

HSC 1st Year Academic Program

Progressive Batch

Online Batch Time

English Version – 3:00 pm

Class & Exam
Routine -03

Online Exam Time

From 9:00 am to 11:00 pm

Date and time	Live Class	Live Exam
08 December 2024 (Sunday)	Live Class (HM-25+26) H.Math: Chapter- 04	Daily Live Exam (B-25+26) MCQ (10×1=10); 10 min
09 December 2024 (Monday)	Live Class (HM-59+60) H.Math: Chapter- 09	Daily Live Exam (HM-25+26) MCQ (10×1=10); 10 min
10 December 2024 (Tuesday)	Live Class (P-37+38) Physics: Chapter- 06	Daily Live Exam (HM-59+60) MCQ (10×1=10); 10 min
11 December 2024 (Wednesday)	Live Class (C-01+02) Chemistry: Chapter- 01	Daily Live Exam (P-37+38) MCQ (10×1=10); 10 min
12 December 2024 (Thursday)	Live Class (B-27+28) Botany: Botany- 05	Daily Live Exam (C-01+02) MCQ (10×1=10); 10 min
13 December 2024 (Friday)	Chapter-wise Exam [Zoology Chapter-02] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
15 December 2024 (Sunday)	Live Class (HM-27+28) H.Math: Chapter- 04	Daily Live Exam (B-27+28) MCQ (10×1=10); 10 min
Online classes and exams will be closed on December 16 on the occasion of Great Victory Day.		
17 December 2024 (Tuesday)	Live Class (P-39+40) Physics: Chapter- 06	Daily Live Exam (HM-27+28) MCQ (10×1=10); 10 min
18 December 2024 (Wednesday)	Live Class (C-03+04) Chemistry: Chapter- 01	Daily Live Exam (P-39+40) MCQ (10×1=10); 10 min
19 December 2024 (Thursday)	Live Class (B-19+20) Botany: Botany- 04	Daily Live Exam (C-03+04) MCQ (10×1=10); 10 min
20 December 2024 (Friday)	Chapter-wise Exam [Botany Chapter-05] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
21 December 2024 (Saturday)	Chapter-wise Exam [Chemistry 1st Paper Chapter-01] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10 min	
22 December 2024 (Sunday)	Live Class (HM-29+30) H.Math: Chapter- 04	Daily Live Exam (B-19+20) MCQ (10×1=10); 10 min
23 December 2024 (Monday)	Live Class (HM-61+62) H.Math: Chapter- 09	Daily Live Exam (HM-29+30) MCQ (10×1=10); 10 min
24 December 2024 (Tuesday)	Live Class (P-41+42) Physics: Chapter- 06	Daily Live Exam (HM-61+62) MCQ (10×1=10); 10 min
25 December 2024 (Wednesday)	Live Class (C-37+38) Chemistry: Chapter- 04	Daily Live Exam (P-41+42) MCQ (10×1=10); 10 min
26 December 2024 (Thursday)	Live Class (B-21+22) Botany: Botany- 04	Daily Live Exam (C-37+38) MCQ (10×1=10); 10 min
27 December 2024 (Friday)	Chapter-wise Exam [H.Math 1st Paper Chapter-04] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
29 December 2024 (Sunday)	Live Class (HM-07+08) H.Math: Chapter- 02	Daily Live Exam (B-21+22) MCQ (10×1=10); 10 min
30 December 2024 (Monday)	Live Class (HM-63+64) H.Math: Chapter- 09	Daily Live Exam (HM-07+08) MCQ (10×1=10); 10 min
31 December 2024 (Tuesday)	Live Class (P-59+60) Physics: Chapter- 10	Daily Live Exam (HM-63+64) MCQ (10×1=10); 10 min
01 January 2025 (Wednesday)	Live Class (C-39+40) Chemistry: Chapter- 04	Daily Live Exam (P-59+60) MCQ (10×1=10); 10 min
02 January 2025 (Thursday)	Live Class (B-23+24) Botany: Botany- 04	Daily Live Exam (C-39+40) MCQ (10×1=10); 10 min
03 January 2025 (Friday)	Chapter-wise Exam [Physics 1st Paper Chapter-06] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
05 January 2025 (Sunday)	Live Class (HM-09+10) H.Math: Chapter- 02	Daily Live Exam (B-23+24) MCQ (10×1=10); 10 min
06 January 2025 (Monday)	Live Class (HM-65+66) H.Math: Chapter- 09	Daily Live Exam (HM-09+10) MCQ (10×1=10); 10 min
07 January 2025 (Tuesday)	Live Class (P-61+62) Physics: Chapter- 10	Daily Live Exam (HM-65+66) MCQ (10×1=10); 10 min
08 January 2025 (Wednesday)	Live Class (C-41+42) Chemistry: Chapter- 04	Daily Live Exam (P-61+62) MCQ (10×1=10); 10 min
09 January 2025 (Thursday)	Live Class (Z-19+20) Zoology: Chapter- 04	Daily Live Exam (C-41+42) MCQ (10×1=10); 10 min
10 January 2025 (Friday)	Chapter-wise Exam [Botany Chapter-04] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
11 January 2025 (Saturday)	Chapter-wise Exam [H.Math 1st Paper Chapter-02] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
12 January 2025 (Sunday)	Live Class (HM-31+32) H.Math: Chapter- 05	Daily Live Exam (Z-19+20) MCQ (10×1=10); 10 min
13 January 2025 (Monday)	Live Class (HM-67+68) H.Math: Chapter- 09	Daily Live Exam (HM-31+32) MCQ (10×1=10); 10 min
14 January 2025 (Tuesday)	Live Class (P-63+64) Physics: Chapter- 10	Daily Live Exam (HM-67+68) MCQ (10×1=10); 10 min
15 January 2025 (Wednesday)	Live Class (C-43+44) Chemistry: Chapter- 04	Daily Live Exam (P-63+64) MCQ (10×1=10); 10 min
16 January 2025 (Thursday)	Live Class (Z-21+22) Zoology: Chapter- 04	Daily Live Exam (C-43+44) MCQ (10×1=10); 10 min
17 January 2025 (Friday)	Chapter-wise Exam [H.Math 1st Paper Chapter-09] (Part-01); Lecture HM-59 to 66; (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
18 January 2025 (Saturday)	Chapter-wise Exam [Physics 1st Paper Chapter-10] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	

