



Cadet College Jhelum

Peer Shahab G.T Road Jhelum

Syllabus for Entrance Test

Subject: Science

Class: 8th /O-Level

Note: The learning outcomes from the following units will be at Class 7 level.

Unit/Topic	Learning Outcomes
Plant System	<ol style="list-style-type: none">1. Explain the root and shoot system in plants. Label different parts of leaf, stem and root (external and internal structure).2. Predict the role of xylem and phloem in transport of water and food in plants by observing the cross section of the stem.3. Define the process of photosynthesis and derive word equation for it.4. Know that plants require minerals to maintain healthy growth and life processes (limit to magnesium to make chlorophyll and nitrates to make protein).5. Explain that the structure of leaves is adapted to the process of photosynthesis.6. Describe the process of respiration and write word equation for it. Compare and contrast the processes of photosynthesis and respiration.7. Investigate the phenomena of transpiration and its importance in a plant (wind, temperature, light, humidity affecting rate of transpiration in plants).8. Explore and apply natural raise of water based on the principle of transpiration.
Human Respiratory and Circulatory System	<ol style="list-style-type: none">1. Differentiate between the processes of respiration and breathing.2. Differentiate between aerobic and anaerobic respiration.3. Trace the path of air in and out of the body and how the oxygen it contains is used during the process of respiration.4. Sketch and label the human circulatory system.5. Hypothesize how exercises of varying intensity (from rest to high-intensity interval training) would impact their pulse rate, test their hypothesis, calculate their pulse rate and record their findings.6. Describe the role and function of major organs in the human respiratory system including trachea, lungs and alveoli (air sacs).7. Explain that living organisms have a complex transport system for transfer of various solids, liquids and gases across the body.8. Describe the structure and function of the human heart.9. Explain how blood circulates in the human body through a network of vessels (arteries, veins and capillaries), and transports gases, nutrients, wastes and heat.10. Compare and contrast arteries, veins and capillaries.11. Describe the composition of blood and the functions of red blood cells, white blood cells, platelets and plasma.



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Physical and Chemical Changes	<ol style="list-style-type: none">1. Differentiate between physical and chemical changes while considering daily life examples.2. Recognize that oxygen is needed in combustion, rusting and tarnishing.3. Explore methods of preventing rust.4. Relate uses of materials to their chemical properties (tendency to rust, flammability).5. Evaluate the impact of combustion reaction on the environment.6. Relate uses of materials to their physical properties (melting point, boiling point solubility, thermal conductivity).7. Distinguish between physical and chemical properties of matter.
Structure of Atom	<ol style="list-style-type: none">1. Describe and draw the structure of an atom in terms of electrons, protons and neutrons.2. Describe how an atom is electrically neutral.3. Differentiate between atomic number and mass number.4. Determine the atomic number and mass number of elements based on the number of protons, electrons and neutrons.5. Show the arrangement of electrons in K₁ L and M shells of elements.6. Draw the atomic structure of the first eighteen elements of the periodic table.7. Explain that the periodic table is a way to organize elements systematically.8. Recognize groups and periods in the periodic table.
Chemical Bond	<ol style="list-style-type: none">1. Define valency and explain the formation of ions.2. Write chemical formulae on the basis of valency of the constituent elements such as H₂O, NaCl, NH₃, CO₂, CO, etc.3. Recognize that a chemical bond results from the attraction between atoms in a compound and that the atoms electrons are involved in this bonding.
Force and Motion	<ol style="list-style-type: none">1. Formulate the relationship between speed, distance and time.2. State SI (System International) unit of speed.3. Calculate average speed.4. Interpret a distance-time graph.5. Describe the effect of force on changing the speed and direction of motion with time.6. Define and state the SI unit of force.7. Give examples of contact forces and non-contact forces.8. Demonstrate that forces always work in action and reaction pairs (equal in magnitude, opposite in direction).



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Syllabus for Entrance Test

Subject: Mathematics

Class: 8th /O-Level

Note: The learning outcomes from the following units will be at Class 7 level.

