RRB NTPC Syllabus 2019 – General Awareness

RRB NTPC Syllabus for General Awareness is given below in detail. General Awareness Section will consist of questions from topics like Environment, Atoms & Molecules, History, Economy etc. Get to know the important topics, nature of questions & weightage of RRB NTPC General Awareness Section here:

General Science (18-20)

Environment (1-2)	Living Organisms(0-1)	Life Processes in Organisms & Plants(0-1)
Heredity & Evolution(1-2)	Natural Resources(0-1)	Atoms And Molecules(1-2)
Chemical Reactions And Equations(1-2)	Acids, Bases And Salts(1-2)	Metals And Non-Metals(1-2)
Periodic Table(2-3)	Force And Laws Of Motion(0-1)	Work And Energy(0-1)
Sound(0-1)	Light(0-1)	Electricity(0-1)
Sources Of Energy(1-2)	Diseases, Reasons And Cures(1-2)	Improvement In Food Resources(1-2)

Current Affairs/General Awareness (30-40)

Economics(4-5)	Current Affairs(3-4)	Geography((3-4)
History(3-4) & Polity(4-5)	Miscellaneous(4-6)	Computer(1-2)
Sports(3-5)	Literature(1-3) & Books and Authors(2-3)	Awards(2-3)

Static GK Notes: Countries, Capitals & Currencies

Country Name	Capital	Currency
Afghanistan	Kabul	Afghani
Algeria	Algiers	Dinar
Angola	Luanda	New Kwanza
Argentina	Buenos Aires	Peso
Armenia	Yerevan	Dram
Australia	Canberra	Australian dollar
Austria	Vienna	Euro (formerly schilling)
Azerbaijan	Baku	Manat
Bahrain	Manama	Bahrain dinar
Bangladesh	Dhaka	Taka
Belarus	Minsk	Belorussian Ruble
Belgium	Brussels	Euro (formerly Belgian franc)
Bhutan	Thimphu	Ngultrum
Bolivia	La Paz (administrative); Sucre (judicial)	Boliviano
Botswana	Gaborone	Pula
Brazil	Brasilia	Real
Brunei	Bandar Seri Begawan	Brunei dollar
Bulgaria	Sofia	Lev

Burundi	Bujumbura	Burundi franc
Cambodia	Phnom Penh	Riel
Canada	Ottawa	Canadian dollar
Central African Republic	Bangui	CFA Franc
Chad	N'Djamena	CFA Franc
Chile	Santiago	Chilean Peso
China	Beijing	Yuan/Renminbi
Colombia	Bogota	Colombian Peso
Cuba	Havana	Cuban Peso
Cyprus	Nicosia	Euro
Czech Republic	Prague	Koruna
Denmark	Copenhagen	Krone
Djibouti	Djibouti	Djibouti franc
Dominican Republic	Santo Domingo	Dominican Peso
Ecuador	Quito	U.S. dollar
Egypt	Cairo	Egyptian pound
El Salvador	San Salvador	Colón; U.S. dollar
Eritrea	Asmara	Nakfa
Estonia	Tallinn	Euro
Ethiopia	Addis Ababa	Birr
Fiji	Suva	Fiji dollar
Finland	Helsinki	Euro (formerly markka)

France	Paris	Euro (formerly French franc)
The Gambia	Banjul	Dalasi
Georgia	Tbilisi	Lari
Germany	Berlin	Euro
Greece	Athens	Euro
Guinea	Conakry	Guinean franc
Guyana	Georgetown	Guyanese dollar
Haiti	Port-au-Prince	Gourde
Hungary	Budapest	Forint
India	New Delhi	Rupee
Indonesia	Jakarta	Rupiah
Iran	Tehran	Rial
Iraq	Baghdad	Iraqi Dinar
Ireland	Dublin	Euro
Israel	Jerusalem	Shekel
Italy	Rome	Euro
Jamaica	Kingston	Jamaican dollar
Japan	Tokyo	Yen
Jordan	Amman	Jordanian dinar
Kazakhstan	Astana (Renamed to **Nur-Sultan)**	Tenge
Kenya	Nairobi	Kenya shilling
Korea, North	Pyongyang	Won

Korea, South	Seoul	Won
Kuwait	Kuwait City	Kuwaiti dinar
Kyrgyzstan	Bishkek	Som
Laos	Vientiane	New Kip
Latvia	Riga	Lats
Lebanon	Beirut	Lebanese pound
Liberia	Monrovia	Liberian dollar
Libya	Tripoli	Libyan dinar
Liechtenstein	Vaduz	Swiss franc
Lithuania	Vilnius	Litas
Luxembourg	Luxembourg	Euro
Macedonia	Skopje	Denar
Madagascar	Antananarivo	Malagasy franc
Malaysia	Kuala Lumpur	Ringgit
Maldives	Male	Rufiya
Mali	Bamako	CFA Franc
Mauritania	Nouakchott	Ouguiya
Mauritius	Port Louis	Mauritian rupee
Mexico	Mexico City	Mexican peso
Mongolia	Ulaanbaatar	Tugrik
Montenegro	Podgorica	Euro
Morocco	Rabat	Dirham
Mozambique	Maputo	Metical

Myanmar	Naypyidaw or Nay Pyi Taw	Kyat
Nepal	Kathmandu	Nepalese rupee
Netherlands	Amsterdam; The Hague (seat of government)	Euro
New Zealand	Wellington	New Zealand dollar
Nigeria	Abuja	Naira
Norway	Oslo	Norwegian krone
Oman	Muscat	Omani rial
Pakistan	Islamabad	Pakistani rupee
Panama	Panama City	balboa; U.S. dollar
Papua New Guinea	Port Moresby	Kina
Peru	Lima	Nuevo sol (1991)
Philippines	Manila	Peso
Poland	Warsaw	Zloty
Portugal	Lisbon	Euro (formerly escudo)
Qatar	Doha	Qatari riyal
Romania	Bucharest	Leu
Russia	Moscow	Ruble
Saudi Arabia	Riyadh	Riyal
Seychelles	Victoria	Seychelles rupee
Sierra Leone	Freetown	Leone
Singapore	Singapore	Singapore dollar
Somalia	Mogadishu	Somali shilling

South Africa	Pretoria (administrative); Cape Town (legislative); Bloemfontein (judiciary)	Rand
South Sudan	Juba	Sudanese Pound
Spain	Madrid	Euro
Sri Lanka	Sri Jayawardenepura Kotte	Sri Lanka rupee
Sudan	Khartoum	Dinar
Sweden	Stockholm	Krona
Switzerland	Bern	Swiss franc
Syria	Damascus	Syrian pound
Taiwan	Taipei	Taiwan dollar
Tanzania	Dar es Salaam; Dodoma (legislative)	Tanzanian shilling
Thailand	Bangkok	baht
Tunisia	Tunis	Tunisian dinar
Turkey	Ankara	Turkish lira (YTL)
Turkmenistan	Ashgabat	Manat
Tuvalu	Vaiaku village, Funafuti province	Australian dollar
Uganda	Kampala	Ugandan new shilling
Ukraine	Kyiv	Hryvna
United Arab Emirates	Abu Dhabi	U.A.E. dirham
United Kingdom	London	Pound sterling

United States of America	Washington D.C.	dollar
Uruguay	Montevideo	Uruguay peso
Uzbekistan	Tashkent	Uzbekistani sum
Vatican City	Vatican City	Euro
Venezuela	Caracas	Bolivar
Vietnam	Hanoi	Dong
Yemen	Sanaa	Rial
Zimbabwe	Harare	Zimbabwean Dollar

List of Important Books & their Authors

- Two Year Eight Months and Twenty –Eight Night –**Salman Rushdie**
- The Red Sari –**Javier Moro**
- Freedom in Exile: **Dalai Lama**
- My Favourite Nature Stories**- Ruskin Bond**
- Neither a hawk nor a dove –**Khurshid M Kasuari**
- Faces and Places Professor –**Deepak Nayyar**
- Indian Parliamentary Diplomacy- **Meira Kumar**
- Farishta –**Kapil Isapuari**
- Super Economies –**Raghav Bahal**
- China: Confucius in the Shadow –**Poonam Surie**
- My country My Life - **L.K.Advani**
- Joseph Anton - **Sulman Rushdie (Autobiography)**
- The Sahara Testaments - **Tade Ipadeola**
- Narendra Modi: A Political Biography - **Andy Marino**
- My Unforgettable Memories - **Mamata Banerjee**
- Rationalised Roman for Kashmiri - **Dr. R L Bhat**
- Strictly Personal, Manmohan and Gursharan - **Daman Singh**
- The Wrong Enemy: America in Afghanistan, 2001- 2014 - **Carlotta Gall**
- Lal Bahadur Shastri: Lessons in Leadership - **Pavan Choudary**
- Walking With Giants - **G. Ramachandran(former Finance Secretary)**

