THE JAMMU & KASHMIR BOARD OF SCHOOL EDUCATION

Academic Division, Rehari Colony, Jammu/ Bemina, Srinagar-190010.

NOTIFICATION

It is notified for information of all concerned that the following textbooks, syllabi and courses of study have been changed/revised. The revised editions/titles and syllabi shall be in practice from the Academic Session, November-December 2019 in case of Kashmir Division/winter zone areas of Jammu Division/ Union Territory of Ladakh . Further, in case of Summer Zone areas of Jammu Division from ensuing Academic session (March-April) 2020-21:

A) Changed Textbooks

S.No	Name of Textbook/title Changed	Class
1-	Textbook of English (Chant)	2nd Pry.
2-	Social Science i-Our Pasts-I (Textbook of History) ii-The Earth-Our Habitat (Textbook of Geography) iii-Social & Political Life-I (Textbook of Political Science)	6th
3-	Social Science i-Our Pasts-II (Textbook of History) ii-Our Environment (Textbook of Geography) iii-Social & Political Life-II (Textbook of Political Science)	7th
4-	Social Science i-Our Pasts-III(Textbook of History) ii-Resources and Development (Textbook of Geography) iii-Social & Political Life-III (Textbook of Political Science)	8th
5-	Social Science i-India and the Contemporary World-I (Textbook of History) ii-Contemporary India-I (Textbook of Geography) iii-Democratic Politics-I (Textbook of Political Science)	9th
6-	Social Science i-India and the Contemporary World-II (Textbook of History) ii-Contemporary India-II (Textbook of Geography) iii-Democratic Politics-II (Textbook of Political Science)	10th

7-	Textbook of Mathematics	10th
8-	Textbook of Urdu	12th
9-	Textbook of Hindi (w.e.f. Academic Session 2020-21 S.Z)	11th

B) Changed syllabus

S.No	Name of the Subject/title	Class
1-	Social Science	9th
2-	Social Science	10th
3-	Mathematics	10th
4-	Information Practices	11th
5-	Computer Science	11th
6-	Bio-chemistry	11th
7-	Hindi (w.e.f. Academic session 2020-21 session)	11th
8-	Bio-chemistry	12th
9-	Urdu	12th
10-	Bio-technology	12th
11-	Computer Science	12th
12-	Food Technology	12th

The Question papers for Regular/Fresh Private candidates who have to appear in Annual Session scheduled to be held in (October-November) 2020 in winter zone areas and in Annual Examination scheduled to be held in (February-March) 2021 in Summer Zone areas of Jammu Division will be set from the revised/Changed syllabi and courses of studies. However, in case of class 11th, the question paper of **Hindi subject** will be set from the Annual Session s/z (March-April) 2021.

The revised/changed syllabi and courses of study are available on BOSE website: www.jkbose.ac.in

No: F :(Acad-C) Rev-Syllbi-Tbs/19.
Dated: 11-12-2019

Sd/-
Director Academics

Copy to the:-

1- Commissioner/Secretary to Govt. School Education Department Civil Secretariat Jammu for information.
2- Director School Eduction Kashmir/Jammu/Ladakh for information.
3- Additional Secretary to Govt. School Eduction Department Civil Secretariat, Jammu for information.

4- Joint Secretary, Examination/Secrecy/General/Publication J.D/K.D for information & necessary action.
5- Joint Director/Principal State Institute of Eduction Kashmir/Jammu for information.
6- Private Secretary to Hon'ble Advisor to Lt. Governor, School Education Department J&K for information of the Hon'ble Advisor.
7- Chief Accounts officer Central for information
8- All Chief Education officers of J&K /Ladakh for information. .
9- All Assistant Directors Academics CDR Wing J.D/K.D for information.
10-All Academic officers, CDR Wing J.D/K.D for information.
11-Assistant Secretary Central Secrecy for information & n/action.
12-Assistant Secretary, Examination /Secrecy Unit I, II, III /General/Supervisory/ Registration/ Audit/ Forms/Strong Room J.D/K.D for information.
13-Assistant Secretary Board Sub office Leh (Ladakh)/ Kargil for information
14-All Sub/Branch offices of the Board.
15-All Sections of the Board.
16- All the Heads of Govt. High and Hr. Sec. Schools/Institutions Govt./Pvt J&K/Ladakh_____for information.
17-P/S to Commissioner/Secretary to Govt. School Eduction Department for information.
18-P/S to Chairperson/Secretary for information of the Chairperson/Secretary.
19-Information officer J.D/K.D for information. He is requested to please publish the notification in the local dallies.
20-Incharge website for uploading the notification along-with revised/changed syllabus .
21-General file
22-Concerned file.

Sd/-
Deputy Secretary,
Academics Central

MATHEMATICS

Class :- X

Units

Max. Marks :- 100

Unit :- I	Number Systems	05 Marks
Unit : II	Algebra	29 Marks
Unit : III	Trigonometry	14 Marks
Unit :IV	Coordinate Geometry	08 Marks
Unit :V	Geometry	22 Marks
Unit :VI	Mensuration	11 Marks
Unit :VII	Statistics and Probability	11 Marks

UNIT 1 :- NUMBER SYSTEMS

Real Numbers

(05 Marks)

Euclid's division lemma, Fundamental Theorem of Arithmetic –statements after reviewing work done earlie and after illustrating and motivating through examples. Proofs of results – irrationality o $\sqrt{2}, \sqrt{3}, \sqrt{5}$, decimal expansions of rational numbers in terms of terminating / non terminating recurrin decimals.

UNIT II: - ALGEBRA

01. Polynomials

(05 Marks)

Zeros of a Polynomial. Relationship between zeros and Coefficients of a Polynomial with particular reference to quadratic polynomials. Statement and simple problems on division algorithm for polynomials with rea coefficients.

02. Pair of Linear Equations in Two variables

(07 Marks)

Pair of Linear equations in two variables. Geometric representations of different possibilities of solutions/ inconsistency.

Algebraic conditions for number of solutions. Solutions of pair of linear equations in two variables algebraically – by substitution, by elimination and by cross multiplication. Simple situational problems must be included. Simple problems on equations reducible to linear equations may be included.

