Admissions Test Syllabus for the following UNDERGRADUATE Programmes:

- Bachelor of Science (Hons.)
- Bachelor of Science in Home Science
- Bachelor of Arts
- Bachelor of Commerce (Hons.)
- Bachelor of Business Management
- Bachelor of Computer Applications

Candidates can refer to the various syllabi, depending on the subject combination they have chosen for the Entrance Test, as indicated in their application forms.

**General English – Compulsory for all Undergraduate Programmes**

2. Vocabulary: Antonyms, Synonyms, One-word Substitutes, Pairs of Words Often Confused
3. Usage: Idioms
4. Grammar: Tenses, Prepositions, Phrasal Verbs, Voice(s), ‘too – enough,’ ‘since’ and ‘for’
5. Structure: Reported Speech, Spellings, Punctuation, Correction of Sentences
6. Composition: Re-ordering or re-arranging of sentences to form a coherent whole, guided composition, paragraph writing, letter writing.

**Mathematics**

1. **Algebra and Trigonometry**: Sets, Relations and functions; Complex Numbers; Matrices and Determinants; Quadratic Equations; Permutations and Combinations; Mathematical Induction and its applications; Binomial theorem and its applications; Sequences and Series; Trigonometry.
2. **Calculus**: Differential Calculus; Integral Calculus; Differential Equations.
3. **Two Dimensional Geometry**.
4. **Statistics**: Measures of Central tendency and Dispersion; Probability.

**Physics**

1. **Mechanics**: Units and Measurement; Description of Motion in one dimension; Description of Motion in two and three dimensions; Laws of Motion; Work, Energy and power; Rotational Motion and Moment of Inertia; Gravitation; Solids and Fluids, Elasticity, Surface tension
2. **Oscillations, Waves, Heat & Thermodynamics and Optics**: Oscillations; Waves, Sound; Heat & Thermodynamics; Transference of Heat; Ray Optics; Wave Optics; Electromagnetic Waves.
3. **Electricity and Magnetism**: Electrostatics; Current Electricity; Thermal and Chemical effects of Currents; Magnetic effects of Currents; Magneto statics; Electromagnetic Induction and Alternating Currents.
4. **Modern Physics**: Electron and Photons; Atoms, Molecules and Nuclei; Solids and Semi-Condutors Devices.

**Chemistry**

3. **Organic and Applied Chemistry**: Purification and Characterization of Organic Compounds; Some basic
principles-Hydrocarbons-haloalkanes and haloarenes-organic compounds containing oxygen (alcohols, phenols, carbonyl compounds, carboxylic acids), Organic Compounds containing Nitrogen (aliphatic and aromatic amines – primary, secondary and tertiary amines) – diazonium salts-synthetic and natural polymers-biomolecules - chemistry in action-environmental chemistry.

**Botany**

1. **Plant Kingdom:** Five kingdom classification major groups and their salient features. Bacteria, Fungi, Bryophytes, Pteridophytes, Gymnosperm.
2. **Morphology:** Structural organization of stem, leaf and root and their modifications (Stem-climber, Rhizome, tuber, bulb, corm; leaf - foliage, scale and bract; root - tap and adventitious roots) in dicot and monocot plants.
3. **Anatomy:** Tissues - Parenchyma, collenchymas, sclerenchyma, xylem, phloem. Anatomy of root, stem and leaf of monocot and dicot plants.
4. **Embryology:** Structure and function of flower, Infloroscence, (Racemose, cymose and special types) Androecium (Anther structure, microsporangium, microsporogenesis and male gametophyte), Gynoecium (Ovule - structure, mega sporangium, megasporogenesis, female gametophyte), Pollination, (Self and cross pollination), Anemophily, Entomophilies, Hydrophily, Zoophily, Fertilization, Fruits (Simple, aggregate and multiple fruits).
5. **Physiology:** Water absorption, Ascent of sap, Transpiration (Exchange of gases, stomatal mechanism), Respiration (Glycolysis, Krebs cycle, electron transport system), Photosynthesis (Light reaction, Dark reaction (Calvin cycle), factors affecting photosynthesis - light, temperature and Carbon dioxide), Growth (Plant hormones and growth regulation) and movements (Turgor and growth movements), Mineral nutrition (essential and non-essential elements) in plants.
6. **Applied Botany:** Plant breeding - mutation, hybridization, polyploidy. Use of fertilizers and pesticides (advantages and hazards).
7. **Cell Biology:** Cell theory, Prokaryotic, Eukaryotic cell, Cell wall, cell membrane and cell organelles, Plastids, mitochondria, endoplasmic reticulam, golgi bodies, ribosome, lysosome, nucleus and chromosomes, Mitosis, Meiosis.
8. **Ecology:** Organism and population, Ecological adaptation, Ecosystem: Components, types, energy flow, nutrient cycling.