Unit/Topic	Learning Outcomes
Rational numbers	<ol style="list-style-type: none">1. Use the concept of place value for whole numbers, integers, rational numbers and decimal numbers.2. Round off whole numbers, integers, rational numbers and decimal numbers to a required number of accuracy, significance or decimal places3. Use knowledge of rounding off to give an estimate to a calculation, to check the reasonableness of the solution.4. Recognize and identify and represent integers and their absolute or numerical values.5. Identify and represent rational number, whole numbers, integers and decimal numbers on a number line.6. Compare and arrange whole numbers, integers, rational numbers and decimal numbers in ascending or descending order.7. Verify commutative and associative properties of rational numbers.8. Verify distributive property of rational numbers.9. Solve real world problems involving operations on rational numbers.10. Recognize the order of operations and use it to solve mathematical expressions involving whole numbers, decimals, fractions and integers.
Sets	<ol style="list-style-type: none">1. Use language, notation and Venn Diagrams to represents different sets and their elements.2. Identify and differentiate between<ol style="list-style-type: none">i. Subsets and supersetsii. Proper and improper subsetsiii. Equal and equivalent setsiv. Disjoint and overlapping3. Describe and perform operation on sets (union, intersection, difference and complement).
Algebra	<ol style="list-style-type: none">1. Algebra expression2. Polynomial and its types3. Operations on polynomials: (addition, subtraction, multiplication)4. Number pattern s and Sequence5. Algebraic Identities: $(x + a)(x + b) = x^2 + (a + b)x + ab$ $(a + b)^2 = a^2 + 2ab + b^2$ $(a - b)^2 = a^2 - 2ab + b^2$ $(a + b)(a - b) = a^2 - b^2$6. Factorization of algebraic expression using algebraic identities and making groups.



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Linear Equations	<ol style="list-style-type: none">1. Recall the solution of linear equations in one variable.2. Form a linear equation in two variables.3. Solve simultaneous linear equations using eliminations and substitution methods.4. Plot graphs of a linear equation in two variables.5. Recognize and state equations of horizontal and vertical lines.6. Find values of x and y from the graph
Geometry	<ol style="list-style-type: none">1. Calculate the interior and exterior angles of a polygon.2. Calculate the sum of interior angles of a polygon.3. Differentiate between convex and concave polygons.4. Calculate unknown angles in triangles and quadrilaterals.5. Recognize quadrilaterals and their characteristics.6. Describe the elements and properties of circle.
Practical Geometry	<ol style="list-style-type: none">1. Construct an equilateral, isosceles and scalene triangle.2. Construct acute angled, obtuse angled and right-angled triangles.3. Know that perpendicular distance of a point from a line is the shortest distance to the line.



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Syllabus for Entrance Test

Subject: English

Class: 8th /O-Level

Note: The questions from the following topics will be at class 7 level.

Question No	Detail
1	Paragraph writing
2	Comprehension Read the passage and answer the questions in your own words (Unseen passage)
3	Correct usage of verb (all tenses)
4	Use of prepositions
5	Punctuation
6	Use of articles



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سلیبس برائے داخلہ

جماعت: ہشتم / او- لیول

مضمون: اردو

تفصیل	سوال نمبر
عبارت کو غور سے پڑھ کر دیے گئے سوالات کے جوابات اپنے الفاظ میں لکھنا (Unseen Paragraph)	سوال نمبر 1:
دیے گئے نظم کے اشعار کو پڑھ کر سوالات کے جوابات اپنے الفاظ میں لکھنا۔	سوال نمبر 2:
غلط فقرات کی درستگی	سوال نمبر 3: الف)
الفاظ / محاورات کا جملوں میں استعمال کریں	ب)
مضمون نویسی (300/250 الفاظ پر مشتمل)	سوال نمبر 4:
تمام سوالات جماعت ہفتم کے نصاب کے مطابق ہوں گے۔	نوٹ:



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کل نمبر: 50

ماڈل پرچہ اردو برائے داخلہ جماعت ہشتم / اولیول

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

زندگی کے ہر شعبے میں نظم و ضبط کی پابندی ضروری ہے۔ وہ لوگ جو نظم و ضبط کو اپنا شعار بناتے ہیں ان کی زندگی سکون سے گزرتی ہے جب کہ نظم و ضبط کی پروا نہ کرنے والوں کی زندگی بے سکونی اور انتشار کا نمونہ پیش کرتی ہے۔ زندگی میں وہی لوگ کامیاب ہوتے ہیں، جو اپنے کام کی منصوبہ بندی کرتے ہیں اور وقت کو بہترین انداز میں صرف کرتے ہیں۔ نظم و ضبط کے بغیر زندگی میں کوئی کامیابی حاصل نہیں کی جاسکتی۔ نظم و ضبط کی پابندی کامیابی کی دلیل ہے۔ وہ لوگ جو نظم و ضبط کے عادی ہوتے ہیں، کامیابی ان کے قدم چومتی ہے۔

سوالات

- i. کن لوگوں کی زندگی سکون سے گزرتی ہے؟
 - ii. نظم و ضبط کی پروا نہ کرنے کا کیا نتیجہ نکلتا ہے؟
 - iii. عبارت کے مطابق زندگی میں کون سے لوگ کامیاب ہوتے ہیں؟
 - iv. نظم و ضبط کی پابندی کس چیز کی دلیل ہے؟
 - v. دی گئی عبارت کا خلاصہ لکھیں؟
- سوال نمبر 2: مندرجہ ذیل اشعار کو غور سے پڑھیں اور دیے گئے سوالات کے جوابات اپنے الفاظ میں لکھیں۔ (10)

دنیا سنوارنے کے سمجھائے سب طریقے
عقلمندی ہو جس سے بہتر وہ راز بھی بتائے
ہر موڑ پر جلائی شمع ہدایت اس نے
جو راستہ تھا سیدھا، اک ایک کو بتایا
پھیلیں جہاں میں ہر سو توحید کی شعاعیں
مشرق بھی جگمگایا، مغرب بھی جگمگایا



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سوالات

- i. پہلے شعر کے مطابق "عقلی بہتر" ہونے سے کیا مراد ہے؟
 - ii. دوسرے شعر میں شمع ہدایت جلانے سے شاعر کی کیا مراد ہے؟
 - iii. تیسرے شعر کے مطابق ہر سوکس چیز کی شعاعیں پھیلیں؟
 - iv. توحید کی شعاعوں سے کون کون سی سمتیں جگمگائیں؟
 - v. مندرجہ بالا اشعار کا خلاصہ اپنے الفاظ میں تحریر کریں۔
- سوال نمبر 3 (الف) مندرجہ ذیل فقرات کو درست کر کے لکھیں۔ (05)
- i. ہر شہری اپنے ملک سے محبت کرتی ہے۔
 - ii. بچے کا ناک بہہ رہا ہے۔
 - iii. میرے پیٹ میں شدید درد دہور ہی ہے۔
 - iv. جتنی جلدی ممکن ہو سکے، مریض کو ہسپتال پہنچائیں۔
 - v. میں نے لاہور جانا ہے۔
- (ب) مندرجہ ذیل الفاظ اور محاورات کو جملوں میں استعمال کریں۔ (10)
- نقل مکانی، سُرخرو، ہاتھ دھو بیٹھنا، کمر کسنا، موت کے منہ میں جانا، سبقت، عمل درآمد، جوق در جوق، آب و تاب، پیچیدہ
- سوال نمبر 4: درج ذیل میں سے کسی ایک عنوان پر 250 سے 300 الفاظ پر مشتمل مضمون لکھیں۔ (15)
- (الف) کھیلوں کی اہمیت (ب) وقت کی پابندی (ج) علم کے فائدے



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Model Paper for Class 8th/O-Level

Subject: Science

Total Marks:(50)

Part 1

MCQs

(Marks:12)

