



# Cadet College Thelum

## Paper pattern – Entrance Test

Mathematics / Physics / Chemistry / Biology

Four types of questions will be asked as given below:-

Q-1	Fill in the blanks	07 Marks
Q-2	Multiple choice	07 Marks
Q-3	Write short answers of the Questions	20 Marks
Q-4	Two long questions	(8+8 Marks)

### **GROUPWISE SUBJECTS FOR WRITTEN TEST**

Group	Subjects for Test	Total Marks
Pre-Engineering / Computer Science	a. English	50
	b. Urdu	25
	c. Physics	50
	d. Chemistry	50
	e. Mathematics	50
	f. Intelligence Test	25
	<b>Total Marks</b>	<b>250</b>
Pre-Medical	a. English	50
	b. Urdu	25
	c. Physics	50
	d. Chemistry	50
	e. Biology	50
	f. Intelligence Test	25
	<b>Total Marks</b>	<b>250</b>

سلیبس برائے داخلہ ٹیسٹ

کل نمبر: 25

مضمون: اردو

(15 نمبر)

کسی ایک موضوع پر مضمون لکھنا (میٹرک لیول)

سوال نمبر 1

(10=5+5 نمبر)

کہانی / مکالمہ / درخواست / خط لکھنا (میٹرک لیول)

سوال نمبر 2



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## Syllabus for Entrance Test

Subject: English

Total Marks: 50

### **Q-1 Essay Writing**

**10 Marks**

One topic will be given from the following: -

1. I want to be an army officer
2. Terrorism
3. Village / City life
4. Football / cricket/ basketball match
5. Swimming
6. Hazrat Muhammad (PBUH) / Quaid-e-Azam/ Allama Iqbal/ Abdul Sattar Edhi
7. My Ambition
8. A dream

### **Q-2 Story Writing**

**07 Marks**

One topic will be given from the following: -

1. A sad / happy event of my life
2. A friend in need is a friend indeed
3. A big reward
4. The Muslim brotherhood
5. Honesty is the best policy
6. The foolish stag
7. Robbers turn good citizens

### **Q-3 Translate in to Urdu**

**05 Marks**

Unseen paragraph will be given

### **Q-4 Pair of words (Matric Level)**

**08 Marks**

Four Pair of words will be given

### **Use of Parts of Speech (Matric Level)**

**20 Marks**

Noun / Pronoun / Prepositions/ Verbs / adverb / Adjective / Article (Q 5, 6, 7, 8)

### **Q-5 Write the correct form of personal pronoun**

**05 Marks**

e.g. It was Ali \_\_\_\_\_ called on you (who, whom)

### **Q-6 Use a, an or the where necessary**

**05 Marks**

e.g. \_\_\_\_\_ apple has \_\_\_\_\_ sweet taste.

### **Q-7 Fill in the blanks with suitable prepositions**

**05 Marks**

e.g. I am glad \_\_\_\_\_ his success.

**05 Marks**

### **Q-8 Use the correct form of verb**

**05 Marks**

e.g.- It \_\_\_\_\_ since morning (rain)



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## Syllabus for Entrance Test

Subject: Mathematics

Total Marks: 50

TITLE	TOPICS
<b>Quadratic Equations</b>	(i). Quadratic equation a. Solution by factorization b. Solution by completing square (ii). Quadratic formula (iii). Equations reducible to Quadratic form (iv). Radical equations
<b>Partial Fractions</b>	(i). Fraction (ii). Resolution of fraction into partial fractions (All Types of resolutions)
<b>Sets and Functions</b>	(i). Sets (types etc.) (ii). All operations on sets (iii). De Morgan's Laws (iv). Venn Diagram (v). Ordered pairs and Cartesian product
<b>Introduction to Trigonometry</b>	(i). Introduction (ii). Measurement of an angle (iii). Sector of a circle (iv). Trigonometric Ratios (v). Trigonometric Identities
<b>Real and Complex Numbers</b>	(i). Real numbers (Types) (ii). Properties of Real Numbers (iii). Radicals, Radicands (iv). Laws of Exponents / Indices (v). Complex numbers (vi). Basic operation on complex numbers
<b>Factorization</b>	(i). Factorization (ii). Remainder Theorem and factor theorem (iii). Factorization of a Cubic polynomial
<b>Practical Geometry</b>	(i). Construction of triangles (ii). Drawing angle bisectors / altitudes / perpendiculars / medians and verify their concurrency (iii). Figures with equal areas