03. Quadratic Equations

(10 Marks)

Standard form of a quadratic equations $ax^2 + bx + c = 0$ ($a \neq 0$). Solutions of quadratic equations (only real roots) by factorization and by completing the square i.e. by using quadratic formula. Relationship between discriminant and nature of roots.

Problems related to day to day activities to be incorporated.

04. Arithmetic Progressions (AP)

(07 Marks)

Motivation for studying AP Derivation of standard results of finding the n^{th} term and sum of first n terms.

UNIT III:- TRIGONOMETRY

01. Introduction to Trigonometry (07 Marks)

Trigonometric ratios of an acute angle of a right angled triangle. Proof of their existence (well defined); motivate the ratios, whichever are defined at 0° and 90^0. Value (with proofs) of the trigonometric ratios of 30^0, 45^0 and 60^0. Relationships between the ratios.

Trigonometric Identities : Proof and applications of the identity $\sin^2 A + \cos^2 A + 1$. Only simple identities to be given. Trigonometric ratios of complementary angles.

02. Heights and Distances *(07 Marks)*

Simple and believable problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation/ depression should be only 30^0, 45^0, 60^0 .

UNIT IV:- *COORDINATE GEOMETRY*

Lines (in two- dimensions) *(08 Marks)*

Review the concepts of coordinate geometry done earlier including graphs of linear equations. Awareness of geometrical representations of quadratic polynomials. Distance between two points and section formula (internal). Area of a triangle.

UNIT V:- *GEOMETRY*

01. Triangles (09 Marks)

Definitions, examples, counterexamples of similar triangles.

01. (Prove) If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.
02. (Motivate) If a line divides two sides of a triangle in the same ratio, the line is parallel to the third side.
03. (Motivate) If a two triangles, the corresponding angles are equal, their corresponding sides are proportional and the triangles are similar.
04. (Motivate) If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar.
05. (Motivate) If one angle of a triangle is equal to one another triangle and the sides including these angles are proportional, the two triangles are similar.
06. (Motivate) If a perpendicular is drawn from the vertex of the right angle to the hypotenuse, the triangles on each side of the perpendicular are similar to the whole triangle and to each other.
07. (Prove) The ratio of the areas of two similar triangles is equal to the ratio of the squares on their corresponding sides.
08. (Prove) Ina right triangle, the square on the hypotenuse is equal to the sum of the squares on the other two sides.
09. (Prove) In a triangle, if the square on one side is equal to sum of the squares on the other two sides, the angles opposite to the side is right triangle.

02. Circles (06 Marks)

Tangents to a circle motivated by chords drawn from points coming closer and closer to the point.

01. (Prove) The tangent at any Point of a circle is perpendicular to the radius through the point of contact.
02. (Prove) The lengths of tangents drawn from an external point to a circle are equal.

03. Constructions (07 Marks)

01. Division of a line segment in a given ratio (Internally)
02. Tangent to circle from a point outside it.
03. Construction of a triangle similar to a given triangle.

UNIT VI :- MENSURATION

01. Areas Related to Circles (04 Marks)

Motivate the area of a circle; area of sectors and segments of a circle. Problems based on areas and perimeter/ circumference of the above said plane figures.

(In calculating area of segment of a circle, problems should be restricted to central angle of 60^0, 90^0 and 120^0 only. Plane figures involving triangles, simple quadrilaterals and circle should be taken)

02. Surface Areas and Volumes (07 Marks)

01. Problems on finding surface areas and volumes of combinations of any two of the following cubes, cuboids, spheres, hemispheres and right circular cylinders/ cones. Frustum of cone.
02. Problems involving converting one type of metallic solid into another and other mixed problems.

(Problems with combination of not more than two different solids be taken)

UNIT VII : STATISTICS AND PROBABILITY

01. Statistics (04 Marks)

Mean, median, and mode of grouped data (Bimodal situation to be avoided).

Cumulative frequency graph.

02. Probability (07 Marks)

Classical definition of Probability. Connection with probability as given in Class IX.

Simple problems on single events, not using set notation.

INFORMATION PRACTICES

XI

Maximum Marks: 100

Theory: Marks 70.

Practicals: Marks 30. External: 20 marks, Internal: 10 marks

TOPIC	Marks	Theory Lectures	Practical Lectures
Computer Fundamentals	25	35	10
Software Concepts	15	20	05
Graphical User Interface	10	10	20
Basic VB Programming Fundamentals	20	15	35

Time = 3Hours

Unit – I: Computer Fundamentals

Basics of a Computer and its operation; Functional Components and their interconnection (Block Diagram); illustrating main parts of computer (CPU, ALU, CU, Memory); Generations of Computers, Classification of Computers.

Input / Output Devices: Keyboard, Mouse, Light Pen, Touch Screen, Joy Stick, Mic, Scanner (MICR, OCR, BCR. VDU (CRT, LCD), Printers (Dot Matrix, Inkjet, LaserJet), Speaker.

Number Systems: Binary, Octal, Decimal, Hexadecimal and conversions, Coding Schemes ASCII, EBCDIC, Basic Logical Gates (AND, OR, NOT) with Truth Tables.

Memory: Primary Memory (ROM and its Types); Secondary Storage Devices (Floppy Disks, Hard Disk, Compact Disk, Magnetic Tape, Flash Devices).

Units of Memory: Bit, Nibble, Byte, Kilo Byte, Mega Byte, Giga Byte, Tera Byte, Zeta Byte.

Unit –II: Software Concepts:

Concept of Software, Types of Software, System Software, Operating System, Functions of OS [Processor Management, Memory Management, File Management, Device Management], Application Software, Utility Programs; Computer Languages: Compilers, Interpreters, Assemblers. Commonly used OS, Boot and its types; Computer Languages: Low Level Language, High Level Languages, Assembly Language; Concept of GUI and CUI.

Unit- III: Graphical User Interface:

GUI based OS: Introduction to Windows, Features of Windows, File structure of Windows, Concept of Folder, Directories, Path, Path Name, Elements of Desktop, Taskbar, Icon, Start Buttons, Shortcuts, Recycle Bin, My Computer, Start Menu; Control Panel: Adding New Hardware and Programs.