- Crusader or Conspirator? Coalgate and other Truths - **PC Parakh**
- The Accidental Prime Minister: the making and unmaking of Manmohan Singh - **Sanjaya Baru**
- God of Antarctica - **Master Yashvardhan Shukla (At the age of 13)**
- My Years with Rajiv and Sonia - **R.D.Pradhan**
- Khushwantnama -The Lessons of My Life - **Khushwant singh**
- Syntheism – Creating God in The Internet Age - **Alexander Bard**
- One Life is Not Enough - **Natwar Singh**
- The Lives of Others - **Neel Mukherjee**
- My Music My Life - **Pt Ravi Shankar**
- I am Malala - **Malala Yousufzai and Christina Lamb**
- A Man and A Motorcycle, How Hamid Karzai Came to Power - **Bette Dam**
- True Colours — **Adam Gilchrist**
- Assassination of Rajiv Gandhi: An Inside Job? - **Faraz Ahmad**
- The God of Small Things - **Arundhati Roy**
- Interpreter of Maladies - **Jhumpa Lahiri**
- And then One Day: A Memoir - **Nasiruddin Shah (Autobiography)**
- Unaccustomed Earth - **Jhumpa Lahiri**
- Lowland - **Jhumpa Lahiri**
- Truth Always Prevails - **Sadruddin Hashwani**
- Playing It My Way – **Sachin Tendulkar and Boria Mazumder**
- Unbreakable (Autobiography of Mary Kom) - **Mary Kom**
- Enoch, I am a British Indian - **Sarinder Joshua**
- Duroch ModiNomics - **Sameer Kochar**
- Public Issues Before Parliament - **Vijay Darda**
- Water, Peace, and War – Confronting the Global Water Crisis - **Brahma Chellaney Ambedkar**
- Awakening India's Social Conscience - **Dr. Narendra Jadhav**
- Munger through the Ages - **Late DP Yadav**
- Akbar – The Aesthete - **Dr. Indu Anand**
- Runs in Ruins — **Sunil Gavaskar**
- India at Risk - **Jaswant Singh**
- The Narrow Road to the Deep North - **Richard Flanagan (Australian)(Man Booker)**
- Untold Story of the Indian Public Sector - **Dr. UD Choubey**
- Final Test: Exit Sachin Tendulkar - **Dilip D'Souza**
- Worthy Fights: A Memoir of Leadership in War and Peace - **Leon Panetta and Jim Newton**
- Not Just an Accountant - **former CAG Vinod Rai**
- Grandmaster Repertoire - 1.e4 vs The French, Caro-Kann, and Philidor - **Parimarjan Negi**
- A Bend in the river - **V.S. Naipaul**
- Dark Star: The Loneliness of Being Rajesh Khanna - **Gautam Chintamani**
- Half Girlfriend - **Chetan Bhagat**

- Iqbal: The Life of a Poet, Philosopher and Politician - **Biography of Allama Muhammad Iqbal (Spiritual Father of Pakistan)**
- 50 years of man in space - **Garik Israelien, Brian May and David J Eicher**
- Black Tornado: The Three Sieges of Mumbai 26/11 - **Sandeep Unnithan**
- Dramatic Decade: The Indira Gandhi Years - Pranab Mukherjee 2014: The Election That Changed India -**Rajdeep Sardesai**
- Your Dreams Are Mine Now: She Showed him What Love - **Ravinder Singh**
- Born Again on the Mountain- **Arunima Sinha**
- Flood of Fire –**Amitav Ghosh**
- 30 Women in Power: Their Voices, Their Stories- **Naina Lal Kidwai**
- The Courage to Act – A Memoir of a Crisis and Its Aftermath : **Ben S. Bernanke**
- To the Brink and Back: India's 1991 Story :**Jairam Ramesh**
- Globalisation, Democratization and Distributive Justice : **Dr. Mool Chand Sharma**
- Ramcharitmanas (105-year-old Urdu copy): **Shiv Brat Lal**
- Mrs Funny bones :**Twinkle Khanna**
- Making India Awesome : **Chetan Bhagat**
- An Autobiography: **Jawahar Lal Nehru**
- The Kumbh Mela: Mapping the Ephemeral Megacity :**Tarun Khanna**
- R.D. Burman: The Prince of Music :**Khagesh Dev Burman**
- Ghosts of Calcutta :**Sebastian Ortiz**
- Green Signals: Ecology, Growth, and Democracy in India :**Jairam Ramesh**
- Transcendence: My Spiritual Experiences with Pramukh Swamiji : **Abdul Kalam**
- Beyond Doubt: A Dossier on Gandhi's Assassination : **Teesta Setalvad**
- Modi – Incredible emergence of a star (in Chinese language): **Tarun Vijay**
- Education of Muslims : **Professor JS Rajput**
- Sourav Ganguly: Cricket, Captaincy and Controversy:**Saptarshi Sarkar**
- Flood of fire : **Amitav Ghosh**
- Super Economies :Raghav Bahl
- Complete Story of Indian Reforms: 2G, Power & Private Enterprise: **Pradeep Baijal**
- Unbelievable – Delhi to Islamabad: **Prof Bhim Singh**
- Food for All: **Uma Lele**
- Family Life: **Akhil Sharma(winner of the Folio Prize 2015)**
- Faces and Places: **Prof. Deepak Nayyar**
- Indian Parliamentary Diplomacy- Speaker's Perspective: **Meira Kumar**
- Editor Unplugged: Media, Magnates, Netas and Me: **Vinod Mehta**
- Fragile Frontiers: The Secret History of Mumbai Terror Attacks: **SK Rath**
- Why I Assassinated Gandhi: **Nathuram Godse and Gopal Godse**
- **'Life On My Terms: From the Grassroots to the Corridors of Power:** an autobiography of **Sharad Pawar**
- **What Happened to Netaji**? authored by former journalist **Anuj Dhar**
- **'Rebooting India: Realizing a Billion Aspirations: authored** by **Nandan Nilekani and Viral Shah**
- **'Interlinking of Indian Rivers** authored by **Radha Kant Bharati**

- **'Dreaming Big: My Journey to Connect India**: Sam **Pitroda**
- **'Two Years Eight Months and Twenty Eight Nights**: **Salman Rushdie**
- **'The Courage to Act – A Memoir of a Crisis and Its Aftermath'** authored by **Ben S. Bernanke**
- '**Dreaming Big: My Journey to Connect India**: autobiography of Sam Pitroda written with the help of **David Chanoff, an American author.**
- **'Two Years Eight Months and Twenty Eight Nights** authored by the British Indian novelist **Salman Rushdie**
- '**To the Brink and Back: India's 1991 Story'** written by former Union Environment & Forest Minister **(Independent Charge) Jairam Ramesh.**
- **'Making India Awesome'** written by – **Chetan Bhagat**
- **'Green Signals: Ecology, Growth, Democracy in India**' written by **Jairam Ramesh**
- **'Uniki'** written by – **CH Vidyasagar Rao, Governor of Maharashtra.**
- '**Sourav Ganguly: Cricket, Captaincy and Controversy'** written by Saptarshi Sarkar.
- **'Flood of fire'** written by **Amitav Ghosh.**
- **"India Central Asia Relations":** The Economic Dimension authored by **Amiya Chandra**.
- **"Kashmir: The Vajpayee Years"** – authored by **AS Dulat and Aditya Sinha.**
- **"37 Bridges and Other Stories"** – authored by noted Pakistani author **Aamer Hussein**
- **Who Moved My Interest Rate?** authored by **Duvvuri Subbarao**, the former Governor of Reserve Bank of India (RBI)
- "**The Unseen Indira Gandhi**" authored by **Dr. KP Mathur**
- "**A Life in Diplomacy"** written by former Indian diplomat Maharajakrishna Rasgotra.
- "**Courage & Commitment:** An Autobiography by Margaret Alva
- Book "MS: **A life in Music**" authored by **T.J.S. George**
- "**One Part Woman**" authored by Perumal Murugan
- The book "**Ace against Odds**" is the autobiography of Indian tennis player .**Sania Mirza**
- "**Beyond NJ 9842: The Siachen Saga**" authored by **Nitin Gokhale**
- "The **Great Derangement: Climate** Change and the Unthinkable" authored by **Amitav Ghosh**
- "**Ringside With Vijender"** is authored by **Rudraneil Sengupta**
- **"The making of India**: The untold story of British Enterprises**"** authored by Kartar Lalvani
- **'Blood on my Hands**: Confessions of Staged Encounter authored by **Kishlay Bhattacharjee**
- **'Shashi Kapoor** - the Householder, the Star' authored by **Aseem Chhabra**
- **'The Kiss of Life**' authored by **Emraan Hashmi**
- **'Anything But Khamosh**: The Shatrughan Sinha Biography' **authored by Bharathi S Pradhan**
- **'A State in Denial'** authored by **BG Verghese**
- **'No Time to Pause'** authored by - **Pavithra Ramesh**
- **'Param Vir**: A War Diary' authored by **- Manju Lodha**
- **'Hindutva** or Hind Swaraj' authored by - **U.R. Ananthamurthy**

