



# Cadet College Jhelum

Peer Shahab G.T Road Jhelum

## Syllabus for Entrance Test

**Subject: Science**

**Class: 7<sup>th</sup>**

**Note: The learning outcomes from the following units will be at Class 6 level.**

Unit/Topic	Learning Outcomes
<b>Cellular Organization</b>	<ol style="list-style-type: none"><li>1. Recognize cells as the basic unit of life that are organized into tissues, organs systems and organisms.</li><li>2. Arrange and rank different levels of cellular organizations – cell to tissues, organs, organs system and organisms.</li><li>3. Relate the structures of some common cells (nerve, muscle, epithelium and blood cells) to their functions.</li><li>4. Identify the structures present in an animal cell and plant cell as seen under simple microscope and relate them to their functions (only cell membrane, cytoplasm, nucleus, cell wall, chloroplast, mitochondria and vacuole).</li><li>5. Describe the similarities and differences between the structures of plants and animal cells.</li><li>6. Sketch the animal and plant cells and label key organelles in each.</li><li>7. Compare and contrast an animal cell and plant cell by preparing slides using onion peels and cheek cells.</li></ol>
<b>Matter as particle</b>	<ol style="list-style-type: none"><li>1. Explain the Particles Theory of Matter.</li><li>2. Use particle model of matter to investigate the movement and arrangement of particles in three states.</li><li>3. Explain why gases and liquids take the shape of their containers but solids do not, in terms of particle Theory of Matter.</li><li>4. Discuss, using the particle theory of matter, why liquids and gases can flow easily but solids cannot.</li><li>5. Interpret the evidence for the existence of the particles in matter by observing daily life examples (adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water).</li><li>6. Apply the particle theory of matter to explain diffusion.</li><li>7. Explain the changes in states: Melting, freezing, evaporation, condensation, and sublimation, using the particle model of matter.</li></ol>



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<b>Elements and compounds</b>	<ol style="list-style-type: none"><li>1. Describe the structure of matter in terms of particles (i.e. atoms and molecules).</li><li>2. Describe molecules as a combination of atoms (e.g. H<sub>2</sub>O, O<sub>2</sub> &amp; CO<sub>2</sub>).</li><li>3. Recognize the names and symbols for some common elements (first 10 elements of the Periodic Table) and recognize their physical properties.</li><li>4. Differentiate that some elements are made of atoms and some elements exist as molecules and have different properties to a single atom of element.</li><li>5. Explain that compounds are formed by different types of elements joining together chemically forming a new substance.</li><li>6. Illustrate the formation of a compound with the help of a word equation.</li><li>7. Distinguish between elements and compounds.</li><li>8. Explore the common elements and compounds in our daily life (Carbon, Nitrogen, Hydrogen, Aluminum, Water, Common salt, Sugar).</li><li>9. Categorize elements into metals and non-metals of first 10 elements based on their physical properties.</li></ol>
<b>Energy</b>	<ol style="list-style-type: none"><li>1. Recognize energy as a physical quantity.</li><li>2. Relate potential energy and kinetic energy</li><li>3. Demonstrate an energy transfer such as bouncing ball by energy transfer diagram, e.g. gravitational potential energy --- kinetic energy -- elastic potential energy + thermal + sound --- kinetic --- gravitational potential energy etc.</li><li>4. State the law of conservation of energy and explain how the law applies to different situations.</li><li>5. Compare the renewable energy source (Wind, water, Sun and plants) Non-renewable sources of energy (coals, natural gas, crude oil).</li><li>6. Identify the advantage of using renewable energy resources.</li><li>7. Assemble and demonstrate a solar panel to operate a small fan.</li><li>8. Design and make a solar water heater.</li></ol>



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## Syllabus for Entrance Test

