NEW INDIA AGENCIES

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SCIENCE

6th Standard - 12th Standard

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NEW INDIA AGENCIES

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6th Standard

Term 1

1.Measurements

1. Measurements and Measuring Tools

2. Forces and Motion

2. Motion
3. Science Today - Robot

3. Matter Around Us

4. Matter Around Us
5. Physical Nature of Matter
6. Particles in Solids, Liquids and Gases
7. ● Compressible as compared to liquids and solids
   ● Solid state, liquid state, gaseous state
8. Separation Techniques
9. Sedimentation, Decantation
10. Filtration

4. The Living World of Plants

11. Plant forms and functions
12. ● Root System ● Shoot System
    ● Structure of Leaf
13. Types of habitat

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15. Amoeba
16. Paramecium
17. Euglena
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22. Vitamins
23. Balanced Diet
24. Bacteria and Bacterial Diseases
25. Virus and Viral Diseases

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28. Flow of Heat
29. Heat - an Internal View
30. Thermal Expansion - Uses and Examples
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2. Electricity

32. Electricity - Powers and Sources
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    ● Atomic power stations
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35. ● Electric Circuits
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    ● Open and Closed Circuit
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37. Circuits and cells
38. Conductors and Insulators

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39. Physical and chemical changes

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41. Air - 2
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43. Proof for release of oxygen in Photosynthesis and Proportion of Oxygen and Nitrogen in Air
44. Photosynthesis
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49. Ranges of Cell Size
50. ● Types of Cells
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51. Plant Cell
52. Animal Cell
53. Three dimension cells structure
54. Cell components and their functions

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55. Human Organ systems
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57. Muscular System
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59. Digestive System
60. Respiratory System
61. Circulatory system
62. Heart
63. Nervous System
64. Human Brain and Human Eye
65. Human Ear and Skin
66. Endocrine System
67. Kidneys
68. Excretory System

7. Parts of Computer

69. Computer Parts and Classifications
70. Memory Units
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1. Magnetism

72. Magnet of different shapes
73. Properties of Magnets
74. Usage of Magnets

2. Water

75. Water in Human Body
76. Availability of Water
77. Water (Sources, Usage & Water Cycle)
78. Water Cycle (2)
79. Ground water
80. The Water distribution and water treatment system

3. Chemistry in Everyday life

81. Things used daily related to chemistry
82. Soaps and Detergents
83. Chemistry in everyday life

4. Our Environment

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85. Pond - ecosystem
86. Food Chain and Energy Flow

87. Our Environment and Ecosystem
88. Food web
89. Solid Waste Management

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90. Plants in daily life
91. Medicinal plants
92. Indian Spices

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7th Standard

Term 1

1. Measurement

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95. Measurement
96. Area of regularly shaped figures
97. Density
98. Perihelion and Aphelion position of earth

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99. Distance and Displacement
100. Distance – Time Graphs
101. Speed – time graphs
102. Centre of gravity for Regular – shaped objects
103. Stability

3. Matter Around Us

104. Molecules
105. Configuration of Matter
106. Molecules of Compounds and Molecules of some compounds
107. Symbol of an element

4. Atomic Structure

108. Form the Matter Molecule Atom to the Quark to the Strings
109. Evolution of idea of an atom
110. Evolution of the atomic structure from the 5 elements
111. Stages of discovery of the constituents of an atom
112. Atomic number and Mass number

5. Reproduction and Modification in Plants

113. Sexual Reproduction in Plants
114. Petal and Sepal, androecium - Male Part of the Flowers - Gynoecium – Female reproductive part
115. Bisexual Flower and Unisexual Flower
116. Pollination
117. Life cycle of a plant
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119. Modification of Plant Parts and Modification of Root
120. Aerial Modifications and Underground modifications

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121. Human Diseases and Remedial measures
122. Health Risks
123. cholera and Typhoid
124. Hepatitis
125. Rabies

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Difference
128. Fahrenheit Scale and Celsius Scale
129. Heat and Temperature

2. Electricity

130. Structure of Atom and Electric Current
131. Conventional Current and Electron Flow
132. Primary cell – simply Dry cell
133. Circuit diagrams
134. Series circuit and Parallel Circuit
135. Electricity
136. Conductors and Insulators
137. Effects of Electric current
138. Heating effect and Telephone

3. Changes Around Us

139. Effect of heat on solid, liquid and gases
140. Evaporation, Condensation and Crystallization
141. Fermentation
142. Exothermic and Endothermic
143. Periodic change and non-periodic change

4. Cell Biology

144. Cell as a fundamental unit of life
145. Unicellular organisms and Multicellular Organism
146. Human body
147. Plant body
148. Cell in Human body
149. Plant cell
150. Animal cell
151. Specialised cell - Structure and Function
152. Stem cells
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154. Golgi apparatus and Lysosome
155. Structure of a Centriole
156. Structure of Endoplasmic reticulum
157. Structure of Nucleus

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164. Plant Classification
165. Ferns, Gymnosperms, Angiosperms, Kingdom Monera
166. The Five Kingdom Classification
167. Kingdom - Protista, Fungi, Plantae, Animalia
168. Important Characteristics of Five Kingdoms

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169. Tools Icons

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171. Pinhole Camera
172. Types of Reflection

173.Types of beam of light
174.Shadows
175.Solar eclipse and Lunar eclipse
176.Properties of Light
177.Synthesis of colour

2. Universe and Space

178. Phases of moon
179.Heliocentric model.
180.Origin of the Universe
181. Name of Constellations
182.Universe

3. Polymer Chemistry

183.Polymer
184.Fibres
185.Two types of Polymer
186.Plastic Resin Code Chart
187.PLA Plastics
188.Landfill and Plastic Eating Bacteria

4. Chemistry in Daily Life

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190.Analgesics
191. Flame and its Structure
192.Chemistry in Daily Life
193.Fire extinguisher
194.The different types of extinguisher tackle different types of fire

5. Animals in Daily Life

195.Life cycle of butterfly
196.Silk
197.Animal protection and maintenance

6. Visual Communication

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8th Standard

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1. Measurement

199.Various Scales to measure Temperature Various Thermometers
200.Measure the current in an electric circuit
201.Plane Angle and Solid Angle
202.Accuracy and Precision
203.Measurement (Mind Map)

2. Forces and Pressure

204.Manometer
205.Thrust and force

3. Light

206.Laws of Reflection
207. ● Periscope
● Snell's Law
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4. Matter