Unit IV: Basic VB Programming Fundamentals:

Introduction to VB, Concept of Event driven programming, VB user Interface, Toolbox, Project Explorer, Properties Window, Form Layout; Variables – Declaring variables, scope and life time of variables (Local & Global), Data Types: Integer, Long, Single, Double, String, Date and Variant; Operators (Arithmetic, Relational, Logical); Control Structures– IF, IF – Then, IF – Then – Else, Switch Case, Loops.

PRACTICALS

Time = 3 Hours

Practicals: Marks 30. External: 20 marks, Internal: 10 marks

(Computer Peripherals, Operating Systems (Windows and Ms-Office)

1. Computer Assembly (Motherboard, Processor, RAM, Hard Disk, USB, etc)
2. Peripheral Connections and Identification of Parts (Serial, Parallel, USB, PS-2, Bluetooth).
3. Advanced Bios Setup to set a First bootable as CD Drive and a Second Bootable as HDD.
4. Installation of Operating System and Application Software's.

Windows

5. Do different Operations using Folder, Icons, Ms-Paint, Notepad, Accessories, Desktop, Taskbar, Wallpaper, Screen Saver, Date/time, My Computer and Control Panel.

MS-Word

6. Do different Operations using Ms-Word Document like Font Parameters, Alignment, Clipboard, Paragraph, Styles, ClipArt, WordArt, Borders and Shading, Find and Replace, Header, Footer and Endnote, Watermark, Mail merge, and Tables.

MS-Excel

7. Do different Calculations based on Student Marks sheet preparation, Charts, Illustrations, Formulas, Sorting of Data, and Paste Special technique.

Visual Basic:

8. Create an application using Visual Basic programming to print a message like "Hello World" using Command Button and Text Button.
9. Create an application to calculate simple interest using Command Button Only.
10. Create a VB application to calculate area of rectangle, square and triangle.
11. Create an application to calculate the grade of your class mates output of five different subjects like English, History, Chemistry, Math and IP. Calculate Grades as follows –

%age	Grade
>=90	A++
>=80 and <90	A+

>=70 and <80	A
>=60 and <70	B+
>=50 and <60	B
>=40 and <50	C
>=34 and <40	D
Less than 34	F

12. Do other programs based on Loops.

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CLASS XI
COMPUTER SCIENCE

Maximum Marks=100
Theory =70 Marks
Practical =30 Marks (Internal=10 : External=20)

1.	Computer Fundamentals	10 marks
2.	Software Concepts	10 marks
3.	Number System	05 marks
4.	Programming methodology	10 marks
5.	Introduction to C++	10 marks
6.	Programming in C++	10 marks
7.	User defined functions	05 marks
8.	Arrays and Structures	10 marks

UNIT 1: COMPUTER FUNDAMENTALS

- History of Computers
- Generations of Computers
- Functions of a Computer
- Block diagram of a Computer system
- Brief description of following functional components of a Computer system:
  - Input devices: Keyboard, Mouse, Scanner, Barcode reader
  - Output devices: Monitor, Printer
  - CPU: ALU and CU
  - Memory unit
    - Primary memory: Cache memory, RAM, ROM
    - Secondary memory: Hard disk drive, CD, DVD, Pen drive
    - Units of Memory: Byte, Kilo Byte, Mega Byte, Giga Byte, Tera Byte, Peta Byte
    - Concept of PROM, EPROM, EEPROM

UNIT 2: SOFTWARE CONCEPTS

- Definition of Software
- Types of software (System Software, Application Software, Utility Software)
- Need for Operating System
- Functions of Operating System (Processor management, Memory management, File management, Device management)
- Concept of computer languages: Machine language, Assembly language, High level language.
- Language Processors: Assembler, Compiler and Interpreter

UNIT 3: NUMBER SYSTEM

- Number Systems: Decimal, Binary, Octal, Hexadecimal
- Conversion from Decimal number system to Binary, Octal and Hexadecimal number system (Whole numbers only)

- Conversion from Binary, Octal and Hexadecimal number system to Decimal number system (Whole numbers only)
- Conversion from Binary number system to Octal, Hexadecimal number system using shortcut method (whole numbers only)
- Conversion from Octal, Hexadecimal number system to Binary number system using shortcut method (whole numbers only)

UNIT 3: PROGRAMMING METHODOLOGY

- Concept of a Program
- Characteristics of a good program
- Concept of Modular approach
- Program Documentation (Internal & External documentation)
- Program Maintenance
- Debugging a program
- Error and types of errors (Syntax error, Logical error, Runtime error)

UNIT 5: Introduction to C++

- C++ character set
- C++ tokens (Keywords, Identifiers, Constants, Operators)
- Structure of a C++ program
- Header-files (iostream.h, conio.h)
- Use of cin and cout
- Use of I/O operators(<< and >>)
- Concept of data types, Built-in data types (char, int, float, double)
- Use of clrscr() and getch() functions
- Concept of a variable
    - Rules for naming a variable
    - Declaration and Initialisation of variables
- Operators (Unary, Binary and Ternary operators)
    - Arithmetic operators (+, -, *, /, %)
    - Relational operators (<, >, <=, >=, ==, !=)
    - Logical operators (AND, OR, NOT)
    - Increment and Decrement operators(--, ++)
    - Conditional operator

UNIT 6: Programming in C++

- Conditional statements:
- if statement
    - simple if statement
    - if-else statement
    - nested if-else
- switch statement
- Loop structures:
    - while loop

- do-while loop
- for loop
- Use of break and continue.

UNIT 7: User Defined Functions

- Defining Function
- Function prototype
- Invoking/Calling a function
- Call by value
- Call by reference

UNIT 8: Arrays and Structures

- Concept of Array
- Types of Arrays (1D, 2D)
- Declaration and Initialisation of 1D array
- Declaration and Initialisation of 2D array
- Defining a Structure
- Declaration and Initialisation of a structure
- Array of Structures

PRACTICALS:

- **Programming in C++**

1. WAP to add two numbers.
2. WAP to find greatest of 3 numbers.
3. WAP to find average of 10 numbers.
4. WAP to find if a number is even or odd.
5. WAP to find if a number is prime or not.
6. WAP for calculating factorial of a number.
7. WAP to create a Fibonacci series.
8. WAP to find out day of a week using switch statement.
9. WAP to swap two numbers using a function.
10. WAP to initialize and display elements of a 1D array.