- “**Flying in High Winds**: A Memoir” authored by - K**. Mishra**
- **'Alphabet Soup for Lovers**” authored by - **Anita Nair**
- **'The Life and Death of Adolf Hitler'** authored by **- James Cross Giblin**
- **'The Story of Kashmir through the Ages**” authored by - **Arjan Nath Chaku**
- “**Framed As a Terrorist:** My 14-Year Old Struggle to Prove My Innocence” authored by - Mohammad Aamir Khan
- “**Standing Guard— A year in Opposition**”? authored by - P Chidambaram
- “Gandhi: **An Illustrated Biography**” authored by – **Pramod Kapoor**
- "**That Long Silence**” authored by – Shashi Deshpande
- "**Fixed! Cash and Corruption in Cricket**” authored by - **Shantanu Guha Ray**
- “**Standing On An Apple Box”** authored by – **Aishwarya Dhanush**
- “**Who was Shivaji**?” authored by - **Govind Pansare**
- **'The Z Factor**,” a book written by **Subhash Chandra**
- The Ministry of Utmost Happiness – Arundhati Roy
- The Birds of Banni Grassland – Gujarat Institute of Desert Ecology – Released by Hon’ble PM Narendra Modi
- Age of Anger: A history of the Present – Pankaj Mishra
- Son of Thundercloud – Easterine Kire
- Lincoln in the Bardo – George Saunders – 2017 Booker
- Inside Parliament: Views from the front row – Derek O’Brien
- The Sellout – Paul Beatty – 2016 Booker
- A brief history of Seven killings – Marlon James – 2015 Booker
- A horse walks into a bar – David Grossman – the Man Booker International Prize
- The Ibis Trilogy – Amitav Ghosh
- Selection day – Aravind Adiga
- Death under the Deodars – Ruskin Bond
- An Era of Darkness: The British Empire in India – Shashi Tharoor
- India Shastra: Reflections of the Nation in our time – Shashi Tharoor
- The Great Derangement: Climate Change And The Unthinkable – Amitav Ghosh
- Democrats and Dissenters – Ramachandra Guha
- I Do What I Do – Raghuram Rajan
- The Dramatic Decade: The Indira Gandhi Decade – Pranab Mukherjee
- The Turbulent Years: 1980 – 1996 – Pranab Mukherjee
- Thoughts and Reflections – Pranab Mukherjee
- Indira: India’s most powerful Prime Minister – Sagarika Ghose
- Why Growth Matters – Jagadish Bhagawati
- India’s Tryst with Destiny – Jagadish Bhagawati
- An Uncertain Glory: India and its contradictions – Amartya Sen and Jean Dreze
- The Country of First Boys – Amartya Sen
- Gandhi before India – Ramachandra Guha
- Scion of Ikshvaku – Amish
- Sita: Warrior of Mithila – Amish
- Two Years Eight Months and Twenty-Eight Nights – Salman Rushdie

- A Manifesto For Change – Dr A.P.J Abdul Kalam
- Advantage India: From Challenge to Opportunity - Dr A.P.J Abdul Kalam
- Beyond 2020: A Vision for Tomorrow's India - Dr A.P.J Abdul Kalam
- Pathways to Greatness - Dr A.P.J Abdul Kalam
- The Mother I Never Knew – Sudha Murthy
- Serpent's Revenge – Sudha Murthy
- Percy Jackson and the Olympians Series – Rick Riordan
- The Girl on the Train – Paula Hawkins
- Diary of a Wimpy Kid – Jeff Kinney
- Fifty Shades Series – E.L. James
- And the Mountains Echoed – Khaled Hosseini
- War & Peace - Leo Tolstoy

Railways Static GK: First in India

First Person (Male)	NAME	OTHER IMPORTANT FACTS
First President of Indian Republic	Dr. Rajendra Prasad, 1950 to 1962	● President of the Constituent Assembly (1948-1950)
First Prime Minister of free India	Pt. Jawahar Lal Nehru	● He is also known as the architect of modern India. ● Chairman of the constituent assembly. ● Chairman of Union Constitution Committee, Union Powers Committee and States Committee

First Indian to win Nobel Prize	Rabindranath Tagore	● Also Known as Gurudev. ● Wrote National Anthem of India.
First President of Indian National Congress	W.C. Banerjee	
First Muslim President of Indian National Congress	Badruddin Tayyabji	
First Muslim President of India	Dr. Zakir Hussain	
First British Governor General of India	Lord William Bentinck (1833-1835)	● Sati system was banned during his regime.
First British Governor General of Bengal	Lord Warren Hasting (1774-1885)	● First Maratha war and second Mysore war occured during his regime ● Founded Asiatic Society of Bengal.
First British Viceroy of India	Lord Canning	● Revolt of 1857 happened during his regime. ● Established 3 universities at Calcutta, Madras and Bombay.
First Governor General of free India	Lord Mountbatten	● Indian Independence Bill 1947 was passed during his regime.

First and the last Indian to be Governor General of free India	C. Rajgopalachari	● Informally called as Rajaji or C.R.
The first man who introduced printing press in India	James Hickey (Bengal Gazette)	● Bible was the first book printed in India.
The First Indian to join the I.C.S	Satyendra Nath Tagore	
First man in Space from India	Rakesh Sharma	
First Prime Minister of India who resigned without completing the full term	Morarji Desai	
First Indian Commander-in-Chief of India	General Cariappa	
First Chief of Army Staff	Gen. Maharaj Rajendra Singhji	
First Indian to join Viceroy's executive council	S.P.Sinha	
First President of India who died while in office	Dr. Zakir Hussain	● He was awarded Bharat Ratna award.
First Muslim President of Indian Republic	Dr. Zakir Hussain	
First Prime Minister of India who did not face the Parliament	Charan Singh	● Serving from 28 July 1979 until 14 January 1980.

First Field Marshal of India	S.H.F. Manekshaw(1914-2008)	
First person to get Nobel Prize in Physics from India	C.V.Raman	● For the discovery of Raman Effect or Raman Scattering.
First Indian to receive Bharat Ratna award	C. Rajgopalachari, Dr. Radhakrishnan & CV Raman	● First and the last Indian to be Governor General of free India ● First Vice President of India: Dr. Radhakrishnan ● Nobel Prize Winner: CV Raman
First Indian to cross English Channel	Mihir Sen	
First Person to receive Jnanpith award	Sri Shankar Kurup	
The first Speaker of the Lok Sabha	Ganesh Vasudeva Mavalankar	● Also known as Dadasaheb ● Speaker of the Constituent Assembly of India
First Vice-President of India	Dr. Radhakrishnan	
First Education Minister	Maulana Abul Kalam Azad	

First Home Minister of India	Sardar Vallabh Bhai Patel	● India's first Deputy Prime Minister. ● Started Bardoli Satyagarh. ● Chairman of Provincial Constitution Committee and Advisory Committee on Fundamental Rights, Minorities and Tribal and Excluded Areas.
First Indian Air Marshal	S. Mukherjee	
First Indian Naval Chief	Vice Admiral R.D. Katari	
First Indian Judge of International Court of Justice	Dr. Nagendra Singh	
First person to reach Mt. Everest without oxygen	Sherpa Dorjee	
First person to get Param Vir Chakra	Major Somnath Sharma	
First Chief Election Commissioner	Sukumar Sen	
First person to receive Magsaysay Award	Acharya Vinoba Bhave	● First person chosen for Individual Satyagraha.
First person of Indian origin to receive Nobel Prize in Medicine	Hargovind Khurana	

First Chinese traveller to visit India	Fahein	● Visited India during the reign of Gupta emperor Chandragupta II
First person to receive Stalin Prize	Saifuddin Kitchlu	● Jalliawala Bagh gathering 1919 was held against the arrest of Dr. Saifuddin Kitchlu and Dr. Satyapal.
The first person to resign from the Central Cabinet	Shyama Prasad Mukherjee	● Served as Minister for Industry and Supply in Prime Minister Jawaharlal Nehru's cabinet ● Founded the Bharatiya Jana Sangh, a predecessor to the Bharatiya Janata Party (BJP), in 1951.
First person to receive Nobel Prize in Economics	Amartya Sen	● For his contributions to welfare economics
First Chief Justice of Supreme Court	Justice Hirala J. Kania	
First Indian Pilot	J.R.D. Tata (1929)	