209.Greek symbols, Pictorial symbols, Dalton Symbols
210.Berzelius symbols
211. A Comparative Study of Metals and Non-Metals
212.Compounds in solid, liquid, gas
213.Uses of Compounds
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5. Changes Around Us

215.Effects of Chemical Reactions
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217.Different shapes of virus
218.Bacteria cell structure
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3. Air

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259. Nitrogen fixation
260. Greenhouse effect and Acid rain
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4. Atomic Structure

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263. Emission of Electrons
264. Emission of Protons
265. Thomson's Atom model
266. Valency of atoms
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268. Movements in Earthworm
269. Movement in Fish (Swimming)
270. Types of movable joints
271. Types of joints in human
272. Synovial joint in human.
273. Types of bones in human
274. Skull bone in human
275. Vertebral column in human
276. Rib cage in human
277. Types of skeleton and Pectoral girdles
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279. Muscles
280. Types of muscles
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6. Reaching the age of Adolescence

282. The endocrine system
283. Adam's apple
284. Menstrual Cycle
285. Balanced diet
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1. Sound

288. Vibrating tuning fork, Transverse wave, Longitudinal wave
289. Musical instruments
290. Structure of Larynx
291. Human Ear
292. Sound (Concept Map)

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293. Natural Magnet, Artificial Magnets and their Difference
294. Repulsive Property and Directive Property
295. Magnetic Field
296. Earth as a magnet and Core of the Earth
297. Magnetism (Concept Map)

3. Universe and Space Science

298. Parts of a Rocket
299. Cryogenic Fuels
300. Launching of Rocket
301. Universe (Concept Map)

4. Water

302. Electrolysis of Water
303. Preparation of Water
304. Water treatment stages
305. Hard water forming foam
306. Types of Pollutants
307. Water (Concept Map)

5. Acids and Bases

308. Acids and their sources
309. Nucleic acid

310. Uses of Bases
311. Acids and Bases (Concept Map)

6. Chemistry in Everyday Life

312. Formation of Hydrocarbons
313. Natural Gas and Composition of Producer Gas
314. Production of coal gas
315. Bio gas
316. Fractional Distillation
317. Places where petroleum is extracted
318. Extraction of Petroleum
319. Chemistry in Everyday Life (Concept Map)

7. Crop Production and Management

320. Ingredients of Panchagavya
321. Crop Production and Management (Concept Map)

8. Conservation of Plants and Animals

322. Global warming and IUCN Red List Categories
323. Conservation of plants and animals (Concept Map)

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324. Text Document

9th Standard

1. Measurement

325. ● Unit systems of earlier times
● Fundamental and Derived quantities and their units
326. Vernier Caliper
327. Screw Gauge
328. Things used to measure mass
329. Measurments (Concept Map)

2. Motion

330. The distance – Time graph
331. Velocity – Time graph
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3. Fluids

333. ● Thrust and Pressure
● Pressure due to Fluids
● Pressure in Fluids
334. Atmospheric pressure
335. Mercury barometer, Hydraulic press, Hydrometer
336. ● Buoyant force
● Archimedes' Principle
● Laws of flotation
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338. Electric charges
339. Electric current
340. Ammeter and Voltmeter in a circuit
341. Common symbols in electrical circuits
342. Typical and Different electrical circuits
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344. Magnetic effect of current
345. Deflection of current carrying wire in magnetic field
346. Fleming's left hand and right hand rule

347. Force on current carrying conductors when viewed perpendicular to the direction of current
348. Turning effect in a coil
349. Principle of electric motor and AC generator
350. Electromagnetic induction by moving the coil and Magnet
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353. Reflection of Light
354. Curved Mirrors
355. Concave Mirror
356. Convex Mirror, Refraction of light, Total Internal Reflection
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358. Conduction and Land breeze, sea breeze
359. Concept of temperature
360. Change of state
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362. Bell-Jar experiment and Sound is a wave
363. Intensity level of sound
364. Speed of sound in different media
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373.Simple and Fractional distillation
374. Brownian movement and Tyndall effect, Emulsions
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377. Deflection of □-particle by a gold leaf
378. Arrangement of electrons in atoms of elements having atomic from 1 to 20.
379. Geometric representation of atoms of the first twenty elements.
380. Isotopes, Isobars and Isotones
381. Gay Lussac's Law of Combining Volumes
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383. Newlands' Law of Octaves, Dobereiner's law of triads
384. Mendeleev's Periodic Table
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387. Formation of sodium ion and Formation of chloride ion
388. Chemical bonding and Formation of ionic bond
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394. Inorganic carbon compounds
395. ● Catenation in carbon
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396. Difference between Diamond and Graphite
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398.Electrolytic Cell, Radio Chemistry
399. Food Additives
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17. Animal Kingdom

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404. Types of Parenchyma
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406. Xylem Longitudinal and Transverse Section
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409. Squamous Epithelium
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412. Ligament,
413. Blood cells
414. Muscle tissue
415. Neuron
416. Amitosis, Events of Mitosis, Cytokinesis
417. Events of Meiosis
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420. ● Hydrotropism
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421.Parts of human digestive system
422. Different kinds of teeth
423. Bile duct and Pancreatic duct opening into duodenum
424. Process of Digestion

425. ● Excretory system
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426. Structure of Nephron
427. Male and Female reproductive system
428. Organ Systems Involved in Digestion, Excretion and Reproduction (Concept Map)

21. Nutrition and Health

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430. ● Minerals - Dietary sources, Functions and Deficiency disorders
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431. Structure of a bacteria
432. Tobacco mosaic virus, Shapes of bacteria
433. Adenovirus, Influenza virus
434. Structure of fungi, T4 bacteriophage
435. Airborne diseases caused by bacteria and virus
436. Waterborne diseases caused by bacteria and virus
437. Dengue
438. Transmission of Avian influenza virus and HIV
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23. Economic Biology

440. Drugs derived from Medicinal plants
441. Hydroponics, Aeroponics, Aquaponics
442. Cattle breeds
443. Vermicomposting bin
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24. Environmental Science

445. Water cycle
446. Nitrogen cycle
447. Carbon cycle
448. ● Water Recycling
● Red list categories of IUCN
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450. Computer - History of computer