**Subject: Mathematics**

**Class: 7<sup>th</sup>**

**Note: The learning outcomes from the following units will be at Class 6 level.**

Unit/Topic	Learning Outcomes
Sets	<ol style="list-style-type: none"><li>1. Define set. Recognize notation of a set and its objects/elements.</li><li>2. Describe tabular form of a set and demonstrate through examples.</li><li>3. Define:<ol style="list-style-type: none"><li>i. Finite and infinite sets,</li><li>ii. Empty / void / null set,</li><li>iii. Singleton,</li><li>iv. Equal and equivalent sets,</li><li>v. Subset and superset of a set,</li><li>vi. Proper and improper subsets of a set, and demonstrate through examples.</li></ol></li></ol>
Whole Numbers	<ol style="list-style-type: none"><li>1. Differentiate between natural and whole numbers.</li><li>2. Identify natural and whole numbers, and their notations.</li><li>3. Represent<ol style="list-style-type: none"><li>i. a given list of whole number,</li><li>ii. whole number <math>\geq</math> (or <math>\leq</math>) a given whole number.</li><li>iii. whole number <math>&lt;</math> (or <math>&gt;</math>) a given whole number.</li><li>iv. whole number <math>&gt;</math> but <math>&lt;</math> a given whole number,</li><li>v. whole number <math>\geq</math> but <math>\leq</math> a given whole number,</li><li>vi. sum of two or more given whole numbers, on the number line.</li></ol></li><li>4. Add and subtract two given whole number.</li><li>5. Verify commutative and associative law (under addition) of whole numbers.</li><li>6. Recognize '0' as additive identity.</li><li>7. Multiply and divide two given whole numbers.</li><li>8. Verify commutative and associative law (under multiplication) of whole numbers.</li></ol>



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	<p>9. Recognize '1' as multiplicative identity.</p> <p>10. Verify distributive law of multiplication over addition.</p> <p>11. Verify distributive law of multiplication over subtraction (with positive difference).</p>
<b>Simplifications</b>	<p>1. Know that the following four kinds of brackets</p> <ul style="list-style-type: none"><li>i. _____ vinculum,</li><li>ii. ( ) parentheses or curved brackets or round brackets,</li><li>iii. { } braces or curly brackets,</li><li>iv. [ ] square brackets or box brackets,</li></ul> <p>are used to group two or more numbers together with operations.</p> <p>2. Know the order of preference as, _____, ( ), { } and [ ], to remove (simplify) them from an expression.</p> <p>3. Recognize BODMAS rule to follow the order in which the operations, to simplify mathematical expressions, are performed.</p> <p>4. Simplify mathematical expressions involving fractions and decimals grouped with brackets using BODMAS rule.</p> <p>5. Solve real life problems involving fractions and decimals.</p>
<b>Introduction to Algebra</b>	<p>1. Explain the term algebra as an extension of arithmetic in which letters replace the numbers.</p> <p>2. Know that</p> <ul style="list-style-type: none"><li>i. a sentence is a set of words making a complete grammatical structure and conveying full meaning. Sentence that are either true or false are known as statements.</li><li>ii. a statement must be either true or false but not both.</li><li>iii. a sentence that does not include enough information</li><li>iv. required to decide whether it is true or false known as open statement (e.g. <math>\Delta + 2 = 9</math>).</li><li>v. a number that makes an open statement true is said to satisfy the statement (e.g. <math>\Delta = 7</math> makes the statement <math>\Delta + 2 = 9</math> to modify it to <math>\Delta + 2 = 9</math> true)</li><li>vi. Use English alphabet x in the open statement <math>\Delta + 2 = 9</math> to modify it to <math>x + 2 = 9</math>.</li></ul>



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	<p>vii. Define variable as letters used to denote numbers in algebra.</p> <p>3. Know that any numeral, variable or combination of numerals and variables connected by one or more of the symbols '+' and '-' is known as an algebraic expression (e.g., <math>x + 2y</math>).</p> <p>4. Know that <math>x</math>, <math>2y</math> and <math>5</math> are called the terms of the expression <math>x + 2y + 5</math>.</p> <p>5. Know that the symbol or number appearing as multiple of a variable used in algebraic term is called its coefficient (e.g. in <math>2y</math>, <math>2</math> is the coefficient of <math>y</math>).</p> <p>6. Know that the number, appearing in algebraic expression, independent of a variable is called a constant term (e.g. in <math>x + 2y + 5</math>, number <math>5</math> is a constant term).</p> <p>7. Differentiate between like and unlike terms.</p> <p>8. Know that</p> <ol style="list-style-type: none"><li>Like terms can be combined to give a single term,</li><li>Addition or subtraction cannot be performed with unlike terms.</li></ol> <p>9. Add and subtract given algebraic expressions.</p> <p>10. Simplify algebraic expressions grouped with brackets.</p> <p>11. Evaluate and simplify an algebraic expression when the values of variables involved are given.</p>
<b>Linear Equations</b>	<p>1. Define an algebraic equation.</p> <p>2. Differentiate between equation and an expression.</p> <p>3. Define linear equation in one variable.</p> <p>4. Construct linear expression and linear equation in one variable.</p> <p>5. Solve simple linear equations involving fractional and decimal coefficients like</p> $\frac{1}{2}x + 5 = x - \frac{1}{3}$ <p>6. Solve real life problems involving linear equations.</p>