19 January 2025 (Sunday)	Live Class (HM-33+34) H.Math: Chapter- 05	Daily Live Exam (Z-21+22) MCQ (10×1=10); 10 min
20 January 2025 (Monday)	Live Class (HM-69+70) H.Math: Chapter- 09	Daily Live Exam (HM-33+34) MCQ (10×1=10); 10 min
21 January 2025 (Tuesday)	Live Class (P-43+44) Physics: Chapter- 07	Daily Live Exam (HM-69+70) MCQ (10×1=10); 10 min
22 January 2025 (Wednesday)	Live Class (C-45+46) Chemistry: Chapter- 04	Daily Live Exam (P-43+44) MCQ (10×1=10); 10 min
23 January 2025 (Thursday)	Live Class (Z-23+24) Zoology: Chapter- 04	Daily Live Exam (C-45+46) MCQ (10×1=10); 10 min
24 January 2025 (Friday)	Chapter-wise Exam [Chemistry 1st Paper Chapter-04] (Part-01); Lecture C-37 to 44; (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
26 January 2025 (Sunday)	Live Class (HM-35+36) H.Math: Chapter- 05	Daily Live Exam (Z-23+24) MCQ (10×1=10); 10 min
27 January 2025 (Monday)	Live Class (HM-71+72) H.Math: Chapter- 09	Daily Live Exam (HM-35+36) MCQ (10×1=10); 10 min
28 January 2025 (Tuesday)	Live Class (P-45+46) Physics: Chapter- 07	Daily Live Exam (HM-71+72) MCQ (10×1=10); 10 min
29 January 2025 (Wednesday)	Live Class (C-47+48) Chemistry: Chapter- 04	Daily Live Exam (P-45+46) MCQ (10×1=10); 10 min
30 January 2025 (Thursday)	Live Class (Z-25+26) Zoology: Chapter- 04, 05	Daily Live Exam (C-47+48) MCQ (10×1=10); 10 min
31 January 2025 (Friday)	Chapter-wise Exam [H.Math 1st Paper Chapter-05] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
01 February 2025 (Saturday)	Chapter-wise Exam [H.Math 1st Paper Chapter-09] (Part-02); Lecture HM-67 to 72; (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
02 February 2025 (Sunday)	Live Class (P-47+78) Physics: Chapter- 07	Daily Live Exam (Z-25+26) MCQ (10×1=10); 10 min
03 February 2025 (Monday)	Live Class (HM-73+74) H.Math: Chapter- 10	Daily Live Exam (P-47+48) MCQ (10×1=10); 10 min
04 February 2025 (Tuesday)	Live Class (P-49+50) Physics: Chapter- 08	Daily Live Exam (HM-73+74) MCQ (10×1=10); 10 min
05 February 2025 (Wednesday)	Live Class (C-49+50) Chemistry: Chapter- 04	Daily Live Exam (P-49+50) MCQ (10×1=10); 10 min
06 February 2025 (Thursday)	Live Class (Z-27+28) Zoology: Chapter- 05	Daily Live Exam (C-49+50) MCQ (10×1=10); 10 min
07 February 2025 (Friday)	Chapter-wise Exam [Zoology Chapter-04] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
08 February 2025 (Saturday)	Chapter-wise Exam [Physics 1st Paper Chapter-07 (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
09 February 2025 (Sunday)	Live Class (P-51+52) Physics: Chapter- 08	Daily Live Exam (Z-27+28) MCQ (10×1=10); 10 min
10 February 2025 (Monday)	Live Class (HM-75+76) H.Math: Chapter- 10	Daily Live Exam (P-51+52) MCQ (10×1=10); 10 min
11 February 2025 (Tuesday)	Live Class (P-53+54) Physics: Chapter-09, 08	Daily Live Exam (HM-75+76) MCQ (10×1=10); 10 min