26. Parts of Computer

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452. Types of Cables

27. Hardware and Software

453. Hardware of a computer and Software of a computer

10th Standard

1. Laws of Motion

454. Action of forces
455. Rotating Effect of Force, Moment of the force, Principle of Moments
456. ● Conservation of Linear Momentum
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457. Apparent weight of a person in a moving lift
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461. Refraction Through a Convex and Concave Lens
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470. A simple electric circuit, Electric potential OHM's law
471. Symbols of some components of a circuit
472. Parallel and Series connections of resistors
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5. Acoustics

476. Sound waves, Longitudinal Waves and Reflection of sound
477. ● Reflection at the boundary of a denser medium
● Doppler effect
478. Expression for apparent frequency due to Doppler effect
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6. Nuclear Physics

480. Comparison between Natural and Artificial Radioactivity
481. Properties of alpha, beta and gamma rays
482. Alpha decay, Nuclear fission, Uncontrolled chain reaction, Atom bomb, Nuclear fusion
483. Schematic diagram of a nuclear reactor
484. Radio Activity (Concept Map)

7. Atoms and Molecules

485. Classification of molecules
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8. Periodic Classification of Elements

488. Periodic Classification of Elements
489. Atomic Radius, Ionic Radii, Electro negativity
490. Magnetic separation, Froth floatation
491. Hall's Process and Rusting
492. Blast Furnace

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494. Components Of Solutions
495. Types of binary solutions
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10. Types of Chemical Reactions

498. Types of Chemical Reactions
499. State of physical equilibrium, Ionic Product of Water
500. PH Scale and its Table
501. Rusting of Iron (Concept Map)

11. Carbon and its Compounds

502. Classification of organic compounds
503. ● Hydrocarbons containing 1to 5 carbon atoms
● Test to identify unsaturated compounds
504. Classes of organic compounds based on functional group
505. Components of an IUPAC name
506. IUPAC Name of various classes of compounds
507. Cleansing action of soap
508. Comparison between soap and detergents
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12. Plant Anatomy and Plant Physiology

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511. Transverse section of Dicot root
512. Transverse section of Monocot root
513. Transverse section of Dicot stem
514. Transverse section of Monocot stem
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517. Transverse section of Monocot Leaf
518. ● Ultrastructure of Chloroplast and Overview of Hill and
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519. Structure of Mitochondria and Structure of Oxysomes
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522. Digestive system of Leech
523. ● Divisions of Body in Leech
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524. Nervous system of Leech
525. Reproductive system of Leech
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527. Digestive System of Rabbit
528. Dentition of Rabbit and Lungs of Rabbit
529. Heart of Rabbit and Brain of Rabbit
530. Male reproductive system of Rabbit
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533. • Root Tip with Root Hairs
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534. • Symplastic and Apoplastic pathways of Water
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535. Blood Red cells and White cells

536. • Differences between Artery and Vein
- Structure of blood vessel

537. External structure of human heart

538. Systemic and Pulmonary circulation

539. Stethoscope

540. Lymphatic System in Man

541. Transportation in plants (Concept Map)

15. Nervous System

542. • Neuron - Structure and types
- Nerve impulse transmission

543. • Meninges of Brain
- Structure of Brain

544. Structure of spinal cord, Reflex action and its pathway

545. Sympathetic and Parasympathetic nervous system

546. Human Nervous System (Concept Map)

16. Plant and Animal Hormones

547. Hormonal interaction in plant growth and development

548. Went's Experiment

549. Cell Elongation and Senescence and abscission

550. Pituitary Gland

551. Thyroid Gland and Parathyroid Gland

552. Pancreas

553. Adrenal Gland and Thymus Gland

554. Plant Hormones and Endocrine Glands (Concept Map)

17. Reproduction in Plants and Animals

555. Vegetative reproduction by leaf and stem

556. Fragmentation in Spirogyra and Fission in Amoeba

557. Budding in Yeast and Spore formation in Rhizopus

558. Parts of a flower and Structure of Anther and Pollen grain

559. Gynoecium and Structure of the Ovule

560. Process of Fertilization

561. Cross section of human testes and human ovary

562. Structure of sperm and Structure of ovum

563. Menstrual cycle

564. Gestation

565. Reproduction in plants (Concept Map)

566. Sexual Reproduction In Human (Concept Map)

18. Heredity

567. Constrasting characters of pea plant used by Mendel

568. Monohybrid cross

569. Dihybrid Cross

570. Structure of chromosome
571. Types of chromosomes based on position of centromere
572. Structure of DNA
573. Nucleotides in a DNA
574. Replication of DNA
575. Sex determination in human
576. Heredity (Concept Map)

19. Origin and Evolution of Life

577. Homologous organs
578. Analogous organs
579. Evidences from Embryology
580. Flow chart showing the postulates of Lamarckism and Darwinism
581. Evolution (Concept Map)

20. Breeding and Biotechnology

582. Mass Selection
583. Outbreeding
584. Development of Dolly
585. Genetic engineering technique
586. Differentiation of stem cells
587. Plant Breeding (Concept Map)
588. Animal Breeding and Biotechnology (Concept Map)

21. Health and Diseases

589. Harmful Effects of Alcohol to Health
590. Abuses and Disorders due to Lifestyle Modification (Concept Map)

22. Environmental Management

591. Rain water Harvesting
592. Conventional Wastewater Treatment
593. Environmental management (Concept Map)

PRACTICALS

594. Determination of Focal Length of a Convex Lens
595. Photosynthesis-test Tube And Funnel Experiment (demonstration)
596. Parts of A Flower
597. To Study The Law of Dominance
598. Transverse section of Dicot Stem
599. Transverse section of Dicot Root
600. Human Heart and Human Brain
601. Identification of Endocrine Glands

11th Standard PHYSICS VOL - 1

1. Nature of Physical World and Measurement

602. Branches of Physics
603. Different between Classical Physics and Modern Physics
604. SI Base Quantities and Units
605. Derived Quantities and their Units
606. Screw gauge and vernier caliper with errors
607. Parallax method
608. Range of Lengths and Masses
609. Platinum-Iridium Cylinder and The Atomic Clock
610. Order of Time Intervals
611. Rules for counting significant figures and Rounding Off
612. Dimensional Formula
613. Nature of Physical World and

Measurement

2. Kinematics

614. Concept of Rest and Motion
615. Examples of circular motion and Rotational motion
616. Different types of Vectors
617. Addition and Subtraction Vectors
618. ● Components of a Vector
● Multiplication of Vector by a Scalar
619. The Vector Product of Two Vectors
620. ● Area of parallelogram and triangle by vector calculation
● Position Vector
621. Distance and Displacement Differential Calculus
622. Integral Calculus
623. ● Work done by the force
● Graphical Representation of a Physical Quantity
● Average velocity
● Displacement in the velocity–time graph
624. Relative velocity in one and two Dimensional Motion
625. ● Measuring the depth of a well using kinematic equations
● An object thrown vertically
● Horizontal Projection
626. ● Projectile motion
● Relational Motion
627. Angular displacement
628. Circular Motion
629. Measuring Motion

