two matrices of A and B of your choice of order 2×3 and 3×2 respectively and show that $(AB)^t = B^t A^t$
- If A and B are two matrices such that $AB=B$ and $BA=A$. Find A^2+B^2
- Find the rank of the matrix: $\begin{bmatrix} 1 & 3 \\ 2 & 9 \\ 1 & 6 \end{bmatrix}$
- Without expansion show that: $\begin{vmatrix} a+1 & l & l \\ l & a+1 & l \\ l & l & a+1 \end{vmatrix} = (a+1+2l)(a+1-l)^2$
- Find the value of λ , so that the following system has infinite many solutions.
- $2x-3y+z=1; x-2y+\lambda z=2; 3y+z=-1$

Long questions

- Find the value of λ , so that the given matrices are singular $\begin{bmatrix} 2+i & 1 & 6 \\ 2 & \lambda & 1 \\ 3 & 0 & 2 \end{bmatrix}$

2. Find the multiplicative inverse of the matrix $\begin{bmatrix} 3 & -i & i \\ 2 & 1 & -3i \\ 4i & 2 & 6 \end{bmatrix}$ if it exists by adjoint method.

$$A = \begin{bmatrix} 2 & -i & 6 \\ 1 & 2 & i \\ -i & 1 & 6 \end{bmatrix} \quad \text{and} \quad B = \begin{bmatrix} 3 & 1 & 2 \\ 1 & 0 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

3. Verify that $(AB)^{-1} = B^{-1}A^{-1}$ when

4. Without expansion show that: $\begin{vmatrix} 0 & -a & -b \\ a & 0 & -c \\ b & c & 0 \end{vmatrix} = 0$

5. Without expansion show that: $\begin{vmatrix} \sin^2 \alpha & 1 & \cos^2 \alpha \\ \tan^2 \alpha & \sec^2 \alpha & 1 \\ -\operatorname{cosec}^2 \alpha & -\cot^2 \alpha & 1 \end{vmatrix} = 0$

6. Using the properties of the determinant to prove

$$\begin{vmatrix} x & x^2 & 1 + \alpha x^3 \\ y & y^2 & 1 + \alpha y^3 \\ z & z^2 & 1 + \alpha z^3 \end{vmatrix} = (1 + \alpha xyz)(x - y)(y - z)(z - x)$$

7. using the properties of the determinant to prove

$$\begin{vmatrix} 2ab & 1 + a^2 - b^2 & 2b \\ 2a & -2b & 1 - a^2 - b^2 \\ 1 - a^2 + b^2 & 2ab & -2a \end{vmatrix} = (1 + a^2 + b^2)^3$$

8. Find echelon and reduce echelon form of the matrix: $\begin{bmatrix} 1 & 3 & 5 \\ -6 & 8 & 3 \\ -4 & 6 & 5 \end{bmatrix}$

Chapter 05 **Short Questions**

1. Differentiate between remainder and factor theorems.
2. Define zero/root of a polynomial.
3. What is division algorithm.
4. Find remainder by using reminder theorem when $2x^3 + 3x^2 - 4x + 1$ divided by $x + 2$.
5. Find remainder by using reminder theorem when $x^4 + 2x^3 - x^2 + 2x + 3$ divided by $x - 2$.
6. Decide whether $x - 3$ is a factor of $x^3 - 2x^2 - 5x + 1$ or not.
7. Find the value of q if $x^3 + qx^2 - 7x + 6$ is exactly divisible by $x + 1$.

8. Find the value of m in the polynomial $2x^3 + 3x^2 - 3x - m$ which when divided by $x - 2$ gives the remainder of 16.
9. Factorize $2x^3 - x^2 - 2x + 1$ by using factor theorem.
10. If zeros of polynomial are $4, \frac{3}{5}, -2$, find the polynomial.
11. In the cricket match season, the number of tickets sold during the match can be modeled by $t(x) = x^3 - 12x^2 + 48x + 74$, where x is the number of games played. Find the number of tickets sold during twelfth game of the cricket.

Long questions.

1. Find remainder by using remainder theorem when $x^4 + 2x^3 - x^2 + 2x + 3$ divided by $x - 2$.
2. Show that $x - 3$ is a factor of $x^3 - 2x^2 - 5x + 6$.
3. Find zeros of polynomial $2x^3 + 3x^2 - 11x - 6$.
4. Determine the value of k for which $x + 3$ is a factor of $(x + 2)^5 + 3(x + k)$.
5. Express $f(x) = x^3 - x^2 - 14x + 8$ in the form $f(x) = (x - a)q(x) + r$, where $a = 4$.
6. A rectangular room has a volume of $(x^3 + 11x^2 + 34x + 24)$ cubic feet. The height of the room is
7. $(x + 1)$ feet. Find the area of its floor.
8. A rectangular solid has a volume of 144 cubic units. The width is twice the height and the length is two units more than the width. Find the dimensions of the solid.
9. The volume of rectangular box is 2475 cubic units. The length of the box is three units more than twice the width of the box. The height is two units less than width. Find the dimensions of the box.

Computer Science

Chapter No 1	1	Develop a project using Bread Board to show working of traffic lights.
	2	Develop AND, OR and NOT gates using digital logic designs.
Chapter No 2	1	Write an Algorithm to find largest No of a list and convert it into Pseudo code.
	2	Consider jurors example from Ch# 2 and draw trace table for that.
Chapter No 7	1	Conduct a survey in your area about usage of social media. Prepare questionnaire, define objectives interview suitable individuals and write a Report about it.