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## Syllabus for Entrance Test

Subject: Physics

Total Marks: 50

TITLE	TOPICS
<b>Introduction</b>	(i). Physics and Its Branches (ii). Physical Quantities (iii). International System of Units (iv). Prefixes (v). Scientific Notation
<b>Kinematics</b>	(i). Rest and Motion (Types also) (ii). Scalars and Vectors (iii). Terms Associated with Motion (iv). Equations of Motion (v). Motion of Freely falling Bodies
<b>Dynamics</b>	(vi). Force, Inertia and Momentum (vii). Newton's Laws of Motion (viii). Tension and Acceleration in a string (ix). Force and Momentum (x). Friction (Introduction) a. Rolling Friction b. Braking and skidding c. Advantages and Disadvantages d. Methods of Reducing Friction (xi). Uniform circular Motion
<b>Gravitation</b>	(vi). The force of Gravitation a. Law of Gravitation b. Law of Gravitation and Newton's third law of motion c. Gravitational Field (vii). Mass of the Earth (viii). Variation of 'g' with altitude (ix). Artificial Satellites a. Motion of Artificial Satellites
<b>Properties of Matter</b>	(i). Kinetic Molecular Model of Matter (ii). Density (iii). Pressure (iv). Atmospheric Pressure (v). Pressure in Liquids a. Pascal's Law and its applications (vi). Archimedes Principle (vii). Density of an Orbit (viii). Principle of Floatation a. Ships and Submarines (ix). Elasticity (x). Hooke's Law (xi). Young's Modules
<b>Geometrical Optics</b>	(iv). Reflection of Light (Laws) (v). Spherical Mirrors (Basic Definitions etc.) (vi). Image location by Spherical Mirror Formula



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	<ul style="list-style-type: none"><li>(vii). Refraction of Light<ul style="list-style-type: none"><li>a. Laws of Refraction</li><li>b. Speed of Light in a Medium</li><li>c. Refractive Index</li></ul></li><li>(viii). Total Internal Reflection</li><li>(ix). Applications of Total Internal Reflection<ul style="list-style-type: none"><li>a. Totally Internal Reflecting Prism</li><li>b. Optical Fiber</li><li>c. Light pipe</li><li>d. Endoscope</li></ul></li><li>(x). Refraction through prism</li><li>(xi). Lenses<ul style="list-style-type: none"><li>a. Types / Lens terminology</li></ul></li><li>(xii). Image formation by lenses</li><li>(xiii). Image location by lens Equation</li></ul>
<b>Current Electricity</b>	<ul style="list-style-type: none"><li>(i). Electric Current<ul style="list-style-type: none"><li>a. Conventional Current</li><li>b. The measurement of Current</li></ul></li><li>(ii). Potential difference</li><li>(iii). Electromotive force (e. m. f) and the measurement of potential difference</li><li>(iv). Ohm's Law</li><li>(v). Factors affecting resistance</li><li>(vi). Conductors / insulators</li><li>(vii). Combination of resistors</li><li>(viii). Electrical Energy and Joule's Law</li><li>(ix). Electric Power</li><li>(x). DC and AC</li></ul>
<b>Information and Communication Technology</b>	<ul style="list-style-type: none"><li>(i). Components of Computer Based information System (CBIS)</li><li>(ii). Flow of information</li><li>(iii). Transmission of Electrical Signal through wires</li><li>(iv). Transmission of Radio waves through space</li><li>(v). Transmission of Light Signals through Optical Fibers</li><li>(vi). Information Storage Devices</li><li>(vii). Applications of computer<ul style="list-style-type: none"><li>a. Word Processing</li><li>b. Data Management</li></ul></li><li>(viii). Internet<ul style="list-style-type: none"><li>a. Services</li><li>b. Browsers etc.</li></ul></li><li>(ix). Ricks of ICT to Society and Environment</li></ul>