**Zoology**

1. **Diversity of living organisms:** Classification of animals, salient features of non-chordata upto phyla level, chordate to class level.
2. **Anatomy, histology and physiology (Earthworm, cockroach, Frog and Human):** Integumentary system, digestive system, respiratory system, circulatory system, excretory system, Muscular system, nervous system, endocrine system and reproductive system, connective tissue, epithelial tissue, small intestine, Histology of stomach, bone, blood, lymph, liver, pancreas, lung, spleen, kidney, skin, tests and ovary.
3. **Developmental Biology:** Basic features of vertebrate development, Gametogenesis, fertilisation, cleavage, blastulation.
4. **Genetics:** Mendel's laws of inheritance, Chromosome theory of inheritance, incomplete dominance, co-dominance, deviations from Mendelien ratios, multiple alleles, sex determination, linkage or crossing over, Mendelien disorder, chromosomal disorders, DNA and RNA replication, transcription genetic code, gene expression, regulation and human genome project, DNA finger print.
Commerce

Business Organization and Principles of Management:

1. Economic activities and business
2. Nature and purpose of business
3. Formation of business units
4. Structural aspects of business
5. Corporate Organization – Types
6. Business and sources of finance
7. Stock exchange
8. Trade: Internal and external
9. Transport and storage/warehousing
10. Elements of insurance/types
11. Banking and financial institutions
12. Nature and significance of management
13. Evolution and growth of management
14. Planning, organizing, staffing, directing and controlling
15. Organization of modern business office.

Accountancy (Including Quantitative Aptitude)

1. Basic Accounting theory
2. Recording of transactions: Subsidiary books - Journal - Ledger
3. Trial balance, rectification of errors
4. Financial statements, trading and profit and loss account (with adjustments) and balance sheet
5. Final accounts for non-trading concerns
6. Bills of exchange
7. Partnership accounting: Admission, retirement, death and dissolution
8. Company accounts: Issue of shares, forfeiture, re-issue, issue and redemption of debentures, final accounts - classification of assets and liabilities of presenting balance sheet
9. Depreciation Accounting: Straight line and Diminishing value methods; Provision for Depreciation

Quantitative Aptitude: (This test is with a view to test the candidate's ability in comprehending and analyzing quantitative data)


Statistics

1. Statistical data: Definition and scope of the Statistics - collection and organisation of data, frequency distributions - diagrams and graphical representation of data.
2. Measures of Location: Arithmetic mean - Median, Quartiles, Deciles and Percentiles - Mode - Weighted arithmetic mean, Geometric mean and Harmonic mean - Simple problems.
4. Correlation: Concept of bivariate distributions - Scatter diagram, Karl Pearson's co-efficient of correlation - Spearman's rank correlation (without ties) - Simple Problems.
5. Data interpretation: Interpretation of quantitative variables from tables and from diagrams.

Economics

3. Production: Supply- Law of variable proportions - Cost and Revenue concepts- Economies of scale (large scale and small scale production)- Returns to Scale.
Civics (Choose either Civics or Political Science)