12 February 2025 (Wednesday)	Live Class (C-51+52) Chemistry: Chapter- 04	Daily Live Exam (P-53+54) MCQ (10×1=10); 10 min
13 February 2025 (Thursday)	Live Class (B-29+30) Botany: Botany- 06	Daily Live Exam (C-51+52) MCQ (10×1=10); 10 min
14 February 2025 (Friday)	Chapter-wise Exam [Zoology Chapter-05] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
15 February 2025 (Saturday)	Chapter-wise Exam [Physics 1st Paper Chapter-08 (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
16 February 2025 (Sunday)	Live Class (P-55+56) Physics: Chapter- 09	Daily Live Exam (B-29+30) MCQ (10×1=10); 10 min
17 February 2025 (Monday)	Live Class (HM-77+78) H.Math: Chapter- 10	Daily Live Exam (P-55+56) MCQ (10×1=10); 10 min
18 February 2025 (Tuesday)	Live Class (P-57+58) Physics: Chapter- 09	Daily Live Exam (HM-77+78) MCQ (10×1=10); 10 min
19 February 2025 (Wednesday)	Live Class (C-53+54) Chemistry: Chapter- 05	Daily Live Exam (P-57+58) MCQ (10×1=10); 10 min
20 February 2025 (Thursday)	Live Class (Z-29+30) Zoology: Chapter- 06	Daily Live Exam (C-53+54) MCQ (10×1=10); 10 min
On the occasion of International Mother Language Day, online classes and examinations will be closed on February 21.		
22 February 2025 (Saturday)	Chapter-wise Exam [Chemistry 1st Paper Chapter-04] (Part-02); Lecture C-45 to 52; (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
23 February 2025 (Sunday)	Live Class (B-31+32) Botany: Botany- 07	Daily Live Exam (Z-29+30) MCQ (10×1=10); 10 min
24 February 2025 (Monday)	Live Class (HM-79+80) H.Math: Chapter- 10	Daily Live Exam (B-31+32) MCQ (10×1=10); 10 min
25 February 2025 (Tuesday)	Live Class (HM-81+82) H.Math: Chapter- 10	Daily Live Exam (HM-79+80) MCQ (10×1=10); 10 min
26 February 2025 (Wednesday)	Live Class (C-55+56) Chemistry: Chapter- 05	Daily Live Exam (HM-81+82) MCQ (10×1=10); 10 min
27 February 2025 (Thursday)	Live Class (HM-83+84) H.Math: Chapter- 10	Daily Live Exam (C-55+56) MCQ (10×1=10); 10 min
28 February 2025 (Friday)	Chapter-wise Exam [Botany Chapter-06] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
01 March 2025 (Saturday)	Chapter-wise Exam [H.Math 1st Paper Chapter-10] (Part-01); Lecture HM-73 to 78; (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
02 March 2025 (Sunday)	Live Class (B-33+34) Botany: Botany- 07	Daily Live Exam (HM-83+84) MCQ (10×1=10); 10 min
03 March 2025 (Monday)	---	Daily Live Exam (B-33+34) MCQ (10×1=10); 10 min
04 March 2025 (Tuesday)	Chapter-wise Exam [Physics 1st Paper Chapter-09 (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
06 March 2025 (Thursday)	Chapter-wise Exam [Zoology Chapter-06] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.	
08 March 2025 (Saturday)	Chapter-wise Exam [Chemistry 1st Paper Chapter-05] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10 min	