First Indian Female Personalities

First Indian Female	Name
to win an Olympic medal	Karnam Malleswari (Bronze)
Airline Pilot	Durba Banerjee
to go into space	Kalpana Chawla
to climb Mt. Everest	Bachendri Pal
to swim across English Channel	Arati Saha (also known as Arati Gupta)
Musician to get “Bharat Ratna”	M.S.Subbulakshmi
to win a Gold in Asian Games	Kamaljeet Sandhu
to win the Booker Prize	Arundhati Roy
to win WTA Title	Sania Mirza
to win Nobel Prize	Mother Teresa
to get Jnanpith Award	Ashapurna Devi
to get Ashok Chakra	Nirja Bhanot
President	Mrs. Pratibha Patil
Prime Minister	Mrs. Indira Gandhi
Governor	Sarojini Naidu
Ruler (Delhi’s throne)	Razia Sultan
IPS Officer	Kiran Bedi
Chief Minister of a state	Sucheta Kripalani (the State was Uttar Pradesh)
Judge of the Supreme Court	Meera Sahib Fatima Bibi
President at UN General Assembly	Vijayalakshmi Pandit
Union Minister	Rajkumari Amrita Kaur

Miss Universe	Sushmita Sen
Miss World	Reita Faria

Note: There is a difference between First Woman President of Indian National Congress (INC) who is **Annie Besant** and First Indian Woman President of Indian National Congress (INC) who is **Sarojini Naidu.**

Chronology of Important Events in Indian History PDF: Download Now

Ancient India

Year	Event	Importance
2 Million BC to 10,00 BC 2 Million BC to 50,000 BC 50,000 BC to 40,000 BC 40,000 BC to 10,000 BC	Paleolithic Period Lower Palaeolithic Middle Palaeolithic Upper Palaeolithic	Fire was discovered Tools made of limestones were used. They are found in Chotanagpur plateau and Kurnool district
From 10,000 BC	The Mesolithic Age	Hunters and Herders Microlith tools were used
7000 BC	The Neolithic age	Food producers Use of polished tools
Pre-Harappan Phase – 3000 BC	Chalcolithic Age	Use of Copper – first metal

2500 BC	Harappan Phase	Bronze age civilization, development of Urban culture
1500 BC-1000 BC	Early Vedic period	Rig Veda period
1000BC-500BC	Later Vedic period	Growth of 2nd Urban phase with the establishment of Mahajanapadhas
600 BC – 325 BC	Mahajanapadhas	16 kingdoms with certain republics established
544 BC – 412 BC	Haryanka Dynasty	Bimbisara, Ajatshatru and Udayin
412 BC – 342 BC	Shisunga Dynasty	Shisunga and Kalashoka
344BC – 323 BC	Nanda Dynasty	Mahapadmananda
563 BC	Birth of Gautama Buddha	Buddhism established
540 BC	Birth of Mahavira	24th Tirthankara of Jainism
518 BC	Persian Invasion	Darius
483 BC	1st Buddhist council	Rajgir
383 BC	2nd Buddhist Council	Vaishali
326 BC	Macedonian Invasion	Direct contact between Greek and India
250 BC	3rd Buddhist council	Pataliputra

322 BC – 185 BC 322 BC – 298 BC 298 BC – 273 BC 273 BC – 232 BC 232 BC – 185 BC	Mauryan Period Chandragupta Maurya Bindusara Ashoka Later Mauryans	Political unification of India, Dhamma policy of Ashoka, the growth of Art and architecture
185 BC – 73 BC	Sunga Dynasty	Pushyamitra Sunga
73 BC – 28 BC	Kanva dynasty	Vasudeva founded the dynasty
60 BC – 225 AD	Sathavahana dynasty	Capital at Paithan, MH
2nd BC	Indo-Greeks	Menander(165-145AD)
1st BC – 4th AD	The Shakas	Rudradaman (130 AD – 150 AD)
1st BC – 1st AD	The Parthians	St Thomas arrived in India during the reign of Gondophernes
1st AD -4th AD	The Kushans	Kanishka (78 AD – 101 AD)
72 AD	4th Buddhist Council	Kashmir
3rd BC – 3rd AD	Sangam age	Convene of Sangam Commune, Rule of Cheras, Cholas and Pandyas

319 AD – 540 AD 319 – 334 AD 335 – 380 AD 380 – 414 AD 415 – 455 AD 455 – 467 AD	The Gupta Age Chandragupta I Samudragupta Chandragupta II Kumaragupta Skandagupta	319 AD – Gupta Age The golden age of India Development of numerous art and literature. Nagara style of Temple Building
550 AD – 647 AD	Vardhana Dynasty	Harsha (606-647 AD) Kannauj assembly and Prayag assembly held Huan-Tsang visited Harsha's assembly
543 – 755 AD	Chalukyas of Vatapi	Development of Vesera style
575 - 897 AD	Pallavas of Kanchi	Structural temples in Dravida style started to develop

Medieval India

Early Medieval Period (650 – 1206 AD)

Year	Event	Importance
750 – 1150 AD	Rule of the Palas	Capital at Munger, Bihar
752 – 973 AD	The Rasthrakutas	Capital at Malkhed
730 – 1036 AD	The Pratiharas	Ruled western India
712 AD	First Muslim Invasion	Mahmud Bin Qasim invaded India

850 – 1279 AD	The Cholas	Capital at Tanjore, epitome moment for Dravidian Architecture
998 – 1030 AD	First Turk invasion	Mahmud of Ghazni
1175 – 1206 AD	Second Turk invasion	Mahmud of Ghori
1178 – 1192 AD	Prithviraj Chauhan	First battle of Tarain in 1191 between Prithviraj and Mahmud of Ghori 1192, Second battle of Tarain

The Sultanate Period (1206 – 1526 AD)

The Slave Dynasty		
Year	Event	Importance
1206 – 1210 AD	Qutbuddin Aibak	Known as Lakh Bakhsh, began the construction of Qutb Minar
1211 – 1236 AD	Shamsuddin Iltumish	Real founder of Delhi Sultanate
1236 – 1240 AD	Razia Sultana	First and only muslim lady who ever ruled India
1240 – 1266 AD	Weak successors	
1266 – 1287 AD	Ghiyasuddin Balban	Established Diwan-i-Arz

The Khalji Dynasty		
Year	Events	Importance
1290 – 1296 AD	Jalaluddin Khalji	Founder of Khalji dynasty

1296 – 1316 AD	Allaudin Khalji	Did many administrative reforms, introduced the Dagh and Chehra system

The Tuglaq dynasty		
Year	Events	Importance
1320 – 1325 AD	Ghiyasuddin Tuglaq	Founder
1325 – 1351 AD	Mohammed-Bin-Tuglaq	Introduction of administrative reforms and certain ambitious projects
1351 – 1388 AD	Firoz Shah Tuglaq	Built great cities
1398 – 1399 AD	Taimur Invasion	Taimur, the descendant of Chengiz Khan, invaded during the reign of Muhammad Shah Tuglaq

The Sayyid dynasty 1414 – 1451 AD

The Lodhi Dynasty (1451 – 1526 AD)		
Year	Events	Importance
1451 – 1488 AD	Bahlol Lodhi	Founder of Lodhi dynasty
1489 – 1517 AD	Sikander Lodhi	Founded the city of Agra
1517 – 1526 AD	Ibrahim Lodhi	Babur defeated Lodhi in the first battle of Panipat

Vijaynagar and Bahmani Kingdoms

Vijaynagar Kingdom		
Year	Events	Importance

1336 – 1485 AD	Sangama Dynasty	Founded by Harihara and Bukka
1485 – 1505 AD	Saluva Dynasty	Saluva Narasgima
1505 – 1570 AD	Tuluva Dynasty	Veer Narashima
1509 – 1529 AD	Krishna Deva Raya	A gifted Scholar, contemporary of Babur
1570 – 1650 AD	Aravidu Dynasty	Founded by Tirumala

Bahmani Kingdom		
Year	Events	Importance
1347 – 1358 AD	Alaudin Hasan Bahman Shah	Founded the Bahmani Kingdom at Gulbarga
1397 – 1422 AD	Tajuddin Firoz Shah	
1422 – 1435 AD	Ahmad Shah Wali	

Mughal Empire

1526 – 1530 AD	Babur	Founder of Mughal empire after the 1st Battle of Panipat
1530 – 1540 AD 1555 – 1556 AD	Humayun	He was defeated by Sher Shah
1540 – 1555 AD	Sur Empire	Sher Shah defeated Humayun and ruled from 1540-45 AD
1556	2nd Battle of Panipat	Akbar Vs. Hemu
1556 – 1605 AD	Akbar	Established Din-i-illahi, expanded Mughal empire

1605 – 1627 AD	Jehangir	Captain William Hawkins and Sir Thomas Roe visited the Mughal court
1628 -1658 AD	Shahjahan	The pinnacle of Mughal empire and art and architecture
1658 – 1707 AD	Aurangazeb	Beginning of the decline of Mughal empire
1707 – 1857 AD	Later Mughals	Decline and disintegration of Mughal empire with gaining strength of the British