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<b>Geometry</b>	<ol style="list-style-type: none"><li>1. Add measures of two or more line segments.</li><li>2. Subtract measure of line segment from a longer one.</li><li>3. Draw a right bisector of a given line segment using compass.</li><li>4. Draw a perpendicular to a given line from a point on it using compass.</li><li>5. Draw a perpendicular to a given line, from a point outside the line, using compass.</li><li>6. Use compass to:<ol style="list-style-type: none"><li>i. construct an angle equal in measure of a given angle,</li><li>ii. construct an angle twice in measure of a given angle,</li><li>iii. bisect a given angle,</li><li>iv. divide a given angle into four equal angles,</li><li>v. construct the following angles: <math>60^\circ</math>, <math>30^\circ</math>, <math>15^\circ</math>, <math>90^\circ</math>, <math>45^\circ</math>, <math>(22\frac{1}{2})^\circ</math>, <math>75^\circ</math>, <math>(67\frac{1}{2})^\circ</math>, <math>120^\circ</math>, <math>150^\circ</math>, <math>165^\circ</math>, <math>135^\circ</math>, <math>105^\circ</math>,</li></ol></li><li>7. Construct a triangle when three sides (SSS) are given. Caution: Sum of two sides should be greater than the third side.</li><li>8. Construct a triangle when two sides and their included angle (SAS) are given.</li><li>9. Construct a triangle when two angles and the included side (ASA) are given.</li><li>10. Construct a triangle when hypotenuse and one side (RHS) for a right-angled triangle are given.</li></ol>
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## Syllabus for Entrance Test

**Subject: English**

**Class: 7<sup>th</sup>**

**Note: The questions from the following topics will be at class 6 level.**

<b>Question No</b>	<b>Detail</b>
<b>1</b>	<b>Read the passage and Answer the questions in your own words (Unseen passage)</b>
<b>2</b>	<b>Letter/Application writing</b>
<b>3</b>	<b>a) Singular / Plurals b) Masculine / Feminine c) Opposite words</b>
<b>4</b>	<b>a) Make sentences of the given words. b) Change the given sentences into simple/negative/interrogative sentences c) Use of prepositions to fill the gaps. d) Use the correct form of verb.</b>



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## سلیبس برائے داخلہ

جماعت: ہفتم

مضمون: اردو

سوال نمبر	تفصیل
سوال نمبر 1:	(Unseen Paragraph) عبارت کو غور سے پڑھ کر دیے گئے سوالات کے جوابات اپنے الفاظ میں لکھنا
سوال نمبر 2:	(ا) مترادف الفاظ / متضاد الفاظ (ب) واحد جمع / مذکر مونث
سوال نمبر 3:	خط / کہانی لکھنا
نوٹ:	تمام سوالات جماعت ششم کے نصاب کے مطابق ہوں گے۔





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کل نمبر: 40

ماڈل پرچہ اردو برائے داخلہ جماعت ہفتم

سوال نمبر 1: دی گئی عبارت کو غور سے پڑھیں اور دیے گئے سوالات کے جوابات اپنے الفاظ میں لکھیں۔ (10)

علامہ اقبال ہمارے قومی شاعر ہیں۔ انہیں مفکر پاکستان، مصور پاکستان اور شاعر مشرق جیسے القابات سے بھی یاد کیا جاتا ہے۔ ان کی شاعری ہر شعبہ زندگی کے افراد کے لیے ایک منفرد اور خیال آفریں پیغام لیے ہوئے ہے۔ ان کے کلام میں مردوزن، جوانوں، بچوں اور بوڑھوں سب کے لیے فکری تربیت کا عملی پیغام موجود ہے۔ وہ اپنی قوم میں مقصدیت، لگن، جذبے کی صداقت، خودی کی پہچان اور پرسوز انداز فکر جیسی صفات دیکھنا چاہتے تھے۔ ان کا حیات بخش کلام مسلمانوں کے تاب ناک ماضی، عہد حاضر کی پریشان حالی اور روشن مستقبل کی جھلک لیے ہوئے ہے۔ علامہ اقبال اپنے دور کے غلام ہندوستان میں رہنے والے مسلمانوں کو درپیش حالات سے بہت رنجیدہ تھے۔ انہوں نے اپنی شاعری کے ذریعے سے مسلمانوں کو حرکت اور عمل کا پیغام دیا اور سوئی ہوئی قوم کو بیدار کر دیا۔