3. Laws of motion

630. Laws of Motion
631. Newton's First Law
632. Newton's Second Law
633. Discussion on Newton's Laws,
634. Moon orbiting in elliptical orbit around the Earth, Zero net force and non zero velocity
635. Application of Newton's Laws
636. Oscillation
637. ● Apply Newton's second law on objects at rest
● Forces acting on clock
638. Applying Newton's third law on the horse and a cart
639. ● Particles moving in an inclined plane
● Two Bodies in Contact on a Horizontal Surface
640. Motion of Connected Bodies
641. Concurrent Forces
642. ● Applying of Lami's Theorem to swing
● Law of Conservation of Total Linear Momentum
643. ● Our body, Our Body and Earth as a system
● Collision
644. Impulse
645. Friction
646. Kinetic Friction and Angle of Friction
647. Salient Features of Static and Kinetic Friction, Coefficient of Static Friction
648. Angle of Repose
649. ● Sliding Friction, Rolling Friction, kinetic friction
● Methods to Reduce Friction
650. ● Reducing kinetic friction using lubricant

- Irregularities on the surface at the microscopic level

651. Centripetal force
652. ● Free body diagram of a particle including the centrifugal force
    ● Effects of centrifugal force
653. ● Outward centrifugal force in rotating platform
    ● Centrifugal force acting on a man on the surface of Earth
654. Salient Features of Centripetal and Centrifugal Forces
655. Motion

4. Work, Energy and Power

656. Work
657. Angle of the work and nature of the work
658. Work done by the constant and variable force
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1798. Nano in Laboratories
1799. Applications of Nano technology - 1
1800. Applications of Nano technology - 2
1801. Diseases Associated to Nanoparticle expoture
1802. Robotics
1803. ● Components of Robotics
● Types of Robots
1804. ● Industrial Robots
● Artifcial Intelligence
1805. Applications of Robots
1806. Advantages and Disadvantages of Robotics
1807. Physics in medical diagnosis and therapy
1808. The recent advancement in medical technology includes
1809. Virtual reality
1810. Precision medicine
1811. Health wearables
1812. Artifcial organs
1813. 3D printing
1814. Wireless brain sensors
1815. Robotic surgery
1816. Smart inhalers
1817. Other recent developments in physics
1818. Cosmology
1819. Quantum information theory
1820. Recent developments in Physics (Concept Map)

12th Standard CHEMISTRY VOL - 1

1.Metallurgy

1821. Harold Johann Thomas Ellingham (1897–1975)
1822. List of some metals and their common ores with their chemical formula
1823. Froth Flotation
1824. Magnetic separation
1825. Ellingham diagram
1826. Metallurgy (Concept Map)

2.p-Block Elements

1827. Kenneth wade (1932–2014)
1828. General electronic configurations and oxidation states of p-block elements
1829. Metallic nature
1830. Some of common allotropes of p-block elements
1831. Physical properties of group 13 elements
1832. Structure of boric acid and Properties of Diborane
1833. Structure of diborane
1834. Physical properties of group 14 elements
1835. Structure of graphite

1836. Structure of diamond and Fullerenes
1837. Structure of carbon nanotubes and graphene
1838. Structure of Ortho silicates and Pyro silicate
1839. Structure of Cyclic silicates and Chain silicates
1840. Structure of Double chain silicates
1841. Structure of Sheet or phyllo silicates

3.p-Block Elements - II

1842. Sir William Ramsay (1852 – 1916)
1843. Physical properties of group 15 elements
1844. ● Reaction of ammonia with HCL
● Structure of ammonia
1845. Oxides and oxoacids of nitrogen
1846. Structures of oxides of nitrogen
1847. Structures of oxoacids of nitrogen
1848. Preparation of oxoacids of nitrogen
1849. Structure of white phosphorous and red phosphorous
1850. Structure of phosphine and phosphorus trichloride
1851. Structure of P2O3 and P4O10
1852. Oxoacids of Phosphorous Structure and Preparation
1853. Physical properties of group 16 elements
1854. Structure of ozone and sulphur dioxide
1855. Structure of oxoacids of sulphur:
1856. Physical properties of group 17 elements
1857. ● General Properties of hydrogen halides
● Acidic properties
1858. Inter halogen compounds and its structure
1859. Oxides and Oxoacids of halogen
1860. Physical properties of Inert gases
1861. Structures of compounds of Xenon

4.Transition and Inner Transition Elements

1862. Martin Heinrich Klaproth (1743— 1817)
1863. Position of d- block elements in the periodic table
1864. Lattice structures of 3d, 4d and 5d transition metals
1865. Variation in melting point of 3d series elements
1866. Variation of atomic & ionic size
1867. Variation in ionisation energy of 3d series elements
1868. ● Oxidation state
● Standard electrode potentials of transition metals - 1
1869. Frost diagram
1870. E0 M2+/M - 3d series
1871. ● Standard electrode potentials of transition metals - 2
● M3+/M2+ - 3d series
1872. Magnetic properties
1873. Structure of chromate ion, dichromate ion and

permanganate ion
1874. Position of inner transition elements
1875. Electronic configuration of Lanthanum and Lanthanoids
1876. Variation of atomic radii of lanthanoids
1877. Electronic configuration of actinoids
1878. Oxidation state of actinoids:
1879. Differences between lanthanoids and actinoids