- 1) $\text{CO}_2 + \text{H}_2\text{O} \xrightarrow[\text{chlorophyll}]{\text{sunlight}}$ _____ + O_2
- a) $\text{C}_6\text{H}_{12}\text{O}_6$ b) $\text{C}_2\text{H}_5\text{OH}$ c) C_6H_6 d) CO_2
- 2) Food transport in plants occur by
- a) xylem b) phloem c) chloroplast d) cell wall
- 3) Blood consists of.
- a) Plasma b) Platelets and WBC c) RBCs d) All of these
- 4) Artery carry oxygenated blood except.
- a) Brachial artery b) Pulmonary artery c) Radial artery d) Femoral artery
- 5) Which of the following is an example of chemical change?
- a) Balloon filling with air b) Photosynthesis c) Freezing of H_2O d) Boiling of water
- 6) Rusting can be prevented by.
- a) Scratching b) Painting c) Washing d) Cleaning
- 7) Proton has _____ charge and electron has _____ charge
- a) Positive, Negative b) Negative, Positive c) Neutral, Positive d) Neutral, Negative
- 8) The smallest particle of an element is
- a) Molecule b) Atom c) Cell d) DNA
- 9) Mass number of an atom is represented by
- a) A b) B c) 2 d) M
- 10) Valency of Nitrogen is 3 and Hydrogen is 1 formula of Ammonia is.
- a) NH_3 b) NH_2 c) NH_3 d) NH_4
- 11) In cation there is _____ of electron, in anion there is _____ of electron
- a) Gain, loss b) Gain, gain c) Loss, gain d) Loss, loss
- 12) The atomic number of Hydrogen atom is one. The number of valence electron in Hydrogen atom:
- a) 0 b) 1 c) 2 d) 3



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Part 2

Short Questions

(Marks: 14)

Answer the following.

- Q1. Define Root and name its types.
- Q2. Draw process of transpiration in plants.
- Q3. Briefly describe the composition of Blood.
- Q4. Explain with two examples the process of chemical change.
- Q5. Briefly describe with formula the distribution of electrons in the shell.
- Q6. Why Nobel gases are less reactive?
- Q7. A cyclist moves 15km/h distance in 1.5 hrs. What is his speed in km/h and m/s?

Part 3

Long Questions

(Marks: 24)

- Q1. There are three types of cells in the blood. Explain the differences in their structure/ function and effects of deficiency.
- Q2. Distinguish between physical and chemical properties of matter?
- Q3. Write steps for writing a chemical formula.



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Model Paper for Class 8th/O-Level

Subject: Mathematics

Total Marks:(50)

Part 1

MCQs

(Marks:14)

- 1) $-(-6) =$ _____
a) $\frac{1}{6}$ b) -6 c) $+6$ d) 0
- 2) _____ is the subset of every set.
a) Universal set b) Null set c) Finite set d) Singleton set
- 3) "8" is a polynomial of degree _____
a) 0 b) 1 c) 2 d) 3
- 4) Which is an algebraic equation?
a) $3x=8$ b) $2+5=7$ c) $x<5$ d) $6y>10$
- 5) The sum of measures of interior angles of a triangle are _____.
a) 180° b) 90° c) 270° d) 360°
- 6) In a triangle ABC, $AB = AC$. The triangle is _____
a) Scalene b) Equilateral c) isosceles d) None of these
- 7) Elements that are in the universal set but not in the set A, are members of the set called _____
a) Subset b) Proper subset c) Complement d) Disjoint
- 8) $3x^3 + 2x^2 + 1$ is polynomial of degree _____
a) 2 b) 3 c) 1 d) 4
- 9) The solution of the equation $2x + 3 = 9x + 4$ is _____
a) -7 b) $\frac{-1}{7}$ c) -1 d) $\frac{-1}{11}$
- 10) A triangle having all the sides equal is called _____ triangle.
a) Equilateral c) Isosceles b) Scalene d) Right angled
- 11) Identify the property: $3 \times (5 \times 8) = (3 \times 5) \times 8$
a) Commutative b) Associative c) Distributive d) Identity
- 12) The product of $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b})$ is _____
a) $a + b$ b) $a - b$ c) $a^2 - b^2$ d) $a^2 + b^2$
- 13) The point of intersection of $x = 3$ and $y = 4$ is _____
a) $(3,0)$ b) $(3,4)$ c) $(0,4)$ d) $(-3, -4)$
- 14) The two diagonals of square are _____
a) Parallel b) Equal c) Unequal d) Converging