10 March 2025 (Monday)	Chapter-wise Exam [H.Math 1st Paper Chapter-10] (Part-02); Lecture HM-79 to 84; (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.
12 March 2025 (Wednesday)	Chapter-wise Exam [Botany Chapter-07] (CQ 2×10=20); Time: 50min & (Pre-Admission MCQ 10×1=10); Time: 10min.

Online Classes & Exam Procedure:

* Go to this website udvash.com and click on 'Join Now' menu to give **Live Class & Exam**. Login to Class 11th academic program Progressive Batch using your admitted registration number to participate in Classes and exams.

* The **Daily Live Exam** will run from **09:00 am to 11:00 pm** as per the date mentioned in the routine. A student can participate in the **Live Exam** only once during this period. However, for more practice, students can participate in the **Practice Exam** of the same syllabus multiple times.

HSC 1st Year Academic Program Progressive Batch Part-03 Syllabus-2024 (Online)

Physics 1st paper (Reference Book: **UDVASH** Parallel Text)

Chapter	lecture	Syllabus
Chapter-6 Gravitation and Gravity	P-37	Falling Bodies, Kepler's Law of Planetary Motion, Gravitation, Vector form of Gravitational Force, Moment of Inertia and Gravitational Mass, Gravity and gravitational acceleration.
	P-38	Determining the value of g: Relation between gravitational constant and gravitational acceleration, change of gravitational acceleration, Change of Gravitational acceleration due to earth's shape, Change of Gravitational acceleration due to height from earth's surface, change of gravitational acceleration due to depth, Change of gravitational acceleration due to earth's rotation.
	P-39	Center of Gravity, Gravitational Field, Gravitational Field Intensity.
	P-40	Gravitational Potential, Relation between Gravitational field intensity and Gravitational potential, Gravitational Potential Energy.
	P-41	Escape velocity, Application of the Laws of gravitational force, Application of the Laws of gravity in solid sphere.
	P-42	Relation between Newton's law of gravitation and Kepler's laws, Motion of Satellite. Geo-stationary satellite, Polar Satellite, Weightlessness in space, Research and search for natural resources.
Chapter-10 Ideal gas and kinetics of gases	P-59	Gas, Pressure of gas, Volume of gas, Temperature of gas, amount of gas, Formulas of gas, Relation between pressure and volume, Relation between volume and temperature, law of pressure.
	P-60	Ideal gas, Features of Ideal Gas, Real gas, Molecular Kinetic Theory of gases, Postulates of gaseous atoms, Application of Molecular Kinetic Theory.
	P-61	Mean free path, Degrees of freedom.
	P-62	One molecular, two molecular and three molecular gas, Linear molecular gas, non-linear molecular gas, Law of equal distribution of energy.
	P-63	Water vapor and air pressure, Evaporation, condensation, saturated and non-saturated pressure, relation between pressure and volume of water vapor in isothermal condition, dew point and relative humidity.
P-64	Dew point, Humidity, Relative humidity and dew point, Devices to measure humidity, Wet and dry bulb thermometer, Some phenomena on Hygrometry.	
Chapter-7 Structural Properties of Matter	P-43	Inter-molecular force, Molecular force in solid, liquid and gaseous substance, Bonds, Elasticity and its classification, Attraction force and repulsion force and potential energy, Graph of force.
	P-44	Graph of Potential Energy, Summary of the graph, Quantities of elasticity, Stress and strain in various objects.
	P-45	Types of strain, Types of stress, Hooke's law, Modulus of elasticity, relation between various modulus
	P-46	Elastic potential energy, Poisson's ratio.
	P-47	Flow of fluids, turbulent flow, Viscosity, Friction and viscosity, Effect of pressure and temperature on viscosity modulus, Reynold's Number, Stokes' law.
P-48	Terminal Velocity, Surface tension, Effects of various factors on surface tension, capillarity.	
Chapter-8 Periodic Motion	P-49	Periodicity, Spatial periodicity, Temporal Periodicity, Features of periodic motion, Oscillation, Simple Harmonic Motion, Ideal spring, Spring constant, Motion of an object connected to ideal spring, Conditions of simple harmonic motion, Differential equation of simple harmonic motion, Solution of the differential equation of simple harmonic motion.
	P-50	Quantities of simple harmonic motion, Displacement, velocity and acceleration in simple harmonic motion.
	P-51	Graph of simple harmonic motion, Relation between circular motion and simple harmonic motion.
	P-52	Energy of simple harmonic motion, Potential energy in spring, change of energy with time, Graph, Change of energy with displacement, graph.
P-53	Application of simple harmonic motion, Motion in vertical plane, Motion of compound spring, Motion of simple pendulum, Explanation of the laws of simple pendulum, Application of simple pendulum.	