Maratha State and Maratha Confederacy

Maratha state 1674 – 1720 AD		
Year	Events	Importance
1674 – 1680 AD	Shivaji	Contemporary of Aurangazeb and the biggest challenge for the Mughals in Deccan
1680 – 1689 AD	Sambhaji	
1689 – 1700 AD	Rajaram	
1700 – 1707 AD	Tarabai	
1707 – 1749 AD	Shahu	The rise of Peshwas
1713 – 1720 AD	Balaji Vishwanath	The first Peshwa

Maratha Confederacy 1720 – 1818 AD

1720 – 1740 AD	Baji Rao I	
1740 – 1761 AD	Balaji Baji Rao	
1761 AD	Third battle of Panipat	Defeat of Marathas by Ahmad Shah Abdali

1761 – 1818 AD	Later successors	

Anglo Maratha Wars

1775 – 1782 AD	1st Anglo Maratha War	British were defeated
1803 – 1806 AD	2nd War	Marathas were defeated and they signed the Subsidiary Alliance
1817 – 1818 AD	3rd War	Marathas were decisively defeated

Modern India

Bengal		
Year	Events	Importance
1717 – 1727 AD	Murshid Quli Khan	Capital of Bengal transferred to Murshidabad
1727 – 1739 AD	Shujauddin	
1739 – 1740 AD	Sarfaraj khan	
1740 – 1756 AD	Alivardi Khan	
1756 – 1757 AD	Sirajuddaulah	Battle of Plassey
1757 – 1760 AD	Mir Jafar	
1760 – 1764 AD	Mir Qasim	Battle of Buxar

Mysore		
Year	Events	Importance
1761 – 1782 AD	Haider Ali	Establishment of Modern Mysore state

1766 – 1769 AD	1st Anglo – Mysore war	Haider ali defeated the British
1780 – 1784 AD	2nd Anglo – Mysore war	Haider ali was defeated by Sir Eyrecoot
1782 – 1799 AD	Tippu Sultan	Continued the 2nd war
1790 – 1792 AD	3rd Anglo – Mysore war	Tipu ceded half of his territory
1799	4th Anglo – Mysore war	Tipu sultan died

Punjab		
1792 – 1839 AD	Maharaja Ranjit Singh	Founder of Sikh rule
1845 – 1846 AD	1st Anglo – Sikh war	Sikhs were defeated
1848 – 1849 AD	2nd Anglo – Sikh war	Dalhousie annexed Punjab

Advent of Europeans in India

1498	Portuguese East India company	Headquarters at Cochin and Goa
1600	English East India company	Madras, Calcutta and Bombay
1602	Dutch East India company	Pulicat, Nagapattinam
1616	Danish East India company	Serampore
1664	French East India company	Pondicherry

Carnatic wars

1746-48	1st Anglo-French war	Treaty of Aix-la-chapelle
1749-54	2nd Anglo-French war	Treaty of Pondicherry

1758-63	3rd Anglo-French war	Treaty of Paris

Freedom Struggle

1857	First war of Indian independence	Revolt due to socio-religious and economic causes
1885	Formation of Congress	A O Hume
1885 – 1905	Moderate phase	Dominated by Dadabai Naoroji, Surendranath Banerjea
1905 – 1917	Extremists Phase	Dominated by Lal-Bal-Pal and Aurobindo Ghosh
1905	Bengal Partition	Curzon announced the partition
1905 – 1908	Swadeshi movement	Boycott of foreign products
1906	Muslim league formation	
1906	Calcutta Session of INC	Swaraj as the goal
1907	Surat split	Question on extending the movement to the rest of India
1909	Morley – Minto reforms	Separate electorate for Muslims
1915 – 1916	Home rule movement	BG Tilak and Annie Besant
1916	Lucknow pact	Pact between Congress and League
1916	Lucknow session	Extremists admitted in Congress

Gandhian Era

Early life		
1893 – 1914	Gandhi in South Africa	Foundation of Natal Indian Congress, Sathyagraha and CDM against British excesses
1915 – 1948	Gandhi in India	
1915	Arrived in Bombay. First two years to tour India and not to participate in any political movement	
1917	Champaran Campaign	Against the Indigo cultivators
1918	Ahmedabad	First hunger strike
1918	Kheda	First non-cooperation movement
1919	Rowlatt Sathyagraha	Against the Rowlatt act and Jallianwala massacre
1920-22	Non-cooperation and Khilafat movement	
1924	Belgaum session	Gandhi elected as Congress president
1930 -34	Civil disobedience movement	Dandi March Gandhi – Irwin Pact 2nd Roundtable conference Resuming the Civil disobedience movement
1940-41	Individual satyagraha	

1942	Quit India movement	Do or die

Important Events during this period

1919	Rowlatt act	Gandhi gave a call for Rowlatt satyagraha
1919	Jallianwala Massacre	
1920-22	Khilafat and Non-cooperation movement	Hindu Muslim unity
1922	Chauri Chaura incident	Gandhi called off NCM
1923	Congress Khilafat Swaraj Party	Enter legislative councils
1927	Simon commission	All white commission to review the 1919 act
1928	Nehru committee report	To determine the principles of the constitution
1929	Jinnah's 14 points	
1929	Lahore session	Purna Swaraj
1930	Civil disobedience movement	Dandi March
1931	Gandhi Irwin Pact	To ask Gandhi participate in the 2nd RTC
1931	2nd RTC held in London	
1932	Communal award	
1932	Poona Pact	
1935	Government of India act	Provisional autonomy
1937	18 months rule of Congress begins	

1939-45	World War II begins	
1939	Congress ministries resign	
1940	August offer	Linlithgow proposed to seek India's cooperation in the World War
1941	Individual Satyagraha	
1942	Cripps mission	
1942	Quit India movement	
1943	Gandhi's 21 days fast	
1944	C R Formula	
1945	Wavell Plan and Shimla Conference	
1945	INA Trails	
1946	RIN Ratings Mutiny	
1946	Cabinet mission plan	
1946	Formation of Interim government	
1946	Formation of the constituent assembly	
1947	Atlee's announcement	
1947	Mountbatten Plan	
1947	Indian independence act, 1947	

Human Blood

- The blood constitutes **7% of the total weight of the human's body**.
- **Its pH value is nearly 7.4, so it is considered base in nature.**
- There is an average of **5-6 litres of blood in human body.**
- Blood consists of two parts:-
  (1) Plasma
  (2) Blood Corpuscles

(1) Plasma

- It is the **liquid part** of blood.
- It constitutes 60% part of the blood.
- The plasma has 90% parts is water, 7% protein, 0.9% salt and 0.1% is glucose.
- Its main function is to Transport of digested food, hormones, the excretory product from one part of the body to another part of the body.
- When Fibrinogen & Protein is extracted out of plasma, the remaining plasma is called **serum**.

(2) Blood Corpuscles

- It constitutes **40%** part of the blood/

This is divided into **three parts:**

1.Red Blood Corpuscles (RBC)

- The nucleus is absent from it. Exception - Camel and Lama.
- It is formed in Bone Marrow (At the embryonic stage its formation takes place in the liver.)
- Lifespan- 20 days to 120 days.
- RBCs destruction takes place in spleen so it is called **grave of RBC**.
- It contains haemoglobin, in which haeme is iron-containing compound.
- Due to the presence of haemoglobin colour of blood is red.
- Globin is a proteinous compound which is extremely capable of combining with oxygen and carbon dioxide.
- The iron compound found in haemoglobin is haematin.
- Function- to carry oxygen to all cells of the body and bring back the carbon dioxide.
- Anaemia disease is caused due to the deficiency of haemoglobin.

- At the time of sleeping RBC is reduced by 5% and people who are at the height of 4200 metres RBC increases by 30% in them.

2. White Blood Corpuscles (WBC) or Leucocytes

- Its formation takes place in Bone Marrow, lymph node and sometimes in liver and spleen.
- Lifespan: 5-20 days.
- The nucleus is present in the WBC.
- Function- to protect the body from the disease.
- The ratio of RBC and WBC is 600:1.
- It consists of Granulocytes and Agranulocytes.
- Granulocytes consists of Neutrophils, Eosinophils, and Basophils.
- Agranulocytes consists of **lymphocytes** and monocytes.

3. Blood Platelets or Thrombocytes

- Found only in the blood of human and other mammals.
- The nucleus is absent in it.
- Its formation takes place in the Bone marrow.
- Lifespan- **3 to 5 days.**
- It dies in the Spleen.
- Function- to help in clotting of blood

Functions of Blood:

- To control the temperature of the body and to protect the body from diseases.
- Transportation of oxygen, Carbon dioxide, digested food, conduction of hormones etc.
- To help in establishing coordination among different parts.