- **Practical file**

  Practical file must contain the entire mentioned practical.

- **Viva voce**

  Viva will be asked from syllabus covered in class XI.

- **Distribution of 20 marks for External practical**
  - Programming (Logic, Syntax, documentation/ Indentation, output) **(10 marks)**
  - Practical file **(05 marks)**
  - Viva **(05 marks)**

BIOCHEMISTRY
CLASS XI

Maximum Marks: 100 **Time: 3 hours**
Theory: 70 marks **Practical: 30**
marks

UNIT I: BIOPHYSICAL CHEMISTRY:

Chapter 01: Water, The molecule of life. **(10 marks)**

Role of water in cellular organization. pH and pKa, Buffers, physiological buffers, Handerson and Hasselbalch equation. Hydrogen Bonding with reference to Carbohydrates, Lipids, Proteins and Nucleic acids. Hydrophilic and Hydrophobic Interactions. Vanderwaals interactions, Ionic interactions, Colloids and Colloidal Biochemical solutions.

Chapter 02: Overview of Biochemistry, Definition and Introduction Biomolecules (Macro and Micro biomolecules).

UNIT II: BIOMOLECULES, THE BUILDING BLOCKS OF LIFE.

Chapter 01: Carbohydrates and Amino Acids **(8 marks)**

Classification, Isomerism, Epimerism, Anomerism, Stereo isomerism (D and L) and optical isomerism (dextro and laevo). Properties of carbohydrates (Redox reactions).

General structure of Amino acids. Classification on the basis of R group and charge. Essential and Non-Essential amino acids. Concept of peptide bond. Elementary idea of proteins.

Chapter 02: Lipids and Nucleic acids. **(7 marks)**

Definition of Fatty acids. Classification of fatty acids (odd and even, saturated and unsaturated fatty acids). General Structure of a Fat. Introduction of Phospholipids.

Introduction to nucleotides and deoxy nucleotides, Structural organization of Purine and pyrimidine. Structure of B-DNA (Watson and crick model). Types of RNA mRNA, rRNA and tRNA. Function of Nucleic acids.

UNIT III: CELL BIOLOGY:

Chapter 01 Membrane Biology **(7 marks)**

Cell as the fundamental unit of life Prokaryotic and Eukaryotic cell. Organization of Plasma membrane, Fluid mosaic model of Plasma membrane, extrinsic, intrinsic and trans membrane proteins. Transport (Uniport, Symport and Antiport with reference to Active and Passive transport). Osmosis and diffusion.

Chapter 02: Cellular Organelles **(8 marks)**

Nucleus and nucleoid. Origin of Endoplasmic Reticulum, Role of ER in secretory protein synthesis. Golgi complex and its role in post translational modifications, Structure of Mitochondria, Mitochondria as Energy source of a cell, Structural organization of inner membrane, ETC. Chloroplast as Glucose machinery of a cell, Biochemical Reactions with reference to Stroma and Thyllakoid membrane (light and Dark reaction), Vacuole, Lysosome and its role in cellular metabolism, Nucleolus and ribosome biogenesis. Svedbergs constant.

UNIT IV: ENZYMOLOGY:

Chapter 01: Introduction to a Biochemical reaction. **(6 marks)**

Nature and classification of enzymes. Prosthetic group: Co-enzymes and co factors. Holoenzyme, Apoenzyme. Models of enzyme activity (Lock and key model and Induced fit model). Factors affecting enzyme activity (Substrate, pH and Temp.).

Chapter 02: Regulation: **(4 marks)**

Role of Activators and Inhibitors. Competitive, Non Competitive and Uncompetitive Inhibition. Allosteric enzymes.

UNIT V: NUTRITION BIOLOGY:

Chapter 01: Mechanism of Digestion **(3 marks)**

Mechanism of action of digestive enzymes on biomolecules (Carbohydrates, lipids, proteins and nucleic acids.

Chapter 02: Minerals (4 marks)

Calorific value of Carbohydrates, lipids and proteins and RDA. Importance of minerals (Ca, Zn, P, Fe, Cu, I, K, Mg and Na). Dietary fibres.

Chapter 03: Vitamins: **(3 marks)**

Nutritional sources, deficiency diseases and function of fat and water soluble vitamins.

UNIT VI: BIOANALYTICAL TECHNIQUES AND APPLICATION

Chapter 01. Techniques **(5 marks)**

Introduction to Estimations. Qualitative and Quantitative analysis. Ph metry, Colorimetry, Centrifugation, Electrophoresis of proteins and DNA and Paper Chromatography.

Chapter 02. Applications **(5 marks)**

Applications of the biochemical techniques in Cell culture, protoplast fusion, hybrid crops, Gene extraction and Gene manipulation, Forensic sciences, DNA mapping and DNA fingerprinting.

PRACTICAL

Marks: 30

Laboratory work:

1. Safety precautions in the laboratory.
2. Preparation of Standard solutions (Molar, Normal and percentage).
3. Preparation of Buffers, Physiological buffers (bicarbonate buffer and Phosphate buffer. Hendeson-Hasselbalch equation, pH, pKa.
4. Determination of pH of different solutions.
5. Care and cleansing of glassware apparatus.
6. Sterilization techniques, Autoclaving, Acetone and Alcohol sterilization, UV sterilization.
7. Color reaction of carbohydrates: Molish, Iodine, Benedict`s and Barfoed`s tests.
8. Color reactions of Proteins: Ninhydrin, Biuret and Xanthoproteic tests.