Chapter-9 Wave	P-54	Waves, Mechanical Waves, Origin of different Mechanical Waves, Transverse Waves, Longitudinal Wave, Electromagnetic Wave, Waves and Energy, Expressions and Equations Related to Wave, Change of Medium
	P-55	Progressive Waves, Phase difference and Path difference of Progressive Waves.
	P-56	Superposition of Waves, Stationary Wave.
	P-57	Beat.
	P-58	Free and Forced Vibration, Resonance, Intensity of Wave, Standard Intensity and Intensity Level, Harmonics and Musical Scales, Musical Sound, Tone and Note, Vibration of String, Vibration of Air Column.

Chemistry 1st Paper (Reference Book: **UDVASH Parallel Text)**

Chapter	Lecture	Syllabus
Chapter-1 Safe Use of Laboratory	C-01	Safe use of Laboratory- Aprons, masks, safety glasses, gloves, lab rules/golden rules, Solvent measuring device and its uses- Chemical analysis, test tubes, beakers, burettes, pipettes, volumetric flasks, conical flasks, wash bottles, measuring cylinders, techniques for cleaning glassware.
	C-02	Solute measuring instruments - chemical instruments, Paul-Bunge balances, method of weighing in balances, digital balances. Concentration- Molarity, Molality, Dilution, Standard Substances (Primary & Secondary), Titration- Method, Indicator, End Point & Equivalent Point, Formulation of Titration Equations + Math.
	C-03	Heating Techniques with Laboratory Apparatus- Bunsen Burner & Flame, Heating Techniques in Round Bottom Flasks, Conical flask heating technique, Water bath heating technique, Porcelain bowl heating technique, Test tube heating technique, Beaker heating technique. Storage, Use, Precautions and Disposal of Chemicals- Storage of Chemicals, Waste Management, Use and Precautions of Chemicals.
	C-04	Effects of Chemicals on Environment and Moderate Use - Environmental Pollution by Airborne Substances, Environmental Pollution by Laboratory Solid and Liquid Substances, Effects of chemicals on Environment and Health, moderate use of chemicals, analytical methods (macro, semi-micro, micro), laboratory safety equipment and rules of use - fume hood, blanket, laboratory kit, eyecup, sink, use of fire extinguisher, first aid box, first aid and Use of first aids.
Chapter-4 Chemical Changes	C-37	Chemical Reaction and Rate of Reaction- Green Chemistry, Reaction Direction:(Irreversible Reaction and Reversible reaction), Rate of reaction.
	C-38	Rate constant
	C-39	Order of reaction
	C-40	molecularity of reaction
	C-41	Effect of temperature on rate of reaction (Arrhenius equation), Activation energy, Collision theory.
	C-42	Effect of Pressure on rate of reaction, Effect of concentration on rate of reaction, Effect of catalyst on rate of reaction.
	C-43	Equilibrium of Chemical Reaction- Equilibrium and its Dynamics, Le-Chatelier's Principle
	C-44	Effect of temperature, pressure and concentration on equilibrium, Use in industry (Le-Chatelier's Principle).
	C-45	Law of mass action, Discussion about equilibrium constant (K_p and K_c).
	C-46	Derivation of mathematical expression of K_p and K_c .
	C-47	Acid-Base equilibrium- Theories related to acid-base, Ionic product of water
	C-48	Dissociation constant of acid-base, Degree of dissociation, Acid-Base strength.
	C-49	P_H & P_{OH}
	C-50	Buffer solution
Chapter-5 Vocational Chemistry	C-53	Food Safety- (Chemistry in enhancing Food production, Importance of various elements as fertilizers, Role of chemistry in food preservation, Drying method of Foodstuff, Cooling method of Foodstuff).
	C-54	Food Preservatives- (Natural Food Preservatives, Artificial Food Preservatives, Anti-Microbial Agents, Antioxidants, Vinegar).
	C-55	Food Fractionation- (Stages of Fractionation Fruit Fractionation, Vegetable Fractionation, Fish Fractionation).
	C-56	Mixture- (Colloid, Colloid filtration, Suspension, Preparation of Butter from Milk), TOILETRIES & PERFUMERIES- Rose water preparations, hair oil preparations, telcom powder preparations, vanishing cream preparations, cold cream preparations, lipstick preparations, after shave preparations, henna extract), Cleaners and detergents- (glass cleaner, toilet cleaner).