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## Syllabus for Entrance Test

Subject: Chemistry

Total Marks: 50

TITLE	TOPICS
<b>Fundamentals of Chemistry</b>	(v). Branches of Chemistry (vi). Basic definitions (e. g Elements / Compound/Matter/ Mass number etc. (vii). Chemical Species (viii). Avogadro's Number and Mole (ix). Chemical Calculations a. Mole - Mass Calculations b. Mole - Particle Calculation
<b>Structure of Atoms</b>	(vi). Theories and Experiments related to atomic structure (Rutherford / Bohr) (vii). Electronic Configuration (viii). Isotopes
<b>Periodic Table and periodicity of properties</b>	(xii). Periodic Table (xiii). Periodic Properties
<b>Structure of Molecules</b>	(x). Why do atoms react? (xi). Chemical Bonds (xii). Types of Bonds (xiii). Intermolecular Forces (xiv). Nature of Bonding and properties
<b>Acids/ Bases and Salts</b>	(vii). Concepts of Acids, Bases a. Arrhenius / Bronsted-Lowry Concepts b. Lewis Concept (viii). General properties of Acids (ix). General properties Bases (x). pH Scale a. Indicators b. Uses c. Measuring of pH of a solution (xi). Salts a. Preparation b. Types of Salts c. Uses of Salts
<b>Organic Chemistry</b>	(xiv). Organic Compounds a. Diversity / Magnitude / Characteristics (xv). Sources of Organic Compounds (xvi). Uses of Organic Compounds (xvii). Alkanes and Alkyl Radicals (xviii). Functional Groups
<b>Atmosphere</b>	(xi). Composition of Atmosphere (xii). Layers of Atmosphere (xiii). Pollutants a. Types of Pollutants b. Sources of Pollutants c. Greenhouse Effect and Global Warming



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	<ul style="list-style-type: none"><li>d. Sulphur Compounds</li><li>e. Effect of SO<sub>2</sub></li><li>(xiv). Acid Rain and its Effects</li><li>(xv). Ozone Depletion and its Effects</li></ul>
<b>Water</b>	<ul style="list-style-type: none"><li>(x). Introduction (Occurrence)</li><li>(xi). Properties of Water</li><li>(xii). Water as solvent</li><li>(xiii). Soft and hard water<ul style="list-style-type: none"><li>a. Types of Hardness of water</li><li>b. Method of removing hardness</li></ul></li><li>(xiv). Disadvantages of Hard Water</li><li>(xv). Water Pollution<ul style="list-style-type: none"><li>a. Industrial Effluents</li><li>b. Domestic Effluents</li><li>c. Agricultural Effluents</li><li>d. Effects of water pollution</li></ul></li><li>(xvi). Water borne Infectious Diseases and prevention</li></ul>



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## Syllabus for Entrance Test