Institutional visits:

1. Learn to operate Autoclave, water bath, incubator and pH meter.
2. To operate Centrifuge for the separation purposes.

प्रश्नपत्र का प्रश्नानुसार विश्लेषण एवं प्रारूप

हिन्दी पाठ्यक्रम (ग्यारहवीं) कुल अंक — 100 समयावधि :— 03 घंटे

क्र सं	प्रश्नों के प्रारूप	दक्षता परीक्षण / अधिगम परिणाम	1 अंक	2 अंक	3 अंक	4 अंक	5 अंक	6 अंक	7 अंक	8 अंक
1.	अपठित बोध गद्य (10) गद्य (06) नोट :—	ज्ञान विषयक बोध, अर्थ ग्रहण विश्लेषण, शब्द ज्ञान, मौलिकता, सृजनात्मकता आदि पद्य मात्र खड़ी बोली हिन्दी में लिखित कविताओं से हों	2 6	4	—	—	—	—	—	—
2	व्याकरण एवं रचनात्मक लेखन नोट :—	समृद्ध शब्दावली, वर्तनी, भाषा प्रवाह, शैली, अभिव्यक्ति की सृजनात्मकता तार्किकता आदि प्रतिवेदन, वर्गीकृत विज्ञापन, पत्रलेखन (औपचारिक) में से एक दीर्घ उत्तरापेक्षी प्रश्न शत प्रतिशत विकल्प सहित पूछा जाएगा।	—	4	1	1	1	—	—	—
3	हिन्दी साहित्य का इतिहास	आदिकाल, भक्तिकाल एवं रीतिकाल	4	—	1	—	—	—	1	—
4.	पद्य भाग गद्य भाग	भाव विचार, कल्पना, शैली, अर्थ ग्रहण विश्लेषण कार्य कारण संबंध, काव्य परम्पराओं का मूल्यांकन, संस्कृति, जीवन मूल्य मौलिकता, सृजनात्मकता आदि।	4 4	— —	3 3	— —	01 01	— —	01 01	— —

प्रश्नपत्र का प्रश्नानुसार विश्लेषण एवं प्रारूप

हिन्दी पाठ्यक्रम (ग्यारहवीं) कुल अंक – 100 समयावधि – 3 घंटे

क्र. सं. :– प्रश्नों का प्रारूप	दक्षता परीक्षण / अधिगम परिणाम	अंक
अपठित बोध		
गद्य	ज्ञान विषयक बोध, अर्थ ग्रहण विश्लेषण, शब्द ज्ञान मौलिकता,	गद्य – 10 (4x2=8) (2x1=2)
पद्य	सृजनात्मकता आदि	पद्य – 06 (1x6=6)
नोट :– (पद्य मात्र खड़ी बोली हिन्दी में लिखित कविताओं से)		
व्याकरण एवं रचनात्मक लेखन	समृद्ध शब्दावली, वर्तनी, भाषा प्रवाह शैली, अभिव्यक्ति की मौलिकता, सृजनात्मकता, संवाद,तार्किकता आदि।	(20)

प्रश्न पत्र का प्रारूप :–

→	शब्द भण्डार –	तत्सम, तद्भव, देशज, विदेशज शब्द	1x4=04
→	शब्द भेद –	पर्यायवाची, विलोम, अनेकार्थी, अनेक शब्दों के लिए एक शब्द	4x2=08
→	मुहावरे एवं लोकोक्तियाँ		(1x3=3)
→	प्रतिवेदन, वर्गीकृत विज्ञापन, पत्रलेखन (औपचारिक)		1x5=05

नोट :–

→ प्रतिवेदन, वर्गीकृत विज्ञापन, पत्रलेखन (औपचारिक) में से एक दीर्घ उत्तरापेक्षी प्रश्न शत–प्रतिशत विकल्प सहित पूछा जाएगा

हिन्दी साहित्य का इतिहास

आदिकाल

(सिर्फ नामकरण और प्रवृत्तियाँ)

इतिहासबोध, साहित्य और समाज का संबंध, विश्लेषण

भक्तिकाल

(संत, सूफी, कृष्ण और रामभार्गी शाखा की प्रवृत्तियाँ)

आलोचनात्मक चिन्तन, साहित्यिक परम्पराओं का ज्ञान और मूल्यांकन आदि।

रीतिकाल

(नामकरण और प्रवृत्तियाँ)

नोट :–

- शत–प्रतिशत विकल्प सहित एक दीर्घ उत्तरापेक्षी प्रश्न पूछा जाएगा। 1x7=07
- शत–प्रतिशत विकल्प सहित एक लघु उत्तरापेक्षी प्रश्न पूछा जाएगा 1x3=03
- चार विकल्प रहित वस्तुनिष्ठ प्रश्न पूछे जाएँगे। 1x4=04

कुल अंक – 14

3) पद्य भाग

भाव, विचार, कल्पना शैली, अर्थ, ग्रहण, विश्लेषण, कार्य कारण सम्बन्ध, काव्य परम्पराओं का मूल्यांकन, संस्कृति, जीवन मूल्य, मौलिकता, सृजनात्मकता आदि।

प्रश्न पत्र का प्रारूप :–

पद्य भाग (पाठ्यपुस्तक 'अनुगूँज में से)

1. कबीरदास

2. मलिक मुहम्मद जायसी
3. तुलसीदास
4. सूरदास
5. मीराबाई
6. बिहारीलाल

इस इकाई में से प्रश्न पत्र का प्रारूप एवं अंक विभाजन :–

- शत–प्रतिशत विकल्प सहित एक सप्रसंग व्याख्या पूछी जाएगी 1x5=05
- शत–प्रतिशत विकल्प सहित कवियों का साहित्यिक परिचय पूछा जाएगा। 1x7=07
- शत–प्रतिशत विकल्प सहित तीन लघु उत्तरापेक्षी प्रश्न पूछे जाएँगे। 3x3=09
- चार विकल्प रहित वस्तुनिष्ठ पूछे जाएंगे 1x4=04

घ. गद्य भाग (पाठ्यपुस्तक 'अनुगूंज में से) (25)

कहानियाँ :–

1. एक टोकरी भर मिट्टी – माधव राव सप्रे
2. शतरंज के खिलाड़ी – मुंशी प्रेमचंद
3. पर्दा – यशपाल
4. वापसी – उषा प्रियंवदा
5. चुप चन्तारा रोना नहीं – नीरजा माधव
6. कितिज – शकुन्त दीपमाला