1. **Civics** - Meaning and scope; Aims and value of its study; its relationship with History, Political Science, Economics and Ethics.
2. **Individual and his relationship** with family and society, Society - meaning and advantages of social life; Role of various Associations, eg., Religious, Political, Economic and Cultural.
3. **Citizenship** - meaning and importance: Single and dual citizenship - advantages and disadvantages; Rights and Duties of Citizens; Hindrances to good citizenship.
4. **Nation** - meaning and importance: Nationality, meaning and elements, India as a Nation.
5. **State and its essential elements**; Population; Territory; Government and Sovereignty. Definition of the term sovereignty - nature, characteristics and coercive nature of the State.
6. **Individual and the Modern State** (Basic concepts):
   (a) Law - meaning, characteristics, sources - law and morality, (b) Liberty - meaning and kinds; Law and Liberty,
   (c) Equality - meaning and kinds; Relation between liberty and equality, (d) Fraternity - meaning - need for co-operation and co-existence of individuals for common good.
   Liberty - meaning and kinds; Law and Liberty
7. **Forms of Government**; Unitary and Federal, Parliamentary and Presidential - characteristics - merits and demerits. (Provide stress on the functions of the Legislature, Executive and Judiciary)
8. **Spheres of State activity**; Individualism, socialism, communism, capitalism and dictatorship.
9. **Democracy** - meaning - kinds - features - merits and demerits of direct and indirect democracy, conditions necessary the success of democracy; role of parties and public opinion in democracy.
10. **Constitution of India**; Brief study of the features as given below:
    (a) Preamble, (b) Fundamental rights, (c) Directive principles of State Policy, (d) Federal System, (e) Parliamentary features.
11. **Govt. of India**:
    (a) Parliament, (b) Cabinet, (c) All India Services, (d) State Legislatures and Cabinet, (e) Centre-State relations - Administrative, Legislative and Financial.
12. **Structure and working of Local Governments** (Brief Study)
    (a) Corporations and Municipalities, (b) Panchayat Raj, (c) Zilla Parishads and Mandala Parishads, (d) The role of District Collectors.
13. **Adult Franchise**; Meaning and working. Advantages and disadvantages; Development of Weaker Sections.
14. **National Integration and its need**:
    (a) communalism, (b) Casteism, (c) Linguism, (d) Regionalism.

Political Science (Choose either Political Science or Civics)

1. **Political Science** - meaning, nature and scope
2. **Citizen** - State and Society; Citizenship - Rights and duties of citizens (a brief study of the fundamental rights and fundamental duties of Indian citizens).
3. **State and Government**; Nature and definition of State; Elements of state; State and Society; State and Associations.
4. **Nation and Nationality**; Meaning of the terms Nation and Nationality, Elements of Nationality; Nationalism - meaning, importance, merits and demerits.
5. **Sovereignty** - meaning, characteristics and kinds of sovereignty, legal, political and popular sovereignty.
6. **Law, Liberty and equality**; Meaning of the terms Law and Liberty, Law and morality. Liberty and Law, Sources of Law, Kinds of Law; Definition of the term Liberty, Kinds of liberty; Equality - Definition of the term, kinds - liberty and equality.
7. **Forms of Government**; Unitary and Federal - meaning, merits and demerits, Parliamentary and Presidential - explanation - merits and demerits of both systems.
8. **Spheres of State activity**; Individualism, Socialism, Communism, Capitalism and Dictatorship, Gandhism and Sarvodaya.
9. **Constitution**; Classification - Written and Unwritten; Rigid and Flexible - meaning - merits and demerits.
11. **Legislature**; Organization, powers and functions of the legislature; A brief study of the organization, functions and working of Indian Parliament.
12. **Executive in India**; President - election, powers and functions; Vice-President, Prime Minister and the Council of Ministers; Governor - appointment - powers and functions, Chief Minister and the Council of Ministers.
13. **Judiciary**; Role and importance, Independence of Judiciary, Supreme Court and the High Courts in India.
14. **Civil Services**; Nature - importance and functions of Civil Services; Bureaucracy, U.P.S.C., Organization and functions.
15. **Electorate**: Types of franchise, Merits and Demerits, Direct Democratic Devices.
16. **Party system**: Political parties, their role and functions, Role of opposition in democracy.
17. **Public Opinion**: Meaning - Agencies of public opinion, role and importance of Public Opinion.
18. **Local Self Government**: Panchayat Raj, Municipal Govt., planning - importance - socio economic development - rural and urban development; development of scheduled castes and tribes.
19. **Factors conditioning Indian Democracy**: Inequality - social and economic; Regional imbalance, communalism and casteism, Regionalism and Linguism.