Clotting of blood

- Following reactions take place during clotting-
  (a) Thromboplastin + Prothrombin + Calcium = Thrombin
  (b) Thrombin + Fibrinogen = Fibrin
  (c) Fibrin + Blood Corpuscles = Clot
- Vitamin K is helpful in blood clotting.

Blood Group of Human

- Blood group was discovered by **Landsteiner** in 1900.
- For this, he was **awarded Nobel Prize** in the year 1930.

- The main reason behind the difference in the blood of the human is the **glycoprotein** which is found in Red Blood Corpuscles called antigen.
- Antigen is of two types- Antigen A and Antigen B.
- On the basis of the presence of Antigen or Glyco Protein, there is four group of blood in human:
- That **contains Antigen A** - Blood Group A.
- That **contains Antigen B**- Blood Group B.
- That contains both the Antigen A and B - Blood Group AB.
- That contains neither of the Antigens- Blood Group O.
- An opposite type of protein is found in blood plasma. This is called antibody. This is also of two types- Antibody "a" and Antibody "b".
  Blood Group O is called the Universal Donor because it does not contain any antigen.
  Blood Group AB is called Universal Recipient because it does not contain any antibody
- **Heparin** is an anti-coagulant which is present in blood which assures smooth blood flow in the vessels.

Viceroys of India

Lord Canning (AD 1856-62):
• The last Governor General and the first Viceroy.
• Withdrew Doctrine of Lapse.
• Revolt of 1857, Mutiny took place. Indian Penal Code 1860 was passed.
• Passed the Act, 1858, which ended the rule of the East India Company. The Universities of Calcutta,
Bombay and Madras were established in 1857.
Lord Elgin (AD 1862) :
• Wahabi Movement
Lord John Lawrence (AD 1864-69) :
• Established the High Courts at Calcutta, Bombay and Madras in 1865.
• Telegraphic communication was opened with Europe. Created the Indian Forest Department.
Lord Mayo (AD 1869-72) :
• Organised the Statistical Survey of India and for the first time in Indian history, a census was held in
1871.

• Started the process of financial decentralisation in India. Established the Department of Agriculture and
Commerce.
• Established the Rajkot College at Kathiawar and Mayo College at Ajmer for the Indian princes.
• He was the only viceroy to be murdered in office by a Pathan convict in the Andamans in 1872.

Lord Northbrook (AD 1872-76) :

• Kuka Rebellion in Punjab, Famine in Bihar.

Lord Lytton (AD 1876-80) :

• Known as the 'Viceroy of Reverse Character'
• Royal Titles Act of 1876 and the assumption of the title of 'Empress of India' by Queen Victoria, the
Delhi Durbar in January 1877.
• Vernacular Press Act (also called the 'Gagging Act' to restrain the circulation of printed matter) and
the Arms Act (made it mandatory for Indians to acquire license in arms) of 1878.

Lord Rippon (AD 1880-84) :

• First Factory Act of 1881 (prohibited labour). Local Self-Government was introduced in 1882.
• Repealed the Vernacular Press Act in 1882. Finances of the centre were divided.
• Lord Rippon is regarded as 'the founding father of local self-governance' in India.
• An Education Commission was appointed under Sir William Hunter in 1882 to improve primary and
secondary education.
• The Ilbert Bill Controversy (1883) enabled Indian district magistrates to try European criminals.

Lord Dufferin (AD 1884-88) :

• Third Burmese War (AD 1885-86). Establishment of the Indian National Congress in 1885.

Lord Lansdown (AD 1888-94) :

• Factory Act of 1891 granted weekly holiday and stipulated working hours for women and children.
• Civil services were divided into Imperial, Provincial and Subordinate Services.
• Indian Councils Act of 1892.
• The Durand Commission defined the Durand Line between British India and Afghanistan (now between Pakistan and Afghanistan) in 1893.

Lord Elgin II (AD 1894-99) :

• Southern uprisings of 1899. Great famine of 1896-1897 and Lyall Commission on famine was established.

Lord Curzon (AD 1899-1905) :

• A Commission was appointed under Sir Thomas Raleigh in 1902, to suggest reforms regarding
universities, the Indian Universities Act of 1904 was passed on the basis of its recommendations.

• Ancient Monuments Preservation Act of 1994. Thus, Archaeological Survey of India was established.
• Agricultural Research Institute was established at Pusa in Delhi. Partitioned Bengal in 1905.

Lord Minto (AD 1905-10) :

• Swadeshi Movement (1905-08); Foundation of Muslim League (1906); Surat Session and split in the
Congress (1907). Morley-Minto Reforms (1909).

Lord Hardinge (AD 1910-16) :

• Capital shifted from Calcutta to Delhi (1911); Delhi Durbar; Partition of Bengal was cancelled. The
Hindu Mahasabha was founded in 1915 by Pandit Madan Mohan Malaviya.

Lord Chelmsford (AD 1916-21) :

• Gandhi returned to India (1915) and founded the Sabarmati Ashram (1916), Champaran Satyagraha,
Satyagraha at Ahmedabad, Kheda Satyagraha (1918).
• August Declaration (1917) by Montague, the then Secretary of State, and Montford reforms or the
Government of India Act of 1919.
• Rowlatt Act (March 1919) and the Jallianwala Bagh Massacre (13th April 1919).
• Khilafat Committee was formed and Khilafat Movement started (1919-20).
• Non-Cooperation Movement started (1920-22). Women's University was founded at Poona (1916).

Lord Reading (AD 1921-26):

• Repeal of Rowlatt Act. Chauri-Chaura incident. RSS, founded in 1925. Suppressed Non-Cooperation
Movement. Formation of Swaraj Party.
• Moplah Rebellion (1921) took place. Kakori Train Robbery on 1st August 1925. Communal Riots
of 1923-25 in Multan, Amritsar, Delhi etc.

Lord Irwin (AD 1926-31) :

• Simon Commission visited Indian in 1927. Congress passed the Indian Resolution in 1929.
• Dandi March (12th March, 1930). Civil Disobediene Movement (1930).
• First Round Table Conference was held in England in 1930. Gandhi-Irwin Pact.
• Lahore Session of Congress and Poorna Swaraj Declaration (1929).

Lord Willingdon (AD 1931-36) :

• Second Round Table Conference in London in 1931 and third in 1932.
• Government of India Act (1935) was passed. Communal Awards (16th August 1932) assigned seats to
different religious communities. Gandhiji went on an epic fast to protest against this division.

Lord Linlithgow (AD 1936-43) :

• Congress Ministries resignation celebrated as 'Deliverance Day' by the Muslim League (1939), the

Lahore Resolution (23rd March 1940) of the Muslim League demanding a separate state for the Muslims.
(It was at this session that Jinnah propounded his Two-Nation Theory). The outbreak of World War II
in 1939. Cripps Mission in 1942. Quit India Movement (8th August 1942).

Lord Wavell (AD 1943-47) :

• Cabinet Mission Plan (16th May 1946).
• First meeting of the Constituent Assembly was held on 9th December 1946.
• Arranged the Shimla Conference on 25th June 1945 with the failure of the Indian National Congress
and Muslim League.

• Election to the Constituent Assembly was held and an interim government was appointed under Nehru.

Lord Mountbatten (March to August 1947) :

• Last Viceroy of British India and the first Governor-General of free India.
• Partition of India decided by the 3rd June Plan or Mountbatten Plan.

• Retired in June 1948 and was succeeded by C Rajagopalachari, the first and the last Indian Governor-
General of Free India.

• Indian Independence Act was passed by the British Parliament on 4th July 1947, by which India
became independent on 15th August 1947.

Notes on Important Scientific Laws and Theories for Railways & SSC Exams

General Awareness is a very important topic as far as Competitive Exams are concerned and normally few questions from the topic **Important Scientific Laws and Theories** can be seen in every competitive exam. So, the laws and theories should not be missed if you are preparing for any competitive exam.

A **Scientific Law** is the description of an observed phenomenon. It doesn't explain why the phenomenon exists or what causes it. The explanation of the phenomenon is called a **Scientific Theory**.