(i) علامہ اقبال کو کون کون سے القابات سے یاد کیا جاتا ہے؟

(ii) علامہ اقبال کس بات پر رنجیدہ تھے؟

(iii) اقبال نے اپنی شاعری کے ذریعے مسلمانوں کو کیا پیغام دیا؟

(iv) علامہ اقبال کا کلام کس کس عمر کے لوگوں کے لیے فکری تربیت کا پیغام دیتا ہے؟

(v) علامہ اقبال کا حیات بخش کلام کس چیز کی جھلک دکھاتا ہے؟

سوال نمبر 2 (الف): مندرجہ ذیل الفاظ کے مترادف الفاظ لکھیں۔ (05)

فلک، عالم، آمادہ، رنجیدہ، عارضہ

(ب) مندرجہ ذیل الفاظ کے متضاد الفاظ لکھیں۔ (05)

ترقی، مفید، قدیم، عروج، امانت

سوال نمبر 3 (الف): مندرجہ ذیل الفاظ کو پڑھ کر واحد کے جمع اور جمع کے واحد لکھیں۔ (05)

حاضر، عادات، قوم، متاثرین، معلم

(ب) مندرجہ ذیل الفاظ میں سے مذکر اور مؤنث الگ الگ کر کے لکھیں۔ (05)

بوجھ، چراغ، جماعت، کامیابی، ضمانت

سوال نمبر 4: خط یا کہانی میں سے کوئی ایک چیز لکھیں۔ (10)

والدہ کے نام بیمار پر سی کے لیے خط لکھیں۔ یا "سچ کا انعام" کے عنوان پر کہانی لکھیں۔





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## Part 2

### Short Questions

(Marks: 14)

1. How is potential energy stored in an object, give example.
2. Give symbols of sodium, potassium, mercury, bromide, copper and helium.
3. Differentiate b/w metals and non-metals with example.
4. Define cell membrane and cytoplasm.
5. Draw and label Structure of nerve cell.
6. Write equation of the process of condensation and sublimation with example.
7. What happens to atoms when heat is added to it:

## Part 3

### Long Questions

(Marks : 24)

1. Identify seven compounds at your home and write its uses.
2. a) What are the types of animal tissues, write their differences.  
b) Draw levels of organization.
3. Explain with at least one household example the process of freezing, condensation, sublimation and evaporation.



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## Model Paper for Class 7th

**Subject: Mathematics**

**Total Marks:(50)**

### Part 1

#### MCQs

**(Marks:14)**

- 1) A set having a finite number of elements is called \_\_\_\_\_ set.  
a) Empty                      b) Finite                      c) Infinite                      d) Super
- 2) If  $A = \{1, 2, 3, \dots\}$ , then A is called \_\_\_\_\_ set.  
a) Whole number              b) Natural number              c) Even number              d) Odd number
- 3) In the expression, " $2x + 7$ ", the term "7" is called \_\_\_\_\_.  
a) Variable                      b) Power                      c) Base                      d) Constant
- 4) An open mathematical statement with "=" sign is known as \_\_\_\_\_.  
a) Equation                      b) Expression                      c) Set                      d) None of these
- 5) A \_\_\_\_\_ is a part of a line which has two distinct end points.  
a) Ray                      b) line                      c) Angle                      d) Line Segment
- 6) A \_\_\_\_\_ can be either true or false but not both.  
a) Statement                      b) Sentence                      c) Equation                      d) None of these
- 7)  $17 + \underline{\hspace{2cm}} = 22$ .  
a) 4                      b) 3                      c) 5                      d) 6
- 8)  $ax + b = 0$  is called \_\_\_\_\_ equation.  
a) Linear                      b) Quadratic                      c) Cubic                      d) Exponential
- 9) The terms of the same kind only differ by their coefficients are called \_\_\_\_\_ terms.  
a) Like                      b) Un-like                      c) Equal                      d) None of these
- 10) If  $A = \{1, 2, 3\}$  and  $B = \{a, b, c\}$  then A and B are called \_\_\_\_\_ sets.  
a) Equal                      b) Equivalent                      c) Empty                      d) Sub
- 11) The numbers \_\_\_\_\_ together with the natural numbers give us the whole numbers.  
a) 1                      b) 3                      c) 2                      d) 0
- 12) " \_\_\_\_\_ " is called a "bar" or \_\_\_\_\_.  
a) Square brackets              b) Curly brackets              c) Braces brackets              d) Vinculum
- 13) In the expression " $3y + 5$ ", the "3" is called \_\_\_\_\_.  
a) Constant                      b) Coefficients                      c) Variable                      d) Power
- 14) Empty set is also called \_\_\_\_\_ set.  
a) void                      b) null                      c) singleton                      d) void & null