**History**

1. **Introduction**: Pre-history - The Stone Age:
   (a) The Harappan Culture  (b) The Vedic Period  (c) Jainism and Buddhism
2. (a) **The rise of the Magadha**
   (b) **Age of the Mauryas**: i) Chandragupta  ii) Ashoka  iii) Mauryan Administration
4. **The Deccan**:
   (a) The Satavahanas - Gautamiputra Satakarni, (b) The Chalukya of Badami - Pulikesi II  (c) The Rashtrakutas - Dhruva; Nripatunga
   (d) The Pallavas – Narasimhavarman, (e) The Cholas - Chola Administration
5. **Harshavardhana and his time**: Medieval India
6. (a) **Arabs in India** - Muhammed-bin-Qasim
   (b) Invasion of Mahmud Ghazni and Mahmud Ghori
   (c) The Rajputs – Prithwiraj
7. **The Age of Vijayanagara Empire**: Krishnadevaraya - The battle of Talikota
8. **India under the Mughals**:
   a) Sher Shah – Administration, b) Age of Akbar, c) Aurangzeb and the decline of the Mughal Empire d) Mughal contribution to:  (i) Art and Architecture  (ii) Literature
9. **Rise of the Marathas** - Shivaji - The Peshwas
   (a) Baji Rao  (b) Baalaji Baji Rao
10. **Advent of Europeans in India** – Portuguese, Dutch, Danes, English and French.

**B.B.M.**

**Syllabus for General English:**
2. Vocabulary: Antonyms, Synonyms, One-word Substitutes, Pairs of Words Often Confused
3. Usage: Idioms
4. Grammar: Tenses, Prepositions, Phrasal Verbs, Voice(s), ‘too – enough,’ ‘since’ and ‘for’
5. Structure: Reported Speech, Spellings, Punctuation, Correction of Sentences
6. Composition: Re-ordering or re-arranging of sentences to form a coherent whole, guided composition, paragraph writing, letter writing.

**Numerical skills and Reasoning skills:**
This Multiple choice objective test is to assess the candidate’s numerical and reasoning skills.

This test will include Basic arithmetical operations - Basic properties of numbers - HCF & LCM - Fractions - Decimals - Percentages - Ratio & proportions - Power & groups - Simple Interest & Compound Interest - Mensuration - Problem solving in Algebra - Elementary Geometry - Statistical tables & averages and logical reasoning. There will be proportionate negative marking.
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B.C.A.

**Syllabus for General English:**
2. Vocabulary: Antonyms, Synonyms, One-word Substitutes, Pairs of Words Often Confused
3. Usage: Idioms
4. Grammar: Tenses, Prepositions, Phrasal Verbs, Voice(s), ‘too – enough,’ ‘since’ and ‘for’
5. Structure: Reported Speech, Spellings, Punctuation, Correction of Sentences
6. Composition: Re-ordering or re-arranging of sentences to form a coherent whole, guided composition, paragraph writing, letter writing.

**Syllabus for Mathematics:**

**Part A: Algebra, Vectors, Linear Programming**

A.1: Real Numbers, Complex Numbers
A.2: Polynomials, Linear Equations in one and two variables, Quadratic Equations in one variable, Permutations and Combinations, Binomial Theorem, Arithmetic Progression, Geometric Progression, Standard Progressions and Series
A.3: Types of Vectors, Vector addition, Scalar multiplication, Scalar and Vector products of 2, 3 and 4 vectors
A.4: Linear Inequalities, Linear Programming – Graphical Method

**Part B: Mensuration, Geometry, Analytical Geometry**

B.1: Areas, Surface Areas and Volumes of standard plane and solid regions
B.2: Euclid’s Axioms and Postulates, Lines, Angles, Triangles, Congruent Triangles, Quadrilaterals, Area, Circles, Similar Triangles
B.3: Cartesian coordinate system for a plane, Distance formula, Section formula, Area of Triangle, Equations of a straight line, Equations of a plane, Conic Sections
B.4: Cartesian coordinate system for space, Direction Cosines, Direction Ratios, Lines and Planes in Space

**Part C: Trigonometry, Calculus and Differential Equations**

C.1: Trigonometric Ratios, Identities, Trigonometric Functions of sum and difference of Angles, Trigonometric Equations
C.2: Sets, Relations, Functions, Simple problems on Limits, Continuity, Derivatives of First and Higher Order, Rules of Differentiation, Bernoulli Rule, Partial Derivatives of First order
C.3: Indefinite Integral, Definite Integral, Rules of Integration, Applications of Integrals
C.4: Ordinary Differential Equations, General and Particular Solutions, First Order Differential Equations – Classification and Solution, Second Order Homogeneous Differential Equations

**Part D: Statistics and Probability**

D.1: Introduction to Statistics, Data Collection & presentation, Mean, Median, & Mode, Cumulative Frequency Distribution, Measures of Dispersion, Range, Mean Deviation, Standard Deviation,

The admission test syllabus is based on XI/XII std of CBSE. The question paper will be of Multiple Choice type. There will be proportionate negative marking.

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