H.Math 1st Paper (Reference Book: **UDVASH Parallel Text)**

Chapter	Lecture	Syllabus
Chapter-9 Differentiation	HM-59	Exercise - 9.1; Primary discussion of limit, Undefined, Indeterminate limits, Existence of limit, Limit, Characteristics of limit, limits at infinity, infinite limits, some special limits.
	HM-60	Exercise - 9.1; <i>Existence of</i> limits and general limits, Factorization, $\frac{x^n - a^n}{x - a}$, Multiplying numerator and denominator by conjugate,

Chapter-9 Differentiation	HM-61	Exercise - 9.1; infinite limit. $\lim_{x \rightarrow 0} \frac{\sin x}{x}$; $\lim_{x \rightarrow 0} \frac{\tan x}{x}$; $\lim_{x \rightarrow 0} (1+x)^{\frac{1}{x}}$; $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x$ related.
	HM-62	Exercise - 9.2; Continuity of Function, Sandwich Theorem.
	HM-63	Exercise - 9.2; Differentiability of a function, Differentiation by first principle.
	HM-64	Exercise - 9.2; General formulas related to differentiation. Exercise - 9.3; Differentiation of product of functions. Differentiation of quotient of functions,
	HM-65	Exercise - 9.4; Differentiation of composite function.
	HM-66	Exercise - 9.4; Inverse trigonometric function, Differentiation using logarithm.
	HM-67	Exercise - 9.4; <i>L'Hôpital's Rule</i> (Admission Special), Exercise - 9.5: Derivative of implicit function,
	HM-68	Exercise - 9.5: Differentiation of parametric equations. Differentiation of a function with respect to another function, Exercise - 9.6; Successive differentiation, nth derivative.
	HM-69	Exercise - 9.6; Proof related to different successive differentiations, Exercise - 9.7; Physical Application.
	HM-70	Exercise - 9.7; Geometrical Application.
	HM-71	Exercise - 9.8; Increasing function, decreasing function, maxima, minima.
	HM-72	Exercise - 9.8; Problems related to maxima and minima.
Chapter-4 Circle	HM-25	Exercise - 4.1; Concept of Circle, Equation of the circle with center at the origin and radius r, Equation of a circle with specific center and radius, General Equation of Circle, Some Characteristics of general equation of circle/Conditions for the equation of circle, The sign of g and f in different quadrants, Classification of Circle, Position of a point according to the circle.
	HM-26	Exercise - 4.1; Determination of the equation of a circle using terminal points of diameter, Determining the end points of diameter of a circle Intersection of axes by circle and regarding tangent, Equation of circle not touching or intersecting any of the axes, Equation of circle when its center and any point on the circumference is given.
	HM-27	Exercise - 4.1; Equation of circle passing through the intersection of a straight line/circle and another circle, Equation of circle passing through three fixed points, Equation of circle with center residing on a specific straight line, Related to Circumcircle and Incircle, Exercise - 4.2; Equation of tangent and normal of circle at a fixed point.
	HM-28	Exercise - 4.2; Problems on tangents drawn from points outside the circle, Regarding the determination of the length of a chord of a circle, Determining the coordinates of the nearest and farthest point of the circle from the specified point/line.
	HM-29	Exercise - 4.2; Relative position of two circles, Radical axis and common chord.
	HM-30	Exercise - 4.2; Number of common tangents of two circles and determination of their equation, Polar Equation of Circle, Parametric Equation of Circle.
Chapter-2 Vector	HM-07	Exercise - 2; Quantity, Types of vector quantities or different types of vectors, Addition of Vectors, Vector Subtraction, Internal and external division of a line segment between two points, Geometric proofs using vector addition-subtraction concepts, Components of vectors, Projection & Component, Representation of a vector in two-dimensional cartesian coordinate, Representation of a Vector in Three Dimensional Cartesian Co-ordinates.
	HM-08	Exercise - 2; Problems related to addition, subtraction and quantification of vectors, Determination of unit vector towards, to the opposite or to the parallel of a vector, Multiplication of Vectors, Multiplication of vectors by a scalar quantity, Dot Product of Vectors (scalar multiplication).
	HM-09	Scalar Product of Vectors and Problems Related to Two Perpendicular Vectors, Problems Related to Another Vector in The Same Plane As Two Other Vectors, Problems Related To Determination Of Included Angle Between Two Vectors, Determination Of Perpendicular Projection and Component of Vectors, Vector/cross multiplication/product, Problems related to Vector Cross Product and Two Parallel Vectors.
	HM-10	Exercise - 2; Unit Vector Perpendicular to The Plain Formed by Two Vectors, some information related to area, Problems Related to Determination of the Area of Polygons Using Vectors, the volume of the solid and conditions for three vectors to be coplanar, Vector of Straight line and Cartesian Equations in a Three-Dimensional Co-ordinate System, Vector and Cartesian Equation of a Straight Line Passing Through Two Fixed Points.
Chapter-5 Permutation and Combinations	HM-31	Exercise - 5.1; Addition & multiplication rules of counting Permutation, Factorial & use of nP_r formula, permutation of identical objects, Total permutation of arrangement in n numbers of colors letters(items) taken all at a time, Permutation in case of repetition.
	HM-32	Exercise - 5.1; Keeping some letters (items) together or separate, Not keeping some letters (items) in consecutive position, the position of the letter (or object) is specific, related to rearrangement, Some specific letters (or items) will not change their order.
	HM-33	Exercise - 5.1; Changing of relative positions of some specific letters (or items), Permutation of specific letters from words with different letters, Number formation of specific digits, Formation of odd numbers, Formation of even numbers, Smallest and greatest number from a specific number.
	HM-34	Exercise - 5.1; Cyclic permutation, Exercise - 5.2; Combination, Difference between Permutation and Combinations, Supplementary Combination, Problems related to the use of nC_r formula, Selection Related, Conditional combination - accepts or excludes a specified number of objects.
	HM-35	Exercise - 5.2; Word formation through combination, forming a team or committee, Determine the number of factors, Construct straight lines, triangles, polygons, diagonals and planes from points.
	HM-36	Exercise - 5.2; Determine the intersection point, Division into teams or groups, Problem related to division into teams or groups, Divisibility.