Subject: Biology

Total Marks: 50

TITLE	TOPICS
<b>Gaseous Exchange</b>	(x). Gaseous Exchange in plants (xi). Gaseous Exchange in Humans a. The air passageway b. The lungs c. The mechanism of Breathing (xii). Respiratory Disorders (Bronchitis / Emphysema/ Pneumonia/Asthma/Lung Cancer) (xiii). Bad Effects of Smoking
<b>Homeostasis</b>	(ix). Homeostasis in plants (x). Homeostasis in humans (xi). Urinary system of Humans (xii). Disorders of kidney
<b>Coordination and Control</b>	(xiv). Types of Coordination (xv). Human Nervous System (xvi). Receptors in Humans (xvii). Endocrine System, (xviii). Disorders of Nervous System
<b>Inheritance</b>	(xv). Introduction to Genetics (xvi). Chromosomes and genes (xvii). Mendel's Law of inheritance (xviii). Co-Dominance and incomplete Dominance (xix). Variations and Evolution
<b>Man and His Environment</b>	(xii). Leaves of Ecological Organization (xiii). Flow of Materials and Energy in ecosystem (xiv). Interactions in ecosystem (xv). Ecosystem balance and human impact (xvi). Pollution: Consequences and Control (xvii). Conservation of nature
<b>Biotechnology</b>	(xix). Introduction to biotechnology (xx). Fermentation (xxi). Genetic Engineering (xxii). Single Cell protein
<b>Pharmacology</b>	(xvi). Medicinal Drugs (xvii). Addictive Drugs (xviii). Antibiotics and vaccines





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## Intelligence Test Sample Paper

**Instructions:** Possible answers to each question are given. The choice which you think is correct fill that circle with marker or pen ink. Cutting or filling two or more circles will result in zero marks in that question.

1- What number comes next?      2   6   12   20   30

40                       42                       44                       46

2- 831 is to 25 as 731 is to .....?

20                       21                       22                       24

3- DECEMBER is to OCTOBER as JUNE is to .....

APRIL                       MAY                       JUNE                       AUGUST

4- Needle is to Sew as Pen is to \_\_\_\_\_.

Pencil                       Paper                       Write                       Ink

5- Out of 500 students, 360 are boys. The percentage of girls will be

16%                       18%                       26%                       28%

6- If 4<sup>th</sup> day of month is Tuesday then the 26<sup>th</sup> day of month will be

Monday                       Tuesday                       Wednesday                       Thursday

7- 90% of 90 is .....

63                       72                       81                       90

8-  $2 + \frac{2}{2} =$

1                       2                       3                       4

9- Point out the different from the following:

angle                       rectangle                       square                       hexagon

10- There are 30 passengers in a bus,  $\frac{2}{3}$  of them are men then the number of women are

5                       10                       15                       20

11- Salman is 4 years old. Ali's age is twice of Salman. When Salman is 12 years old what will be the age of Ali?

8 years                       12 years                       16 years                       20 years



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12- We get education because?

- To polish ourselves in every aspect.
- To earn money to live in this world.
- To get jobs in good place.
- To show others that we have degrees.

13- If  $3 \times 4 = 916$ ,  $2 \times 5 = 425$  then  $4 \times 5 = \dots\dots\dots$ ?

- 20
- 21
- 2516
- 1625

14- If FELLOW is coded as 465531 then ELLOW is coded as.....

- 65531
- 1356
- 3561
- 1653

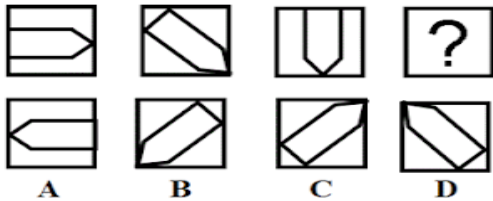
15- A man walks towards north and then turn left then turn right, his present direction is.....

- North
- South
- East
- West

16- Which one is different from the rest?

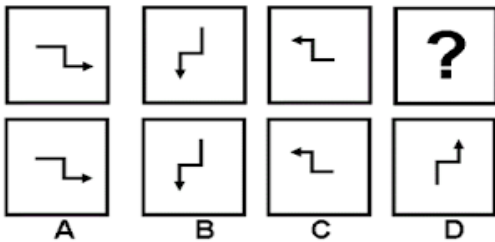
- RED
- BLUE
- GREEN
- CHAIR

17- Which comes next in the following?



- A
- B
- C
- D

18- Which comes next in the following?