1. **Archimede's principle -** It states that a body when wholly or partially immersed in a liquid experiences an upward thrust which is equal to the weight of the liquid displaced by it. Thus, the body appears to lose a part of its weight. This loss in weight is equal to the weight of the liquid displaced by the body.
2. **Aufbau principle -** It states that in an unexcited atom, electrons reside in the lowest energy orbitals available to them.
3. **Avogadro's Law -** It states that equal volumes of all gases under similar conditions of temperature and pressure contain an equal number of molecules.
4. **Brownian motion -** It is a zigzag, irregular motion exhibited by small solid particles when suspended in a liquid or gas due to irregular bombardment by the liquid or gas molecules.
5. **Bernoulli's principle -** It states that as the speed of a moving fluid, liquid or gas, increases, the pressure within the fluid decreases. The aerodynamic lift on the wing of an aeroplane is also explained in part by this principle.
6. **Boyles's Law -** It states that temperature remaining constant, the volume of a given mass of a gas varies inversely with the pressure of the gas. Thus, PV = K (constant), where, P = Pressure and V = Volume.
7. **Charles's Law -** It states that pressure remains constant, the volume of a given mass of gas increases or decreases by 1/273 part of its volume at 0-degree Celsius for each degree Celsius rise or fall of its temperature.
8. **Coulomb's Law -** It states that force of attraction or repulsion between two charges is proportional to the amount of charge on both charges and inversely proportional to the square of the distance between them.
9. **Heisenberg principle (uncertainty principle) -** It is impossible to determine with accuracy both the position and the momentum of a particle such as an electron simultaneously.
10. **Gay-Lussac’s Law of combining volumes -** Gases react together in volumes which bear simple whole number ratios to one another and also to the volumes of the products, if gaseous — all the volumes being measured under similar conditions of temperature and pressure.
11. **Graham’s Law of Diffusion -** It states that the rates of diffusion of gases are inversely proportional to the square roots of their densities under similar conditions of temperature and pressure.
12. **Kepler's Law -** Each planet revolves around the Sun in an elliptical orbit with the Sun at one focus. The straight line joining the Sun and the planet sweeps out equal areas in equal intervals. The squares of the orbital periods of planets are proportional to the cubes of their mean distance from the Sun.
13. **Law of Floatation -** For a body to float, the following conditions must be fulfilled:
    - The weight of the body should be equal to the weight of the water displaced.
    - The centre of gravity of the body and that of the liquid displaced should be in the same straight line.

14. **Law of conservation of energy -** It states that energy can neither be created nor destroyed but it can be transformed from one form to another. Since energy cannot be created or destroyed, the amount of energy present in the universe is always remain constant.
15. **Newton's First Law of Motion -** An object at rest tends to stay at rest, and an object in motion tends to stay in motion, with the same direction and speed in a straight line unless acted upon by some external force.
16. **Newton's Second Law of Motion -** The rate of change of momentum of a body is directly proportional to the force applied and takes place in the direction in which the force acts.
17. **Newton's Third Law of Motion -** To every action, there is an equal and opposite reaction.
18. **Newton's Law of Gravitation -** All particles of matter mutually attract each other by a force directly proportional to the product of their masses and inversely proportional to the square of the distance between them.
19. **Ohm's Law -** It states that the current passing through a conductor between two points is directly proportional to the potential difference across the two points provided the physical state and temperature etc. of the conductor does not change.
20. **Pauli exclusion principle -** It explains that no two electrons in the same atom or molecule can have the same set of quantum numbers.
21. **Raman effect -** It is the change in wavelength that occurs when light is scattered by the atoms or molecules in a transparent medium.
22. **Tyndall effect -** The scattering of light by very small particles suspended in a gas or liquid.

List of Indian monuments and their builders (state-wise)

Monument	Place	Built by	Year/Century
Agra Fort	Agra (Uttar Pradesh)	Akbar	1573 AD
Agra city	Agra (Uttar Pradesh)	Sikandar Lodi	-
Aram Bagh	Agra (Uttar Pradesh)	Babur	1528 AD

Akbar’s Tomb	Sikandra, Agra (Uttar Pradesh)	Akbar and his son Jahangir	1613 AD
Tomb of Itmad-Ud-Daula	Agra (Uttar Pradesh)	NoorJahan	1628 AD
Jama Masjid	Agra (Uttar Pradesh)	Shahjahan	1648 AD
Deewan-E- Khas	Agra Fort, Agra (Uttar Pradesh)	Shahjahan	-
Shish Mahal	Agra (Uttar Pradesh)	Shahjahan	1632 AD
Moti Masjid	Agra Fort, Agra (Uttar Pradesh)	Shahjahan	1635 AD
Taj Mahal	Agra (Uttar Pradesh)	Shahjahan	1653 AD
Anand Bhawan	Allahabad, (Uttar Pradesh)	Motilal Nehru	1930 AD
Bada Imambara	Lucknow (Uttar Pradesh)	Asaf-ud-daula	1785 AD
Chhota Imambara	Lucknow (Uttar Pradesh)	Muhammad Ali Shah	-
Jantar Mantar	Mathura (Uttar Pradesh)	Maharaja Sawai Jai Singh II	1724-1738 AD
Jantar Mantar	Varanasi (Uttar Pradesh)	Maharaja Sawai Jai Singh II	1724-1739 AD

Fatehpur Sikri Jodha Bai Palace Birbal Palace Panch Mahal Buland Darwaza	Agra (Uttar Pradesh)	Akbar	16th century
Rock cut temple	Mamallapuram (Tamil Nadu)	Mahendravarman-I	8th century
Shore temple	Mamallapuram (Tamil Nadu)	Narasimhavarman-II	8th century
Kailasanathar Temple	Kanchipuram (Tamil Nadu)	Narasimhavarman-II	685-705 AD
Airavatesvara temple	Darasuram (Tamil Nadu)	Rajaraja I	12th century
Brihadeshwara	Tanjore (Tamil Nadu)	Rajaraja chola I	1010 AD
Gangaikondacholapuram	Gangaikonda cholapuram (Tamil Nadu)	Rajendra I	12th century
Saint George Fort	Chennai (Tamil Nadu)	East India Company	1644 AD
Meenakshi Temple	Madurai, Tamilnadu	-	-
Adhai Din Ka Jhopra	Ajmer (Rajasthan)	Qutubuddin Aibak	1192 AD
Dargah Ajmer Sharif	Ajmer (Rajasthan)	Sultan Shyasuddin	-
Hawa Mahal	Jaipur (Rajasthan)	Maharaja Pratap Singh	1799 AD
Nahargarh Fort	Jaipur (Rajasthan)	Maharaja Sawai Jai Singh II	1734 AD
Jaigarh Fort	Jaipur (Rajasthan)	Maharaja Sawai Jai Singh II	1726 AD

Vijaya Stambha	Chittorgarh (Rajasthan)	Maharana Kumbha	1448 AD
Dilwara Jain Temple	Mount Abu (Rajasthan)	Vimal Shah	1582 AD
Bharatpur Fort	Bharatpur (Rajasthan)	Raja Surajmal Singh	19th century
Amber Fort	Jaipur (Rajasthan)	Man Singh I	1592 AD
Jantar Mantar	Jaipur (Rajasthan)	Maharaja Sawai Jai Singh II	1724-1736 AD
Mehrangarh Fort	Jodhpur (Rajasthan)	Rao Jodha	1460 AD
Jantar Mantar	Ujjain (Madhya Pradesh)	Maharaja Sawai Jai Singh II	1724-1737 AD
Khajuraho Temples	Madhya Pradesh	Chandellas	950-1050 AD
Char- Minar	Hyderabad (Telangana)	Quli Qutub Shah	1591 AD
Macca Masjid	Hyderabad (Telangana)	Quli Qutub Shah	1694 AD
Golconda Fort	Hyderabad (Telangana)	Qutub Shahi rulers	16th century
Shri Venkateswara Temple	Andhra Pradesh	-	-
Ajanta Caves	Aurangabad (Maharashtra)	Gupta rulers	4-10th century
Ellora Caves	Maharashtra	Rashtrakuta rulers	6-10th century
Elephanta Caves	Mumbai (Maharashtra)	Rashtrakuta rulers	5-9 century

Bibi Ka Maqbara	Aurangabad (Maharashtra)	Azam Shah	1661 AD
Gateway Of India	Mumbai (Maharashtra)	British Govt.	20th century
Vikramasila Monastery	Bihar	Dharma Pala	8th century
Shershah's Tomb	Sasaram (Bihar)	Shershah's son	1545 AD
Nalanda University	Bihar	Kumargupta I	-
Purana Qila	Delhi	Shershah Suri	16th century
Safdar Jung Tomb	Delhi	Shuja-ud-daula	1754 AD
Qutub Minar	Delhi	Qutubuddin Aibak	1193 AD
Alai darwaza	Delhi	Alauddin Khiliji	1311 AD
Hauz Khas	Delhi	Alauddin Khilji	-
Ferozshah Kotla	Delhi	Ferozshan Tughlaq	-
Khirki Masjid	Delhi	Ghyasuddin Tughlaq	1354 AD
Humayun's Tomb	Delhi	Humayun's wife	1533 AD
Jama Masjid	Delhi	Shahjahan	1656 AD
Red Fort	Delhi	Shahjahan	1639 AD
Moti Masjid	Delhi Fort, Delhi	Aurangzeb	1660 AD
Jantar Mantar	New Delhi	Maharaja Sawai Jai Singh II	1724-1735 AD
India Gate	New Delhi	Edwin Lutyens (Architect)	-
Lal Bagh	Bangaluru (Karnataka)	Hyder Ali	1760 AD

Gol Gumbaz (largest dome in India)	Bijapur, Karnataka	Muhammad Adil Shah	1656 AD
Hampi Monuments	Karnataka	-	-
Swarna Mandir (Golden Temple)	Amritsar (Punjab)	Guru Ram Das with the fifth, Guru Arjan	1577 AD
Shantiniketan	West Bengal	Rabindra Nath Tagore	19th century
Victoria Memorial	Kolkata (West Bengal)	British Govt.	1921 AD
Sun Temple	Konark (Odisha)	Narsimhadeva I	1250 AD
Jagannath Temple	Puri (Odisha)	Anantvarman Ganga	1161 AD
Shalimar Garden	Srinagar (Jammu and Kashmir)	Jahangir	1619 AD

Common Names and Formulas of Important Chemical Compounds

Chemical formulas provide a lot of information about chemical substances, such as how many and what atoms they are made of, as well as the way the atoms are arranged.
A **compound** is a substance made up of a definite proportion of two or more elements. With the help of Chemical formulas, you can check number of atoms and elements in the compound.