निबंध / व्यंग्य

7. आचरण भी सभ्यता — सरदार पूर्ण सिंह
8. इंस्पेक्टर मातादीन चाँद पर — हरिशंकर परसाई

इस इकाई में से प्रश्न पत्र का प्रारूप एवं अंक विभाजन :—

- शत—प्रतिशत विकल्प सहित एक सप्रसंग व्याख्या पूछी जाएगी। 1x5=05
- शत—प्रतिशत विकल्प सहित एक दीर्घ उत्तरपेक्षी प्रश्न पूछा जाएगा। 1x7=07
- शत—प्रतिशत विकल्प सहित तीन लघु उत्तरापेक्षी प्रश्न पूछे जाएँगे 3x3=09
- चार विकल्प रहित वस्तुनिष्ठ प्रश्न पूछे जाएंगे 1x4=04

नोट :—

मात्र पाठ्यक्रम में निर्धारित पाठों पर आधारित ही पूछे जाएँगे। इस इकाई में निर्धारित लेखकों के परिचय, अवदान आदि से सम्बन्धित दीर्घ, लघु और अतिलघु उत्तरापेक्षी प्रश्न नहीं पूछे जाएंगे।

निबन्ध / व्यंग्य और कहानियों की तात्विक समीक्षा सार, उद्देश्य, समस्या और प्रमुख चरित्रों से संबंधित प्रश्न पूछे जाएँगे।

निर्धारित पुस्तक — अनुगूँज

पाठ्यक्रमोपयोगी सहायक पुस्तकें

1. मानक हिन्दी व्याकरण
2. सुबोध हिन्दी व्याकरण
3. हिन्दी साहित्य का इतिहास — डॉ. नगेन्द्र
4. हिन्दी साहित्य : युग और प्रवृत्तियाँ — शिवकुमार शर्मा
5. हिन्दी साहित्य का संक्षिप्त इतिहास — डॉ मधु धवन

BIOCHEMISTRY
CLASS XII

Maximum Marks: 100 **Time: 3 hours**
Theory: 70 marks **Practical: 30 marks**

UNIT I: METABOLISM IN BIOCHEMISTRY I :

Chapter 01: Carbohydrate Metabolism: ATP as energy currency of cell. Aerobic and Anaerobic Glycolysis. Mitochondrial reactions of TCA cycle,Various photosystems for electron transport chain. Elementary idea of Glycogenesis and Glycogenolysis. (7 marks)

Chapter 02: Amino acid metabolism: Deamination, Decarboxylation and Transamination of Amino acids. (6 marks)

UNIT II: METABOLISM IN BIOCHEMISTRY II:

Chapter 01: Lipid Metabolism: Action of Lipases, beta oxidation of fatty acids, Activation of fatty acids. Atheroseclorosis (6 marks)

Chapter 02: Elementary idea of salvage and de novo pathway of nucleotides. LeschNyhan Syndrome. (4 marks)

Chapter 03: Metabolic Disorders: Overview of metabolic disorders. Phenylketonuria, Alkaptonuria, Albinism, Tyrosinemia. (4 marks)

UNIT III: CHEMICAL MESSANGERS:

Chapter 01: Introduction of Hormones. Nature and properties of Hormones. Classification of hormones on the basis of chemical nature. Physiological and Biochemical role of Cortisol, Cortisone, Aldosterone, Progestrone and Testosterone. (7 marks)

Chapter 02: Peptide hormones: Physiological and Biochemical role of Thyroxine (T3 & T4), Insulin and Glucagon. Role of Vassopresin. (6 marks)

UNIT IV: PLANT BIOCHEMISTRY:

Chapter 01: Plant Hormones: Physiological and Biochemical role of Plant hormones, Auxins, Gibberlins and Cytokinins. (5 marks)

Chapter 02: Photosynthesis: Light phase (Cyclic and Non Cyclic Phosphorylation). C3, C4 and CAM pathway. (7 marks)

UNIT V: MOLECULAR BIOLOGY AND IMMUNOLOGY:

Chapter 01: Genomics : Replication of DNA. DNA polymerases and their function. Leading and lagging strand synthesis. Transcription. Initiation, elongation and termination. Activation of aminoacids, aminoacyl tRNA. Initiation elongation and termination of translation. (8 marks)

Chapter 02: Introduction to immunology: Cells of immune system. Immunoglobulins and types (Elementary idea). Humoral and cell mediated immunity. (4 marks)

UNIT VI: APPLICATION AND SCOPE OF BIOCHEMISTRY: (6 marks)

Genetic engineering, Gene Cloning (Concept), Application of Genetic engineering in Fermentation, Forensic and clinical usage. Various non-communicable diseases like Cancer, AIDS.

PRACTICAL

30 marks

I. Laboratory course:

1. Handling of Biological samples for various tests and estimations.
2. Centrifugation: basic principles and separation of plasma.
3. Quantitative estimation of Glucose.
4. Paper chromatography of amino acids Alanine and Glycine.
5. Collection of blood samples aseptically.
6. Blood grouping.

II. Institutional visits:

- Lab visits and get to know about the equipment's and lab conditions.
- Get to know about sampling of blood and tissue for various tests.
- The students will interact with the Scholars of the concerned Institutions, have an Interaction session and develop a write up of the interaction.

III. Project work:

a. Collection of blood samples and separation of plasma and sera using centrifugation.

b. Quantitative estimation of
   - Serum Glucose
   - Serum Cholestrol
   - Serum Bilirubin.

c. Separation of RBC Ghost cell.