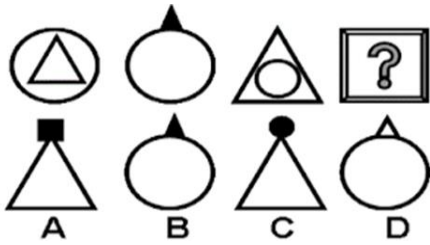


- A
- B
- C
- D



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19- Which comes next in the following?



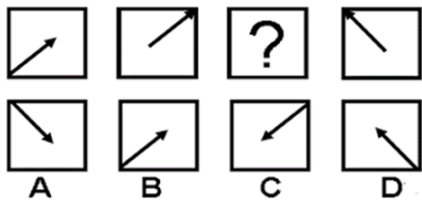
A

B

C

D

20- Select the correct answer.



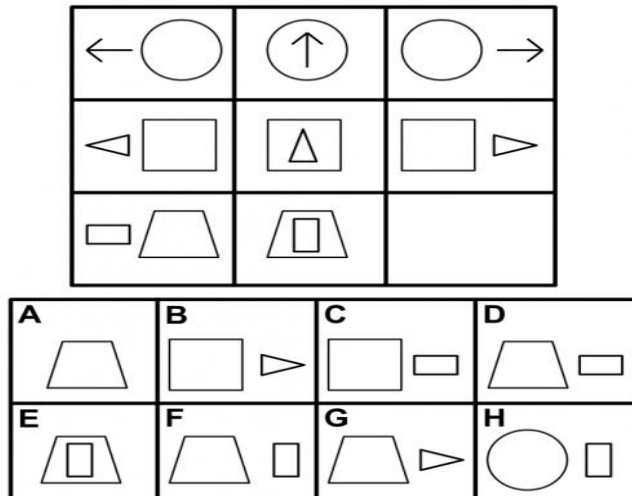
A

B

C

D

21- Select the correct answer.



A

B

C

D

E

F

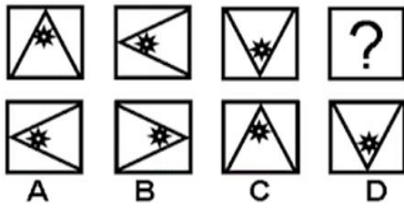
G

H



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22- Which comes next in the following?



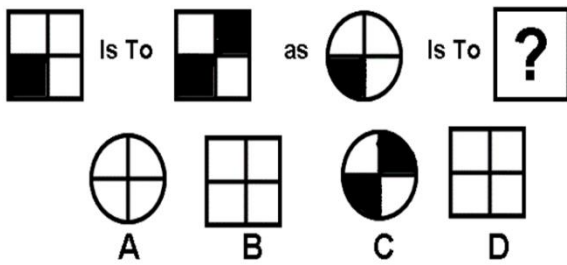
A

B

C

D

23- Which comes next in the following?



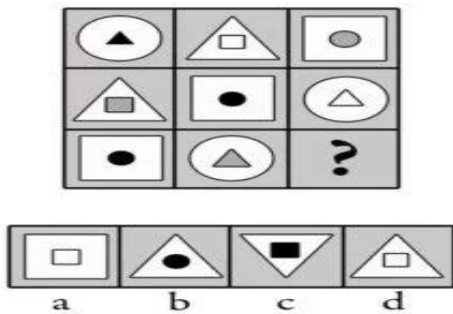
A

B

C

D

24- Which comes next in the following?



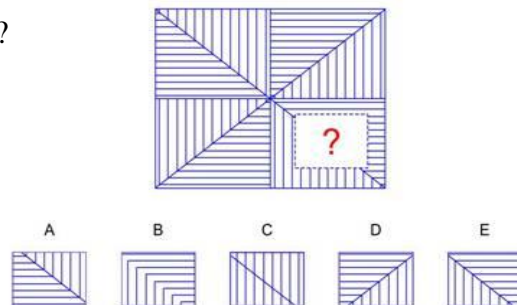
A

B

C

D

25- Select the correct answer?



A

B

C

D