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Part 2

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

(Marks:36)

Q.2 If $A = \{4, 8, 12, 16\}$, and $B = \{8, 10, 12\}$ then find $A \cup B$ and $A \cap B$.

Q.3 Sketch the graph of $y = 4x$.

Q.4 Measure the interior angle of a regular hexagon.

Hint: $\left\{ \frac{(n-2) \times 180^\circ}{n} \right\}$

Q.5 If $A = \{1, 2, 3\}$, $B = \{3, 4, 5\}$ and $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ then verify that $(A' \cap B)' = A' \cup B'$.

Q.6 Solve: $\frac{x-8}{3} = \frac{x-3}{5}$

Q.7 Solve the following system of equation by elimination method:

$$2x + y = 8, \quad \text{and} \quad x + 2y = 10$$

Q.8 Find the value of $-2\frac{4}{5} \times \left(\frac{-5}{2}\right) \div \left(-2\frac{4}{3}\right)$

Q.9 Factorize: $3K^2 - 16K + 16$

Q.10 Construct triangle ABC such that: $AB = 6\text{cm}$, $BC = AC = 5\text{cm}$. Name the triangle so formed, with respect to its sides.



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Model Paper for Class 8th/O-Level

Subject: English

Total Marks:(50)

Q1: Write a paragraph on any one of the following topics.

10

- a) My country b) A visit to zoo c) The Holy Prophet (S.A.W)

Q2: Read the passage and answer the questions in your own words.

10

In December, 1930, Dr. Muhammad Allama Iqbal was invited to preside over the annual meeting of All India Muslim League at Allahabad. In his address, he openly opposed the idea of welding together Hindus and Muslims into one nation. He declared that the move to apply one constitution to both the Hindus and Muslims would result in a civil war. He wanted to see the Punjab, the Sindh, the Baluchistan and the N.W.F.P as a single state of the Muslims, so that they should live according to the teaching of Islam. We can say that Allama Iqbal was the first thinker to give us the idea of a separate homeland for the Muslims of India, i.e, partition of the Sub-continent into two sovereign states. The Muslims soon realized the importance of the demand for two separate states. It was then adopted as the Pakistan Resolution in 1940.

Questions:

- 1. Where was the Annual meeting of the All-India Muslim League held in 1930?**
- 2. What idea did Allama Iqbal oppose?**
- 3. Which provinces did he want to include in the Muslim state?**
- 4. On what grounds did he demand a separate state for the Muslims?**
- 5. When was the Pakistan Resolution moved?**

Q3: Use the correct form of verb given in brackets.

10

- Where did you (found) this knife?
- My teacher (teach) the lesson well.
- He _____ (die) when the doctor came.
- Why are you (laugh) at the poor?
- He _____ (live) here since 2008.



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Q4: Fill the gaps with correct preposition.

5

- i) Lisa got married _____ the age of 21.
- ii) Do you like travelling _____ train?
- iii) I am going to hang some pictures _____ the wall.
- iv) We walked _____ the hill to the house.
- v) I was walking _____ the road with my dog.

Q5: Punctuate the following sentences.

10

- i. england france and italy formed an alliance
- ii. he said to his brother watch and pray
- iii. what a terrible fire this is
- iv. how are you mahad
- v. i came i saw i conquered

Q6: Write a/an or the.

5

- i. What does Mark do? He's _____ engineer.
- ii. Picasso was _____ famous painter.
- iii. A mouse is _____ animal. It's _____ small animal.
- iv. We enjoyed our trip. _____ hotel was very nice.