

- 4. Quadratic Equations** **01 Mark**
- Fundamental theorem of Algebra, roots, discriminants, nature the roots, relation between the roots and coefficients.
- 5. Group** **01 Mark**
- Group, semi-group, monoid, finite group, abelian group, sub-group, co-set, Lagrange's theorem, normal sub-groups.
- 6. Calculus of One Variable** **02 Marks**
- Limit, continuity, derivative, tangent, normal, increasing and decreasing functions.
- 7. Sequence and Series** **02 Marks**
- Arithmetic and Geometric progressions, monotonic sequence, exponential series, logarithmic series, Taylor's series, Maclaurin's series.
- 8. Coordinate Geometry** **02 Marks**
- Distance formula, section formula, area of a triangle, locus and its equation, straight line, circle, conic section.
- 9. Analytical Solid Geometry** **01 Mark**
- Plane, straight line, sphere
- 10. Probability** **01 Mark**
- Trial, Sample Point, Sample Space, Event, Addition Theorem, Binomial Distribution.
- 11. Statistics** **01 Mark**
- Mean, Mode, Median, Mean Deviation, Standard Deviation, Variance.
- 12. Trigonometry** **02 Marks**
- Angles associated with 90° , 180° , 270° , 360° , compound angle formula, multiple angle formula, sub-multiple angle formula, Trigonometric Equations, Inverse trigonometric functions

13. Mensuration

02 Marks

- Circumference of a circle, length of the arc of a circle, area of a circle, sector and segment, area of a circular annulus, area of a sectional region, area of a segment, surface area and volume of a prism, right circular cylinder, cone and sphere.

14. Determinant and Matrix

01 Mark

- Determinant, minors, co-factors, Cramer's Rule, Matrix, Singular, Non-singular, Transpose, Ajoint Inverse, Solution of Equations by Matrix method.

CBZ : This section shall carry the questions from Chemistry, Botany and Zoology subjects with equal proportion of marks:

CHEMISTRY

As indicated in the PCM Syllabus

BOTANY

1. Plant Diversity and Conservation

04 Marks

- Nomenclature and classification of plant kingdom, Plant divisions – Thallophyta, Bryophyta, Pteridophyta, Gymnosperms and Angiosperms, their habitat and complexity in their structural organization. Endangered plant species and their conservation measure.

2. Tissue System

03 Marks

- Meristematic and permanent tissues: their types, organization and functions.
- Tissue System: Epidermal, ground and vascular tissue system, internal structure of dicot and monocot stems and roots, secondary growth in plants.

3. Photosynthesis

03 Marks

- Structure and Photosynthetic pitments, Light reaction : light absorption, electron transport and photophosphorylation, Dark

reaction – CO₂ fixation by C₃, C₄ and CAM plants, photorespiration.

4. Growth Regulators in Plants **02 Marks**

- Auxins, Gibberellins, Cytokinins, Ethylene and Abscissic acid, their role in plant growth regulation.

5. Reproduction in Plants **04 Marks**

- Vegetative Reproduction : Fission, budding and cutting (grafting) and propagation in angiosperms.
- A Sexual Reproduction : Sporulation, Comidia formation and other special structure formation.
- Sexual Reproduction : Isogamy, anisogamy and oogamy, double fertilization and triple fusion in angiosperms.
- Parthenogenesis : Tissue culture and micropropagation

6. Mendelism **02 Marks**

- Mendelian factors, Monohybrid cross and principles of dominance and segregation.
- Dihybridcross : Laws of independent assortment.
- Deviations from Mendelian principles

7. Plant Diseases and Control Measures **02 Marks**

- Causal Organisms, symptoms, life cycle and control measures of following diseases : Late blight of potato, powdery mildew, Rust and Smut of Wheat, Leaf Sport and blast disease of rice.

ZOOLOGY

Full Marks : 20

1. Taxonomy **01 Mark**

- Five kingdom classification, Characteristics and Examples of each animal phylum (in case of phylum chordata up to classes) (01 question)

2. Cytology **02 Marks**

- Cell structure and cell division (mitosis and meiosis), DNA and RNA (02 questions)