5.Coordination Chemistry

1880. Alfred Werner (1866 –1919)
1881. Werner's theory of coordination compounds
1882. Inner and outer spheres of attraction in coordination compounds
1883. Table of illustrates the Werner's postulates
1884. Nomenclature of coordination compounds
1885. Naming the central metal
1886. Naming of coordination compounds using IUPAC guidelines - 1
1887. Naming of coordination compounds using IUPAC guidelines - 2
1888. Naming of coordination compounds using IUPAC guidelines - 3
1889. Examples with names list for better understanding of IUPAC Nomenclature
1890. Isomerism in coordination compounds
1891. Linkage isomers
1892. MA_2B_2 MA_2BC $M(xy)_2$ MABCD - isomers
1893. Position of ligands in octahedral complex
1894. Facial isomer and Meridional isomer
1895. Optical isomer - 1 and Optical isomer - 2
1896. Valence Bond Theory
1897. Illustrating the VBT - 1
1898. Illustrating the VBT - 2
1899. Illustrating the VBT - 3
1900. Illustrating the VBT - 4
1901. Octahedral ligand field
1902. Crystal field splitting in octahedral field
1903. Tetrahedral ligand field
1904. d-orbitals in tetrahedral ligand field
1905. Crystal field splitting in tetrahedral field
1906. Crystal filed splitting Energy and nature of ligands
1907. Complex: [Fe(H2O)6]3+
1908. Complex: [Fe(CN)6]3-
1909. Colour of the complex and crystal field splitting energy and d-d Transition
1910. Non-bridged metal carbonyls
1911. Bridged carbonyls
1912. Bonding in metal carbonyls
1913. Significance of stability constants

1914. Coordination Compounds (Concept Map)

6.Solid State

1915. Sir William Henry Bragg (1862 –1942) and Sir Lawrence Bragg (1890 –1971)
1916. Classification of solids
1917. differences between crystalline and amorphous solids
1918. Isotropy
1919. Ionic solids
1920. Polar molecular solids and Crystal lattice and unit cell
1921. Primitive and non-primitive unit cell
1922. 14 Bravais Lattices
1923. ● Primitive (or) simple cubic unit cell
● Body centered cubic unit cell
1924. Face centered cubic unit cell
1925. Two dimensional close packing
1926. Simple cubic arrangement
1927. Body Certered Cubic
1928. Formation of first layer and second layer
1929. aba arrangement - hcp structure
1930. abc arrangement – ccp structure
1931. Calculating the packing efficiency in fcc unit cell
1932. Radius ratio and classification of Point defects
1933. Schottky Defect
1934. Frenkel Defect
1935. Metal Excess Defect and Metal Deciency Defect
1936. Solids (Concept Map)

7.Chemical Kinetics

1937. Svante August Arrhenius (1859 –1927)
1938. Change in concentration of A and B for the reaction A B
1939. Concentration of cyclopropane vs time - graph
1940. Rate of isomerisation and Rate constant for isomerisation
1941. Differences between rate and rate constant of a reaction:
1942. Differences between order and molecularity
1943. Integrated rate law for a first order reaction
1944. Integrated rate law for a zero order reaction
1945. Progress of the reaction
1946. Orientation of reactants - schematic representation
1947. Effect of presence of catalyst
1948. Chemical kinetics (Concept Map)

8. Ionic Equilibrium

1949. Peter Joseph William Debye
1950. Conjugate acid - base pair
1951. Lewis concept
1952. Lewis acids and Lewis bases
1953. Strength of Acids and Bases
1954. Universal Indicator pH Color Chartw3f
1955. Relation between pH and pOH
1956. Calculating pH of 10^{-7} M HCL

9. Electro Chemistry

1957. Walther Hermann Nernst
1958. Conductivity cell
1959. Schematic diagram of a conductivity cell in a wheatstone bridge circuit
1960. Variation of molar conductance with concentration
1961. Applications of Kohlrausch's Law
1962. Daniel cell
1963. Galvanic cell notation
1964. Standard Hydrogen electrode (SHE)
1965. emf measurement (Zn | Zn^{2+} electrode)
1966. Electrolysis of molten NaCl
1967. Electrolysis of various electrolytes using same quantity of charge
1968. Leclanche cell
1969. Mercury button cell
1970. Li-ion battery
1971. H_2 O_2 fuel cell
1972. Rusting of iron
1973. Electrochemical series

10. Surface Chemistry

1974. Irving Langmuir
1975. Distinction between chemical and physical adsorption
1976. ● Physical and Chemical Adsorption
● log x m vs log p graph
1977. Hydrogenation of ethylene in presence of a nickel catalyst.
1978. Finely divided catalyst is more effective due to increase in the number of active centres
1979. Enzyme Catalysis
1980. ● Rate - Temperature
● Rate - pH
1981. Nano Catalysis
1982. Classification of colloids based on the physical state of dispersed phase and dispersion medium
1983. Colloid mill
1984. Bredig's are method
1985. Ultrasonic dispersion
1986. Electro Dialysis
1987. Tyndall effect
1988. Brownian movement
1989. Electrical double layer
1990. Electrophonesis
1991. Electrophonesis
1992. Sewage disposal

11. Hydroxy Compounds and Ethers

1993. Alfred Bernhard Nobel
1994. Classification of alcohols
1995. IUPAC Nomenclature
1996. Preparation of glycol and glycerol

1997. Lucas test
1998. Victor Meyer's test
1999. Physical properties of
2000. Alkyl halide formation of tertiary alcohols follow SN1 mechanism
2001. Conversion of alcohol into alkyl halides: Other methods
2002. Elimination reactions of alcohols
2003. Saytzeff 's rule
2004. Oxidation of alcohols
2005. Swern and Biological oxidation
2006. Catalytic dehydrogenation
2007. Reactions of Glycol
2008. Dehydration reaction
2009. Oxidation of glycol
2010. Reaction and Dehydration of Glycerol
2011. Oxidation of Glycerol
2012. Comparison of acidity of 1°, 2° and 3° alcohols
2013. pKa Values of some alcohols and phenols
2014. Classification of phenols
2015. ● Preparation of Phenols
● From halo arenes
● From benzene sulphonic acid
2016. ● Preparation of Phenols
● From aniline
● From cumene
2017. Chemical Properties of Phenols
● Reaction with Zn dust and with ammonia
● Formation of esters
2018. ● Chemical Properties of Phenols
● Formation of ethers
● Oxidation and Reduction
2019. Reactions of benzene ring
● Nitrosation and Nitration
2020. ● Reactions of benzene ring
● Sulphonation
● Halogenation
2021. ● Reactions of benzene ring
● Kolbe's Schmit reaction
● Riemer – Tiemann Reaction
2022. ● Reactions of benzene ring
● Phthalein reaction
● Coupling reaction
2023. Test to differentiate alcohol and phenol
2024. Classification of Ethers
2025. Structure of functional group
2026. Naming of Ethers According to IUPAC Nomenclature
2027. Mechanism of Ethers
2028. Mechanism of Williamsons synthesis
2029. Methylation of alcohol
2030. Physical Properties of Alcohol
2031. Chemical Properties of ethers
2032. ● Autooxidation of ethers
● Some of the reaction of diethyl ether
2033. Aromatic electrophilic substitution reactions
2034. Alcohol

