

# XI ENTRANCE SYLLABUS 2021-22

Marks Scheme for various subjects:

English:

40 Marks (for all combinations)

MPC (Biology):

Mathematics-30 Marks

Physics-30 Marks

Chemistry-30 Marks

Biology-30 Marks

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MPC (Language):

Mathematics-30 Marks

Physics-30 Marks

Chemistry-30 Marks

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MPC (Computer Science):

Mathematics – 30 Marks

Physics – 30 Marks

Chemistry – 30 Marks

Computer Science – 30 Marks

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BPC (Language):

Biology – 30 Marks

Physics – 30 Marks

Chemistry – 30 Marks

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MAE (Commerce):

Mathematics – 30 Marks

Economics - 30 Marks

Reasoning and Aptitude – 30 Marks

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MAE (Language):

Mathematics – 30 Marks

Economics – 30 Marks

Reasoning and Aptitude – 30 Marks

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MAE (Informatics):

Mathematics – 30 Marks

Economics – 30 Marks

Reasoning And Aptitude – 30 Marks

Informatics – 30 Marks

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CAE (Language):

General Mathematics – 30 Marks

Economics – 30 Marks

Reasoning and Aptitude – 30 Marks

(In cases of Combinations with language option, Written Test in Languages is not conducted)

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Syllabus:

English:

1. A creative piece of writing in about 150 words:
2. Comprehension of an extract, a poem or a piece of prose.
3. Identifying common errors.
4. Ability to write a report or a letter.
5. Familiarity with the following grammar:
  - a) Tenses
  - b) Use of prepositions
  - c) Active and Passive forms of verbs
  - d) Spelling
  - e) Direct – Indirect speech

Out of 40 Marks –

30 Marks – Objective multiple choice

Questions; 10 Marks – Descriptive writing (Essay)

### MATHEMATICS:

1. Algebra-Real numbers, polynomials, Linear equations in
2. Variables, HCF, LCM of polynomials, Rational Expressions, Quadratic equations, Arithmetic progression.
2. Geometry- Similarity of triangles, Circles & tangents to circles.
3. Trigonometry-Identities, Ratios of complimentary Angles, Heights and Distances.
4. Mensuration- Areas and Volumes.
5. Statistics- Mean Median & Mode, Probability.
6. Co-ordinate Geometry-Distance between two points, Section formula.

### PHYSICS:

Scalars & Vectors, Equations of Motion, Newton's laws of Motion, Work, Power & Energy, Gravitation, Coulombs law,  
Heat - Expansion of liquids and solids, specific heat, temperature and its measurement, Wave motion – frequency, wave length and velocity, Lens and Mirror equations.  
Defects of human eye, Current electricity- Ohms law, resistors in series and parallel, Magnetic effects of currents and electromagnetic induction- Fleming's Rules' Nuclear fission and fusion, Solar energy.

### CHEMISTRY:

1. Atomic Structure: Elementary atomic theories by Dalton, Rutherford, Bohr etc; Laws of chemical combinations; valencies, predicting formula-molecular and empirical; Bonding between atoms- ionic and covalent compounds and their properties.
2. Matter: types of matter like elements, compounds, mixtures, colloids, solutions etc- their properties separation techniques, preparation; States of matter
3. Mole concept; ways of expressing concentration of solutions such as molarity, percentage etc.
4. Physical and chemical changes; types of chemical reactions; writing reactions.
5. Classification of elements- Periodicity, periodic law, periods and groups; gradation in properties along periods and groups.
6. Energy types- types of fuels, kindling temperature, characteristics of fuels calorific value.
7. Carbon and its compounds- preparation, naming and properties of hydrocarbons , naming petroleum products.
8. Metals and non-metals –metallurgy; uses of metals and alloys; distinction between metals and non-metals

### BIOLOGY:

1. Cell structure and Function: Brief account of structure and function of chromosomes, genes, DNA and cell organelles. Plant and animal tissues- their location structure and function.
2. Life processes i : plant nutrition, respiration and photosynthesis and factors effecting them. A sexual and sexual reproduction in plants. Plant growth regulators.

3. Life processes ii: Respiration in fish, frog, cockroach and humans. Digestion, circulation, osmoregulation, chemical and nervous coordination in humans.
4. Diversity in the Living World: Classification and gross features of plants and animals with examples.
5. Health and Disease: Definition of health, communicable and non communicable diseases: causes, spread symptoms, control and preventive measures.
6. Man and Environment: Pollution of air, water and soil and their conservation. Natural resources and their types, biogeochemical cycles, food chain and food web, green house gases and global warming.
7. Heredity and evolution.

### GENERAL MATHEMATICS:

1. Algebra:- Linear Equations in 2 variables, Polynomials, Quadratic Equations and Arithmetic Progressions.
2. Mensuration:- Areas and volumes.
3. Statistics:- Mean, Median, Mode and Probability.
4. Arithmetic :- Percentage, Profit and loss, Ratio and proportion, SI and CI.

### Computer Science and Informatics:

1. Computer Fundamentals, History of computers
2. Binary, Octal and Hexadecimal number system
3. MS word, Excel
4. Mental-ability, mathematical reasoning and aptitude test

### REASONING AND APTITUDE:

Series completion, Venn diagrams, Blood relation test, Arithmetic Reasoning, Direction sense test, Dice, Artificial Language, Character puzzles, classification, Data Sufficiency, clock, time & distance

### EXAMPLES:

1. One morning Udai and Vishal were talking to each other face to face at a crossing. If Vishal's shadow was exactly to the left of Udai, which direction was Udai facing?  
a) east b) north c) west d) south
2. BMQ, EOQ, HQS?  
a) KJU b) LMN c) SOV d) SOW

### ECONOMICS:

1. Factors of production: land, labour, capital and organization; Human capital; Importance of Education and Health; Unemployment and its types; Poverty; Food security: Fair Price Shops.
2. National income and PCI; Sectors in the Economy: Primary, Secondary and Tertiary- Organized and unorganized- Public and Private; credit; formal and informal sources; Modern forms of money; Globalization: MNCs and their role; Consumer Rights: COPRA, Consumer Forums, Consumer Courts.
3. The making of a global world: Pre-modern world- silk routes; Colonialism; Indentured labour migration; Global trade in the 20<sup>th</sup> Century. Industrialisation; Proto-industrialisation; coming up of factories; Industrialisation in India.