BIOTECHNOLOGY (12th)

Maximum Marks: 100
Theory :70
Practical:30

UNIT I :- Recombinant DNA Technology **15 Marks**

- Introduction,
- Tools of rDNA technology,
- Vectors- plasmid, cosmid, phage, BAC and YAC, animal and plant viral vectors,
- Enzymes used in cloning- Restriction enzymes, DNA ligase and Alkaline phosphatase,
- Host cells , Making recombinant DNA, Introduction of recombinant DNA into host cells,
- Identification of recombinants, DNA library (Elementary Idea)
- DNA isolation from bacteria, Plants and blood, Plasmid DNA isolation, Polymerase chain reaction,
- DNA probes DNA hybridization techniques- Southern and Northern blotting, DNA sequencing- chain termination method, Site directed mutagenesis. (Brief idea)

UNIT II :- Protein Structure and Engineering **15 Marks**

- Introduction to the world of protein.
- 3- D shape of proteins,
- Structure- function relationship in proteins - Chymotrypsin and Haemoglobin,
- Purification of proteins- salting out, chromatography, Dialysis, SDS-PAGE, Western blotting,
- Characterization of proteins- Two dimensional gel electrophoresis, Peptide mapping, Protein sequencing, Mass spectrometry,
- Protein based products- blood products and vaccines, enzymes, antibodies, hormones and growth factors, industrial enzymes, non catalytic proteins, nutraceutical proteins,
- Designing proteins- Improving laundry detergent Subtilisin, Creation of novel proteins, Improving nutritional value of cereals and legumes, Proteomics – basic idea

UNIT III :- Genomics and Bioinformatics **10 Marks**

Introduction, Genomics, Structural genomics and Functional genomics, Genome sequencing projects- Directed sequencing of Bacterial Artificial Chromosome (BAC) contigs, Random shotgun sequencing, Genome Similarity, SNPs and Comparative Genomics.

Introduction to Bioinformatics, Information sources- Major databases (NCBI, Entrez and EMBL), BLAST family of search tools, Analysis using Bioinformatics tools.

CELL CULTURE TECHNOLOGY

UNIT IV:- Microbial cell culture and applications **10 Marks**

Introduction, Microbial culture techniques- Nutrients for microbial culture, Culture Procedures, Equipment for microbial culture, Types of microbial culture- Batch culture, Fed-batch culture and Continuous culture, Measurement and kinetics of microbial growth, Microbial growth measurement:quantifying cell concentration

Scale-up of microbial processes, Isolation of microbial products, Strain isolation, improvement , metagenomics and preservation, Culture Collections Centers, Applications of microbial culture technology, Biosafety issues in Microbial Technology

UNIT V:- Plant cell culture and applications **10 Marks**

Introduction, Cell and Tissue Culture Techniques -Nutrient media, Types of cultures, Plant regeneration pathways, Applications of Cell and Tissue Culture- Micropropagation, Virus-free plants, Artificial seeds, Embryo rescue, Haploids and triploids, Somatic hybrids and cybrids, Production of secondary metabolites, Somaclonal variation, In vitro plant germplasm conservation ,

Gene transfer methods in plants- vector and non vector mediated, Transgene analysis – a brief idea),

Transgenic plants with beneficial traits- Stress tolerance (biotic and abiotic), Delayed fruit ripening, Male sterility, Transgenic plants as bioreactors (Molecular farming), Metabolic engineering and secondary products, Biosafety issues in Plant Genetic Engineering

UNIT VI:- Animal cell culture and applications **10 Marks**

Introduction, Animal Cell Culture Techniques- Features of animal cell growth in culture, Primary Cell Cultures, Secondary Cell Cultures and cell lines, Types of cell lines, Finite Cell Lines, Continuous Cell Lines, Physical environment for culturing Animal Cells- Temperature, pH, Osmolality, Medium, Serum and Antibiotics, Vessels and Equipments, Characterization of Cell Lines, Storage and Revival of cells.

Methods of Gene Delivery into Cells, Scale-up of Animal Culture Process, Applications of Animal Cell culture, Hybridoma Technology, Stem Cell Technology, Tissue engineering- a brief idea

Practicals **Marks 30**

1. Precipitation of serum albumins and globulins by ammonium sulphate.
2. Separation of plant pigments/amino acids by paper chromatography
3. Isolation of genomic DNA from bacteria/ plant/ blood.
4. Analysis of genomic or plasmid DNA using agarose gel electrophoreis
5. Download a DNA, mRNA and a Protein sequence from NCBI, analyze and comment on it.
6. Culture bacetria by Streak culture technique
7. Production and estimation of ethanol from microbial culture
8. Preparation of explants for plant tissue culture .
9. Preparation of Murashige Skoog medium .
10. Synhesis of artificial seed.

11. Blood group typing.
12. . Cell viability test by dye exclusion method.

Project work:

a. Lab visits, sum up the list of equipments, facilities and cnditions and their utilities.
b. Interaction with a faculty /Ph.D scholar during visit and submit a report on the work that is being carried out by the duo.
c. Access the internet at www. ncbi.nlm.nih.gov or www.googllescholar.com and donload the artiicles form and any of the discipline pretaining to syllabus and critically comment of the download articles.
d. Filed visit to plant gene banks of IIIM(Jammu/Srinagar or DRDO (Leh) or and Biotechnolggy departments of SKUAST Jammu /Kashmir or Univesities of J & K/Ladakh /Colleges.

Schme of Evaluation

Insternal Assessment:10 marks
Project work : 06 Marks
Viva: 04
External Assessment:20 Marks
One Expermintt: 12 marks
Practicial record: :04 marks
Viva :02
Attendance :02

CLASS XII

COMPUTER SCIENCE

Maximum Marks=100
Theory =70 Marks
Practical =30 Marks (Internal=10: External=20)

1. Object Oriented Programming in C++	15 marks
2. Constructors and destructors	05 marks
3. Inheritance	05 marks
4. Pointers	05 marks
5. Data structures	10 marks
6. Database and SQL	10 marks
7. Boolean Logic	10 marks
8. Networking and Cyber security	10 marks

UNIT 1: Object Oriented Programming in C++

- Advantages of OOPs
- Basic elements of OOPs: Class, Object, Data hiding, Data abstraction, Data encapsulation, Polymorphism, Inheritance
- Implementation of polymorphism using function overloading
- Implementation of OOP in C++:
  - Defining a Class
  - Members of a Class (Data members and Member functions)
  - Defining an Object
  - Array of Objects
- Access Specifiers
- Concept of Scope resolution operator
- Member function definition (Inside and Outside a Class)

UNIT 2: Constructors and Destructors

- Constructors:
  - Special characteristics
  - Declaration and Definition of constructors
  - Types of constructors (Default constructor, Parameterized constructor)
- Destructors
  - Special characteristics
  - Declaration and Definition of destructors