12. Carbonyl Compounds and Carboxylic Acids

2035. Adolf von Baeyer88. Nomenclature of Aldehydes and ketones

2036. Structure of carbonyl group
2037. General methods of preparation of aldhydes and ketones
2038. Hydration of alkynes
2039. From calcium salts of carboxylic acids
2040. Preparation of aldehydes
2041. Preparation of benzaldehyde
2042. Preparation of benzaldehyde
2043. Physical properties of aldehyds and ketons
2044. Chemical properties of aldehydes and ketones
2045. Addition of HCN
2046. Addition of NaHSO3
2047. Addition of alcohol
2048. Addition of ammonia and its derivatives
2049. Reaction with hydroxyl amine, hydrazine and phenyl hydrazine
2050. Reaction with NH3
2051. Urotropine - Structure and Uses
2052. Oxidation of aldehydes and ketones
2053. Reduction reactions
2054. Reduction to hydrocarbon
2055. Reduction to pinacols
2056. ● Reaction involving alkylgroup
● Aldol condensation
2057. ● Reaction involving alkylgroup
● Crossed aldol condensation
2058. ● Some important reactions of benzaldehyde
● Claisen – Schmidt Condensation
● Cannizaro reaction
2059. Mechanism of Cannizaro reaction
2060. Benzoin condensation and Perkins' reaction
2061. Knoevenagal reaction and Reaction with amine
2062. Condensation with tertiary aromatic amines
2063. Electrophilic substitution reactions of benzaldehyde
2064. Test for Aldehydes
2065. Uses of Aldehydes and Ketones
2066. IUPAC nomenclature of Carboxylic acids
2067. Structure of carboxyl group
2068. ● Methods of Preparation of carboxylic acids
● From Primary alcohols and aldehydes
● Hydrolysis of Nitriles
● Acidic hydrolysis of esters
2069. ● Methods of Preparation of carboxylic acids
● From Grignard reagent
2070. ● Methods of Preparation of carboxylic acids
● Hydrolysis of acylhalides and anhydrides
● Oxidation of alkyl benzenes
2071. Physical Properties of carboxylic acids
2072. Chemical Properties of carboxylic acids
2073. Reactions involving cleavage of O – H bond

2074. ● Reactions involving – COOH group
● Reduction
2075. ● Reactions involving – COOH group
● Decarboxylation and Kolbe's electrolytic decarboxylation
2076. ● Reactions involving – COOH group
● Reactions with ammonia
● Action of heat in the presence of P2 O5
● Electrophilic substitution in aromatic carboxylic acids
2077. Reducing action of Formic acid
2078. Acidity of Carboxylic acids
2079. Ka and pKa values of some Carboxylic acids of 298 K
2080. Effect of substituents on the acidity of carboxylic acid
2081. Functional derivatives of carboxylic acids
2082. Relative reactivity of Acid derivatives
2083. Nomenclature of Compound
2084. Nomenclature of Esters
2085. Nomenclature of Acid Amides
2086. Acid Halides - Methods of Preparation and Physical properties
2087. Chemical properties of Acid Halides
2088. Reduction in Acid Halides
2089. Acid anhydride - Methods of preparation
2090. Acid anhydride - Chemical properties
2091. Physical Properties of Esters
2092. Chemical Properties of Esters
2093. Acid Amides - Methods of preparation
2094. Acid Amides - Chemical properties
2095. Uses of carboxylic acids and its derivatives
2096. Corbonyl Components

13. Organic Nitrogen Compounds

2097. Donald James Cram
2098. Classification of nitrocompounds
2099. Nomenclature of nitroalkanes
2100. Isomerism
2101. Tautomerism
2102. Acidic nature of nitro alkanes
2103. ● Preparation of nitroalkanes
● From alkyl halides: (Laboratory method)
● Vapour phase nitration of alkanes: (Industrial method)
2104. ● Preparation of nitro alkanes
● From α- halocarboxylic acid
● Oxidation of tert – alkyl amines
● Oxidation of Oximes
2105. Preparation of Nitroarenes
2106. ● Chemical properties of nitroalkanes
● Reduction of nitroalkanes
2107. ● Chemical properties of nitroalkanes
● Hydrolysis of nitroalkanes
● Hydrolysis of nitroalkanes
2108. Chemical Properties of

nitrobenzene

2109. Electrolytic reduction

2110. ● Reduction of catalytic and metal hydrides
● Electrophilie substitution reaction

2111. Amines - clasification

2112. Nomenclature of Amines in IUPAC System

2113. Structure of amines

2114. ● General methods of preparation Amines
● From nitro compounds
● From nitriles
● From amides

2115. ● General methods of preparation Amines
● From alkyl halides

2116. ● General methods of preparation Amines
● Ammonolysis of hydroxyl compounds

2117. ● Properties of amines
● Boiling point

2118. Amines forming salts with mineral acids

2119. Influence of structure on basic character of amines

2120. ● Solvation effect of Amines
● Expression for basic strength of amines

2121. Table pKb's of substituted anilines (pKb value of aniline is 9.376)

2122. ● Chemical properties of amines
● Alkylation and Acylation
● Schotten – Baumann reaction

2123. ● Chemical properties of amines
● Reaction with nitrous acid

2124. ● Chemical properties of amines
● Carbylamine reaction
● Mustard oil reaction

2125. ● Electrophilic substitution reactions in Aniline
● Bromination

2126. ● Electrophilic substitution reactions in Aniline
● Nitration

2127. ● Electrophilic substitution reactions in Aniline
● Sulphonation

2128. ● Diazonium Salts
● Introduction and Resonance structure

2129. ● Replacement reactions involving loss of nitrogen
● Replacement by hydrogen

2130. ● Replacement reactions involving loss of nitrogen
● Replacement by iodine
● Replacement of fluorine (Baltz – schiemann reaction)
● Replacement by hydroxyl group

2131. ● Replacement reactions involving loss of nitrogen
● Replacement by nitrogroup
● Replacement by aryl group (Gomberg reaction)
● Replacement by carboxylic acid group

2132. Coupling reactions in diazo group

2133. Nomenclature of cyanides
2134. Methods of preparation of cyanides
2135. Chemical properties of Cyanides
2136. Nomenclature of Alkyl Isocyanides
2137. Methods of preparation of isocyanides
2138. Chemical properties
2139. Nitro Compounds