Chapter-10 Integration	HM-73	Exercise – 10.1; Primary discussion of Integration, Some Properties of Integration.
	HM-74	Exercise – 10.1; Integration using general formulae, Integration after simplification, Exercise – 10.2; Method of Substitution, $\int (ax + b)^n dx$, $\int \sin^n x dx$, $\int \cos^n x dx$.
	HM-75	Exercise – 10.2; In the form of $\int \sin Ax \cos Bx dx$, $\int \sin Ax \sin Bx dx$, $\int \cos Ax \cos Bx dx$, $\int \sin^m x \cos^n x dx$, In the form of $\int \frac{dx}{1+\sin ax}$, $\int \frac{dx}{1+\cos ax}$.
	HM-76	Exercise – 10.3; Ideal Integral, In the form of $\int f(x) \cdot f'(x) dx$, $\int f(g(x)) g'(x) dx$, In the form of $\int \frac{f'(x)}{f(x)} dx = \ln f(x) + c$, $\int \frac{f'(x)}{\sqrt{f(x)}} = 2\sqrt{f(x)} + c$.
	HM-77	Exercise – 10.3; Fractions of Quadratic Equation and Irrational forms, In the form of $\int \frac{ax+b}{cx+d} dx$, $\int \frac{ax+b}{\sqrt{cx+d}} dx$, $\int \frac{ax+b}{(cx+d)^n} dx$, Related to $a^2 + x^2$, $a^2 - x^2$, $x^2 - a^2$, In the form of $\int \frac{dx}{a \cos^2 x + b \sin^2 x + c}$; $\int \frac{dx}{a \cos^2 x + c}$; $\int \frac{dx}{a \cos^2 x + b \sin^2 x}$; $\int \frac{dx}{a \cos^2 x + b \sin^2 x}$.
	HM-78	Exercise – 10.3; $\int \frac{x^2 dx}{ax^2+bx^2+c}$; $\int \frac{a+x}{a-x} dx$, $\int \frac{\sqrt{ax+b}}{\sqrt{cx+d}} dx$ Form, $\int \frac{a \cos x + b \sin x}{c \cos x + d \sin x} dx$; Form, $\int \frac{dx}{a+be^{mx}}$, $\int \frac{dx}{a+be^{-mx}}$ and $\int \frac{dx}{ae^{mx}+be^{-mx}}$ form, $\int \frac{e^{mx}+e^{nx}}{e^{px}+e^{qx}} dx$ where, $m - n = p - q$, $\int \frac{dx}{g(x)\sqrt{\phi(x)}}$; where $g(x)$ & $\phi(x)$ are polynomial function
	HM-79	Exercise – 10.4; Integration by Parts, Use of LIATE, $\int \sec^n x dx$; $\int \operatorname{cosec}^n x dx$, $\int e^{ax} \{a f(x) + f'(x)\} dx$ form.
	HM-80	Exercise – 10.5; Integration with help of Partial Fractions, $\frac{x}{(x-1)(x-2)}$, $\frac{x}{(x-1)^2(x-2)}$, $\frac{x}{(x-1)(x^2+1)}$ Form, $\frac{x^3}{(x-1)(x-2)(x-3)}$ Form.
	HM-81	Exercise – 10.6; Concept of Definite Integral, Definite Integral, Method of Substitution for Definite Integrals.
	HM-82	Exercise – 10.6; Special Characteristics of Definite Integral, Net Marked Area, Definite Integral of Even & Odd Functions.
	HM-83	Exercise – 10.7; Area by Using Integration, The Area of the Region Enclosed by the Curve $y = f(x)$ and x Axis within Certain Limits, The Area of the Region Enclosed by the Curve $x = f(y)$ and y Axis within Certain Limits, The Area of the Region Enclosed by Two Curves and Two Straight Lines Parallel to y -Axis (Determination of Area in Respect of x -Axis), The Area of the Region Enclosed by Two Curves and Two Straight Lines Parallel to x -Axis (Determination of Area in Respect of y -Axis), Difference Between Integration and Area.
	HM-84	Exercise – 10.7; Symmetry, Problems Related to Determining Area.