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## Part 2

**NOTE: Attempt all questions. All questions carry equal marks.**

**(Marks:36)**

1. Write the set of 3 Prime ministers of Pakistan.
2. Prove and identify the law:  $11 \times (28 + 72) = (11 \times 28) + (11 \times 72)$
3. If  $a = 3$  and  $b = 4$ , then prove that:  $(a + b)^2 = a^2 + 2ab + b^2$ .
4. Find the sum of 2 and 9 by using a number line.
5. The price of a chemical of 16Kg weight is Rs.1429.60. What is the price of 11.4 Kg chemical?
6. Find the solution of an equation  $\frac{x+6}{2} = \frac{x+4}{3}$
7. Divide 27552 by 112.
8. Add the algebraic expressions:

$$\begin{array}{r} x + y + z \\ 2x + y + z \\ \hline + x + 2y + z \end{array}$$

9. Construct the  $\triangle XYZ$ , when  $\overline{mXY} = 5\text{cm}$ ,  $m\angle X = 60^\circ$  and  $m\angle Y = 60^\circ$



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## Model Paper for Class 7th

**Subject: English**

**Total Marks:(50)**

**Q1: Read the passage and answer the questions in your own words.**

**10**

Muslims across the world celebrate two Eids respectively known as Eid-ul-Fitr and Eid-ul-Adha. Eid-ul-Fitr is a festival that marks the end of Ramadan, the ninth month of the Islamic calendar. During the holy month of Ramadan, Muslims do not eat or drink anything during daylight hours. Eid-ul-Fitr, therefore, celebrates the end of a month of fasting. Its name means 'Festival of Breaking Fast' in Arabic. Muslims begin the festival by praying together at dawn on the first day. Later, families gather to enjoy special meals and sweets. Children wear new clothes, and gifts are exchanged. People also visit the graves of their relatives. Some cities hold elaborate outdoor ceremonies.

### **Questions:**

**Q1. Write the best title for this passage.**

**Q2. Why do Muslims not eat or drink anything during the month of Ramadan?**

**Q3. What are the important features of Eid-ul-Fitr?**

**Q4. Why is Eid-ul-Fitr known as the 'Festival of Breaking Fast'?**

**Q2: Write a letter to your father describing your annual school sports.**

**10**

**Q3: a) Write the plural of the following nouns.**

**2  $\frac{1}{2}$**

Cow, Watch, Photo, Lady, Leaf

**b) Write the feminine of the following nouns?**

**5**

Uncle, Lion, Wizard, Dog, Poet

**c) Write the opposite of the following words.**

**5**

Wet, Bad, Light, Simple, Ugly

**Q4: a) Make sentences of the following words.**

**5**

Capital, Brave, Put on, Elder, Task

**b) Change the following sentences into negative and interrogative.**

**5**

i) I will go to market today.

ii) They reached Lahore yesterday.

iii) He plays hockey.



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iv) I have learnt my lesson.

v) They grow organic vegetables.

**c) Use the prepositions to fill the gaps.**

$2\frac{1}{2}$

i) Bye! see you \_\_\_\_\_ Friday.

ii) Are you busy \_\_\_\_\_ the moment?

iii) I'm going on holiday \_\_\_\_\_ October.

iv) They have been married \_\_\_\_\_ ten years.

v) There are some pictures \_\_\_\_\_ the wall.

**d) Use the correct form of verb given in the brackets.**

5

i) Saeed (speak) the truth.

ii) I was (take) rest in the afternoon.

iii) She (leave) school last year.

iv) "Have you (decide) what to do"?

v) I suppose it will be (rain) when we start.