14. Biomolecules

2140. G.N. Ramachandran
2141. Structure of carbohydrates
2142. Configuration of carbohydrates
2143. Different types of monosaccharides
2144. ● Glucose
● Preparation of glucose
● Structure of aldoses & ketoses
2145. Structure of Glucose -1
2146. Structure of Glucose - 2
2147. Structure of Glucose - 3
2148. Cyclic structures of glucose
2149. Epimers and epimerisation
2150. Preparation of Fructose
2151. Structure of fructose - 1
2152. Structure of fructose - 2
2153. Structure of sucrose, Lactose and Maltose
2154. Structure of Starch (Amylose & Amylopectin)
2155. Structure of Cellulose
2156. Structure of amino acids
2157. Properties of amino acid
2158. Peptide bond formation
2159. Structure of fibrous and globular proteins
2160. Secondary structure of proteins
2161. Four levels of protein structure
2162. Denaturation of proteins
2163. Mechanism of enzyme action (lock and key model)
2164. Vitamins, their Sources, Functions and their Deficiency disease
2165. Nucleic acids
2166. DNA Double Helix
2167. Nitrogen base
2168. Pentose sugar
2169. Difference between DNA & RNA
2170. DNA finger printing
2171. ● Biological functions of nucleic acids
● Energy carriers (ATP)
● Chemical messengers (Example: Cyclic AMP, (AMP)
2172. ● Biological functions of nucleic acids
● Components of enzyme cofactors (Example: Coenzyme A, NAD+, FAD)
2173. Endocrine Paracrine and Autocrine hormones

15. Chemistry In Everyday Life

2174. Vladimir Prelog
2175. Enzymes as drug targets
2176. Receptor as drug targets
2177. Therapeutic action of Different classes of Drugs - 1
2178. Therapeutic action of Different classes of Drugs - 2
2179. Therapeutic action of Different

classes of Drugs - 3
2180. Therapeutic action of Different classes of Drugs - 4
2181. Therapeutic action of Different classes of Drugs - 5
2182. Therapeutic action of Different classes of Drugs - 6
2183. Therapeutic action of Different classes of Drugs - 7
2184. The cleansing action of soap
2185. Detergents
2186. Classification of Polymers
2187. ● Types of polymerisation
● Free radical polymerisation
2188. ● Preparation of some important addition polymers
● Polythene
2189. ● Preparation of Orlon (polyacrylonitrile – PAN)
● Condensation polymerisation
2190. ● Preparation of Orlon (polyacrylonitrile – PAN)
● Nylon – 6,6
● Nylon – 6
2191. Preparation of terylene (Dacron)
2192. Preparation of Bakelite
2193. Melamine (Formaldehyde melamine)
2194. Urea formaldehyde polymer
2195. Natural and Synthetic rubbers
2196. Preparation of Neoprene, Buna-N and Buna-S
2197. Preparation of PHBV
2198. Nylon– 2-Nylon -6

12th Standard BOTONY

1. Asexual and Sexual Reproduction in Plants

2199. Panchanan Maheswari (1904 -1966)
2200. Natural methods of vegetative reproduction in plants
2201. Types of Grafting
2202. Types of Layering
2203. ● Parts of a Flower
● T.S of Mature anther
2204. Stages in the development of anther
2205. Development of male gametophyte
2206. ● Structure of an ovule
● Structure of Embryo sac
2207. ● Types of ovule
● Development of ovule and embryo sac
2208. ● Commelina with Cleistogamous and Chasmogamous flowers
● Dichogamy
2209. Heterostyly
2210. Pollination in Zea mays and Vallisneria
2211. Pollination
2212. Pollination in Salvia - Lever mechanism
2213. ● Fertilization
● Path of pollen tube entry into the ovule
2214. Fertilization in Angiosperms
2215. Post Ferilization changes in the

flower of an angiosperm
2216. Types of Endosperm
2217. Development of Dicot embryo (Capsella bursa-pastoris)
2218. Dicot seed - Cicer arientinum
2219. Monocot seed - Oryza sativa
2220. Pollination in Plants

2. Classical Genetics

2221. Gregor Johann Mende
2222. Steps in cross pollination of pea flowers
2223. Seven characters of Pisum
2224. Mendel's seven characters in Garden
2225. Monohybrid Cross
2226. If heterozygous tall test cross
2227. If homozygous tall test cross
2228. Gene for plant height in Peas
2229. Dihybrid cross - Segregation of gametes
2230. Dihybrid Cross in Garden peas
2231. Molecular explanation of round and wrinkled peas
2232. Dihybrid test cross
2233. Gene Interaction
2234. Incomplete dominance - No blending of genes
2235. Dominant epistasis in summer squash
2236. Intra - genic or Allelic and Non - Allelic interaction
2237. Polygenic inheritance in wheat kernel colour
2238. ● The genetic control of colour in wheat kernels
● Polygenic inheritance in Wheat kernel
2239. Chloroplast inheritance
2240. A cellular explanation of the variegated phenotype of the leaves in Mirabilis jalapa

3. Chromosomal Basis of Inheritance

2241. Comparison of chromosome and gene behaviour
2242. ● Parallelism between Mendelian factors and chromosomal behaviour
● Number of Chromosomes
2243. ● Arrangement of linked and unlinked genes on chromosome
● Cis-Trans arrangement of genes
2244. Alleles in coupling or cis configuration
2245. Alleles in repulsion or trans configuration
2246. ● Linkage groups in some organisms
● Differences between linkage and crossing over
2247. Mechanism of crossing over
2248. The self-incompatibility in relation to its genotype in tobacco
2249. ● Inflorescence of Zea mays
● Sex determination in Maize
2250. Major types of mutations
2251. Types of point mutation\
2252. Types of Ploidy
2253. Types of aneuploidy
2254. Rhaphanobrassica and Triticale

2255.Deletion and Duplication in Chromosome

4. Principles and Processes of Biotechnology

2256.Karl Ereky
2257. Interdisciplinary Fields of Biotechnology
2258.Historical Perspective
2259.Bioreactor
2260.Steps involved in r-DNA Technology
2261.● Type II restriction enzyme with source, recognition & cleavage site
● Sticky and Blunt ends
2262.DNA ligase reaction
2263.Action of Alkaline Phosphatase
2264.Formation of recombinant DNA
2265.Properties of Vector
2266.● Bacterial chromosome and plasmids
● pBR 322 and Ti Plasmid
2267.More vectors to know
2268.● Electroporation Methods of Gene Transfer
● Liposome mediated method of Gene Transfer
2269.Gene gun method of Gene Transfer
2270.● Agrobacterium mediated gene transfer in plants
● Plasmid vector designed for Blue - White screening and Blue - White colony selection method
2271. Replica plating technique
2272.Diagrammatic representation of a typical blotting apparatus
2273.Steps involved in southern blotting technique
2274.Difference between Blotting Techniques
2275.RNA Interference
2276.Algal Biofuel
2277.Hydrogen production by algae