Botany (Reference Book: **UDVASH** Parallel Text)

Chapter	Lecture	Syllabus
Chapter-5 Algae and Fungi	B-27	Fungi (Characteristics, Physical Structure, Cellular Structure), Reproduction of Fungi (Vegetative Reproduction, Asexual Reproduction, Sexual Reproduction), Importance of Fungi (Beneficial and Harmful Effects).
	B-28	Agaricus (Habitat, Physical Structure), Economic Importance of Agaricus, Fungal Diseases, Lichen (Habitat, Characteristics, Structure, Classification), Importance of Lichen.
Chapter-4 Microbes	B-19	Viruses: Contribution of scientists to the discovery of viruses, structure of viruses, types of viruses, parasitism of viruses, emerging viruses, subviral entities, T_2 bacteriophage, corona virus causing COVID-19.
	B-20	Life cycle of viruses, importance of viruses, viral diseases at a glance, description of some viral diseases.
	B-21	Bacteria: Characteristics of bacteria: Distribution and habitat of bacteria: Types of bacteria, structure of ideal bacteria.
	B-22	Reproduction of bacteria, importance of bacteria, description of some bacterial diseases.
	B-23	Malaria: Malaria infection, treatment, prevention and control of malaria, life cycle of malaria parasite in human body.
B-24	Life cycle of malaria parasite in mosquito body, alteration of generation of malaria parasite.	
Chapter-6 Bryophyta and Pteridophyta	B-29	Bryophyta: Introduction to Bryophytes, Characteristics of Bryophytes, Riccia: Characteristics, External Structure, Internal Structure, Reproduction of Riccia, Alteration of generation of Riccia.
	B-30	Pteridophyta: Characteristics of Pteridophyta, Pteris: Physical structure, Internal structure, Reproduction of Pteris, Alteration of generation of Pteris, Economic importance of Pteris.
Chapter-7 Gymnosperm and Angiosp	B-31	Gymnosperm (Introduction, Characteristics), Cycas (Characteristics, Structure, Reproduction).
	B-32	Angiosperm (Introduction, Characteristics), Difference Between Gymnosperms and Angiosperms, Introduction to angiosperms: Habitat, Root, Stem, Leaf, Inflorescence.
	B-33	Aestivation, Placentation, Fruits.
	B-34	Floral formula, floral diagram, Poaceae family, Malvaceae family, differences between Poaceae and Malvaceae families, differences between monocots and dicots.

Zoology (Reference Book: **UDVASH** Parallel Text)

Chapter	Lecture	Syllabus
Chapter-4 Human Physiology: Blood and Circulation	Z-19	Blood, blood components, plasma, red blood corpusle.
	Z-20	White blood corpusle, types, platelet.
	Z-21	Blood coagulation process, lymph, lymphatic system, types of blood vessels.
	Z-22	Human heart (location, shape, covering, wall), structure of cardiac muscle, chambers of the heart, valves of the heart, circulation of blood through the heart.
	Z-23	Heartbeat: cardiac cycle, myogenic control, conduction of impulses.
	Z-24	Blood Pressure and Baroreceptors, Blood Circulation in the Human Body (Systemic, Pulmonary, Coronary, Portal)
Z-25	Heart disease, chest pain or angina, heart attack, heart failure, treatment concepts, mechanical pacemaker, open heart surgery, coronary bypass surgery.	

Chapter-5 Human Physiology: Breathing and Respiration	Z-26	Respiration, Stages of Respiration (Exhalation and Inhalation), Difference between Exhalation and Inhalation, Parts of Respiratory System.
	Z-27	Lungs, Function of the respiratory system, ventilation mechanism, Gaseous exchange.
	Z-28	Control of ventilation, Diseases of respiratory system, Artificial respiration.
Chapter-6 Human Physiology: Wastes and Excretion	Z-29	Different types of waste products of animals, human excretory system, structure and function of kidney, ultrastructure of kidney-nephron, function of nephron.
	Z-30	Physiology of excretion (nitrogenous waste production and urine formation), urine, role of kidney in excretion and osmoregulation, renal failure, dialysis, renal transplantation, hormonal action.

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