UNIT 3: Inheritance (Extending Classes)

- Concept of inheritance
- Base Class, Derived Class
- Visibility modes
- Types of Inheritance
  - Single level inheritance
  - Multilevel Inheritance
  - Multiple inheritance

UNIT 4: Pointers

- Concept of a Pointer
- Declaration of Pointers
- Initialization of Pointers
- Dynamic memory allocation/ deallocation operators: new, delete

UNIT 5: Data Structures

- One dimensional array
  - Traversal
  - Searching (Linear search, Binary search)
  - Sorting (Bubble sort)
- Stack:
  - Definition of a stack
  - Operations on stack (Push and Pop)
- Queue:
  - Definition of a queue
  - Operations on queue (Enqueue and Dequeue)

UNIT 6: Database and SQL

- Database and its advantages
- Relational data model
- Concept of Domain, Relation, Attribute, Tuple, Candidate key, Primary key, Alternate key
- SQL and its advantages
- Data types in SQL (NUMBER, CHAR, DATE)
- Data Definition Language and Data Manipulation Language
- SQL commands:
  - DDL commands (CREATE, DROP, ALTER)
  - DML commands (SELECT, INSERT, UPDATE, DELETE)
- SQL functions: SUM(), AVG(), COUNT(), MIN(), MAX()

UNIT 7: Boolean Logic

- Boolean Operators: AND, OR, NOT
- Truth Table
- Basic Logic Gates: AND, OR, NOT, NAND, NOR
- Laws of Boolean Algebra: Commutative law, Associative law, Distributive law, DeMorgan's law, Principle of Duality (Proving these laws using Truth Tables only)

UNIT 8: Networking and Cyber security

- Networking and its advantages
- Types of Networks: PAN, LAN, MAN, WAN
- Transmission Media: Twisted pair cable, Coaxial cable, Optical fibre, Infra-Red, Satellite transmission
- Network Topologies: Bus, Star, Ring
- Modem

- Cyber safety and security
  - Cyber Bullying: Preventive Measures
  - Computer Safety and Security
  - Internet Safety and Ethics
  - Safe Social Networking
  - Safe Email Practices
  - Dos and Don'ts for Cyber Safety

PRACTICALS:

- **Programming in C++**

1. WAP to implement function definition inside the class.
2. WAP to implement function definition outside the class.
3. WAP to implement concept of function overloading.
4. WAP to implement the concept of constructors.
5. WAP to implement concept of single level inheritance.

- One dimensional array
  - Traversal
  - Searching (Linear search, Binary search)
  - Sorting (Bubble sort)
- Stack:
  - Definition of a stack
  - Operations on stack (Push and Pop)
- Queue:
  - Definition of a queue
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  - Cyber Bullying: Preventive Measures
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  - Dos and Don'ts for Cyber Safety

PRACTICALS:

- **Programming in C++**

1. WAP to implement function definition inside the class.
2. WAP to implement function definition outside the class.
3. WAP to implement concept of function overloading.
4. WAP to implement the concept of constructors.
5. WAP to implement concept of single level inheritance.

FOOD TECHNOLOGY

CLASS 12TH

Maximum Marks: 100

Theory:70

Practical: 30

Unit-1: Fruits and Vegetable Processing Technology: (20 marks)

- Composition & Nutritional importance of fruits and vegetables in humandiet.
- Common operations in post harvest management & processing-Pre cooling cleaning, sorting, grading, peeling, coring and slicing.
- Storage of fresh fruits and vegetables- Cold Storage, CAS.
- Ingredients and process for manufacture of Jams, Jellies, Marmalades, Preserves, Candies, Pickles and Chutneys.
- Tomato Processing- Ingredients and process for manufacture of tomato ketchup, sauce, puree and paste.
- Juices – Raw material and processing for preparation of different fruit juices-Squash, Nectar, Cordial and Concentrate.
- Common operations of drying and dehydration of fruits and vegetables. Pretreatments (blanching, sulfuring and fumigation), and storage of dried products.

Unit 2: Cereal and Pulse Processing Technology: (15 marks)

- Wheat: Structure, types and milling of wheat.
- Rice: Structure, parboilingand milling.
- Maize: Structure and milling.
- Pulses: Nutritional importance and anti-nutritional factors in pulses. Pulse milling.

Unit 3:Milk and Milk Products Processing Technology: (15 marks)

- Milk: Sources, composition and nutritive value.
- Factors effecting composition of milk.
- Milk processing – Collection, chilling, standardization, homogenization and pasteurization.
- Milk products- preparation and storage of curd, ice cream and paneer, butter and ghee
- CIP System in dairy industry.

Unit 4:Meat, Fish and Poultry Processing Technology: (10 marks)

- Composition and nutritive value of meat, fish and poultry.
- Ante-mortem inspection of meat animals and methods of slaughtering.

- Preservation of Meat, Fish and Poultry – Pickling, Smoking, Curing, Freezing, Canning, Drying and Salting.
- Introduction to traditional meat products of J&K.
- Egg: Structure, composition, nutritive value and spoilage.

Unit 5:Bakery and Confectionery Technology: **(10 marks)**

- Raw materials and their role in bakery products.
- Types, preparation and quality evaluation of bread, biscuits and cakes. Staling of bread.
- Confectionery Products: Different ingredients and processes for making of candy, chocolates and HFCS (High Fructose Corn Syrup).
- Mallard reaction and caramelization in bakery products.

Practical's: **(30 Marks)**

1. Preparation of jams and pickles.
2. Preparation of tomato ketchup and puree.
3. Preparation and preservation of fruit juices.
4. Drying of locally available fruits and vegetables.
5. Determination of physical characteristics of wheat, rice and maize (1000 kernel weight and bulk density).
6. Estimation of wheat flour quality – Moisture content and gluten content
7. Determination of Fat, SNF (Solid not fat), Specific Gravity and COB in milk.
8. Preparation of dahi, paneer and icecream.
9. Candling and grading of egg.
10. Preparation of fish/meat pickle.
11. Preparation and evaluation of confectionery products – Candy, toffee
12. Visit to different food processing industries.