5 .Plant Tissue Culture

2278.Gottlieb Haberlandt
2279.Milestones in Plant Tissue Culture
2280.Totipotency
2281. Basic steps in Plant tissue culture technology
2282.Composition of MS (Murashige and Skoog) Medium
2283.Organ Culture
2284.Meristem Culture
2285.Protoplast Culture
2286.Flow chart of Plant regeneration pathway
2287.Plant Regeneration Pathway

6. Principles of Ecology

2288.R. Misra
2289.Environmental factors affecting a plant
2290.Various effects of light upon a green plant
2291. ● Thermal stratification of pond
● Latitudinal and Altitudinal zonation of vegetation
2292.Soil Profile
2293.Latitudinal and Altitudinal Vegetation
2294.Steepness of mountain

2295. Different interactions of plant
2296. ● Pitcher plant – with insect
● Insectivorous plant Utricularia
2297. Holoparasites
2298. Free floating hydrophyte
2299. Rooted floating hydrophyte
2300. Submerged floating hydrophyte
2301. Rooted - submerged hydrophyte
2302. Rooted emergent hydrophyte- Heterophylly
2303. TS of Hydrilla stem
2304. ● Succulent xerophyte - Aloe
● Non succulent perennial - Ziziphus
2305. Xerophytes
2306. ● TS of Nerium leaf
● TS of a Succulent leaf of Peperomia
2307. TS of an aerial root of Orchid showing velamen tissue
2308. Pneumatophores of mangrove plant
2309. Viviparous type of seed germination

7. Ecosystem

2310. Diagrammatic representation of trophic levels
2311. Diagrammatic representation of energy flow
2312. Ten percent law
2313. Diagrammatic representation of Grazing and Detritus food chain
2314. Diagrammatic representation of Food Web in a grassland ecosystem
2315. Pyramids of numbers
2316. Pyramids of Biomass
2317. Pyramids of Energy
2318. Diagrammatic representation - Process of decomposition and cycling of nutrients
2319. Diagrammatic Sketch showing Carbon cycle
2320. Diagrammatic sketch showing Phosphorous cycle
2321. Diagram shows structure of pond and stratification of Pond ecosystem
2322. Diagrammatic representation of secondary succession
2323. Differences between primary and secondary succession
2324. Types of succession and Classification of plant succession
2325. Diagrammatic representation shows different stages of hydrosere

8. Environmental Issues

2326. Flow chart on biodiversity conservation
2327. Carbon foot print
2328. Pictures of Rain Water Harvesting Structures in Ooraniers
2329. Rain Water Harvesting Structures in Water Supply sources

9. Plant Breeding

2330. Table Vavilov's Centre of Crop

Origin Crops domesticated
2331. Classification of Biofertilizers
2332. ● Root nodules occur on root
● Benefits of AM colonisation
2333. Milestones in Plant Breeding
2334. Mass selection vs Pureline selection
2335. Clonal Selection
2336. Disease resistance varieties
2337. Sequential development of plant breeding techniques

10. Economically Useful Plants and Entrepreneurial Botany

2338. Other common fruits
2339. Preparation of Organic Pesticide

12th Standard ZOOLOGY

1. Reproduction in Organisms

2340. Irregular simple binary fission in Amoeba
2341. Transverse binary fission in Paramecium
2342. Longitudinal binary fission in Euglena
2343. Multiple Fission in Plasmodium
2344. Multiple fission in encysted Amoeba
2345. Strobilation in Aurelia
2346. Sporulation in Amoeba
2347. Budding in Leucosolenia (Sponge) and Budding in Hydra
2348. Gemmule in sponges and Apolysis in Taenia solium
2349. ● Regeneration in Hydra
● Reparative regeneration in star fish
2350. ● Oviparous-Hen with Eggs
● Viviparous-Cow with calf
● Ovoviviparous-Shark and three months embryo
2351. Reproduction (Concept Map)

2. Human Reproduction

2352. Male reproductive system
2353. Diagrammatic view of the male reproductive system
2354. Testis showing inner details
2355. Female pelvis showing reproductive system
2356. Diagrammatic view of female reproductive system
2357. Mammary gland
2358. Gametogenesis
2359. ● Cross sectional view of seminiferous tubule
● Seminiferous tubules (Enlarged)
● Structure of human sperm
2360. ● Sectional view of the ovary
● Diagrammatic view of the human ovum
2361. Different phases of the menstrual cycle
2362. Events of fertilisation
2363. ● From zygote to blastocyst :

passage of growing embryo through the fallopian tube
● Human foetus within the uterus

2364.Stages of Foetal Development

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HUMAN ANATOMY CHARTS

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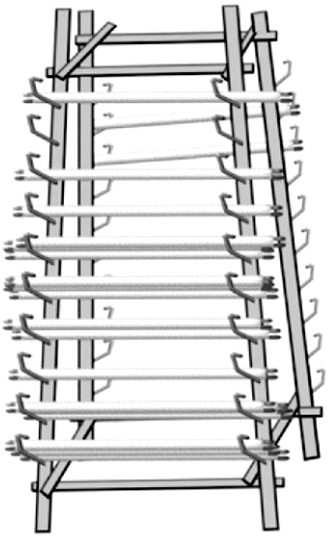

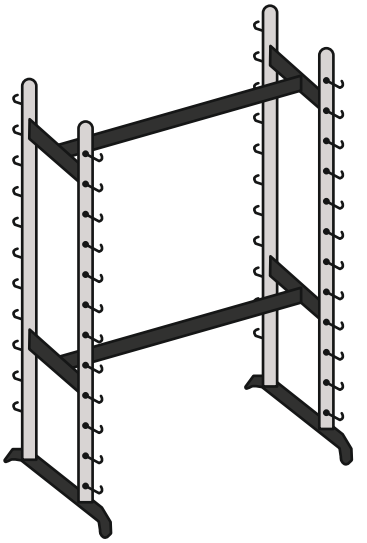

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