1. Common Names: Baking Powder
Chemical Compounds: Sodium Bicarbonate
Chemical Formula: $NaHCO_3$

2. Common Names: Blue Vitriol
Chemical Compounds: Copper Sulphate

Chemical Formula: $CuSO_4$. XH_2O

3. Common Names: Bleaching Powder

Chemical Compounds: Calcium Oxychloride

Chemical Formula: $CaOCL_2$

4. Common Names: Chloroform

Chemical Compounds: Trichloro Methane

Chemical Formula: $CHCl_3$

5. Common Names: Chalk (Marble)

Chemical Compounds: Calcium Carbonate

Chemical Formula: $CaCo_3$

6. Common Names: Caustic Potash

Chemical Compounds: Potassium Hydroxide

Chemical Formula: KOH

7. Common Names: Caustic Soda

Chemical Compounds: Sodium Hydroxide

Chemical Formula: NaOH

8. Common Names: Dry Ice

Chemical Compounds: Solid Carbondioxide

Chemical Formula: CO_2

9. Common Names: Epsom

Chemical Compounds: Magnesium Sulphate

Chemical Formula: $MgSo_4$

10. Common Names: Gypsum

Chemical Compounds: Calcium Sulphate

Chemical Formula: $CaSo_4$. $2H_2O$

11. Common Names: Green Vitriol

Chemical Compounds: Ferrous Sulphate

Chemical Formula: $FeSo_4$

12. Common Names: Heavy Water

Chemical Compounds: Deuterium Oxide

Chemical Formula: D_2O

13. Common Names: Vinegar

Chemical Compounds: Acetic Acid

Chemical Formula: CH_3COOH

14. Common Names: Washing Soda

Chemical Compounds: Sodium Carbonate

Chemical Formula: Na_2CO_3

15. Common Names: Slaked Lime

Chemical Compounds: Calcium Hydroxide

Chemical Formula: $Ca(OH)_2$

16. Common Names: Potash Alum

Chemical Compounds: Potassium Aluminium Sulphate

Chemical Formula: $KAl(SO_4)_2 \cdot 12H_2O$

17. Common Names: Quick Lime
Chemical Compounds: Calcium Oxide
Chemical Formula: CaO
18. Common Names: Plaster of Paris
Chemical Compounds: Calcium Sulphate
Chemical Formula: $CaSO_4$. 1/2 H_2O
19. Common Names: Mohr's Salt
Chemical Compounds: Ammonium Ferrous Sulphate
Chemical Formula: $(NH_4)_2Fe(SO_4)_2 \cdot 6H_2O$
20. Common Names: White Vitriol
Chemical Compounds: Zinc Sulphate
Chemical Formula: $ZnSo_4.7H_2O$
21. Common Names: Marsh Gas
Chemical Compounds: Methane
Chemical Formula: CH_4
22. Common Names: Magnesia
Chemical Compounds: Magnesium Oxide
Chemical Formula: MgO
23. Common Names: Laughing Gas
Chemical Compounds: Nitrous Oxide
Chemical Formula: N_2O
24. Common Names: Vermelium
Chemical Compounds: Mercuric Sulphide
Chemical Formula: HgS
25. Common Names: Sugar
Chemical Compounds: Sucrose
Chemical Formula: $C_{12}H_{22}O_{11}$
26. Common Names: T.N.T.
Chemical Compounds: Trinitrotoluene
Chemical Formula: $C_7H_5N_3O_6$
27. Common Names: Sand
Chemical Compounds: Silicon Oxide
Chemical Formula: SiO_2

Parts of the Body Affected by Diseases

Disease	Affected Body Part
Arthritis	*Joints*

Asthma	Bronchial Muscles
Cataract	Eyes
Diabetes	Pancreas
Diphtheria	Throat
Eczema	Skin
Glaucoma	Eyes
Goitre	Thyroid Gland
Jaundice	Liver
Leukemia	Blood
Malaria	Spleen
Meningitis	Brain and Spinal Cord
Otitis	Ears
Paralysis	Nerves
Pneumonia	Lungs
Polio	Legs
Pyorrhoea	Teeth and Gums
Rheumatism	Joints
Sinusitis	Inflammation of sinus linings
Tonsillitis	Tonsils
Trachoma	Eyes
Tuberculosis	Lungs
Typhoid	Intestines

Diseases and Causative Agents

Causative Agent	Disease
Bacteria	Diphtheria, Gonorrhoea, Meningitis, Cholera, Leprosy, Typhoid, Tetanus, Tuberculosis, Plague, Whooping Cough, Pneumonia
Virus	Chicken Pox, Small Pox, Measle, Mumps, AIDS, Yellow fever, Influenza, Dengue fever, Rabies, Polio-meritis phelebotomus
Protozoans	Malaria, Sleeping sickness, Kala-azar, Leishmaniasis, Amoebic dysentery
Fungus	Athlete's foot, Ringworms, Madura foot, Dhobi's itch
Helminths	Filaria, Tapeworm and Hookworm transmission

Important Information about Human Body

- Biggest Organ: ***Liver***
- Heart Beat: ***72 times in a minute***
- Master Gland: ***Pituitary***
- Number of Bone: ***206***
- Number of Muscles: **640**
- Number of chromosomes: ***46 or 23 pairs***
- Normal Blood Pressure: ***80 to 120***
- Teeth: ***32***
- Volume of Blood: ***About 7 litres in normal body or about 7% of the total body weight.***

- Largest; Part of human Brain: ***Cerebrum***

Short Notes on Important Fuels and their Composition

Fuels

- The substance, which produces heat and light on combustion are called fuels.
- A strong foul-smelling substance, called ethyl mercaptan is added to LPG to detect its leakage as LPG is an odourless gas.

Some Important Fuels and their Compositions

Physical and Chemical Changes

- Physical changes are the change, which only affect the physical properties like colour, hardness, density, melting point etc. of matter, but do not affect the composition and chemical properties of matter.
- A physical change is temporary, while a chemical change is **permanent**.
- Crystallisation, sublimation, 'boiling, melting, vaporisation, cutting of trees, dissolving sugar or salt in water etc. are physical changes.
- Chemical changes affect the composition as well as chemical properties of matter and result in the formation of a new substance.
- Burning of fuel, burning of candle and paper, electrolysis of water, photosynthesis, the ripening of fruits etc, are examples of chemical changes

Fuel	Composition	Sources
Water Gas	Carbon monoxide (co) + hydrogen(h_2)	By passing stream over red hot coke
Producer Gas	Carbon monoxide (CO) + Nitrogen (N_2)	By passing insufficient air over red hot coke
Coal Gas	Hydrogen + methane + Ethylene + Acetyene + CO +Nitrogen	By fractional distillation
Natural Gas	Methane(83%) + Ethane	From petroleum
Liquefied Petroleum Gas (LPG)	Butane(C_4H_{10})95%	From petroleum
Compressed Natural Gas (CNG)	Methane (CH_4) 95%	From petroleum
Biogas or Gobar Gas	Methane (CH_4) + Carbon dioxide (CO_2) + Hydrogen (H_2)+ Nitrogen (N_2)	From organic wastes

Coal

Coal is obtained by carbonization of vegetable matter and is available in different varieties:

- Peat- 60% C
- Lignite or Brown Coal – 70% C
- Bituminous – 60 to 80 % C
- Anthracite Coal – 90% C
- Fame

Flame contains three parts

1. Innermost Part- which is black due to the presence of unburned carbon particles- has the lowest temperature.
1. Middle part – is yellow due to incomplete combustion of fuel.
1. Outermost part- which is blue due to complete combustion of fuel is the hottest and used by goldsmith to heat the gold.

Fire Extinguishers

- Water extinguishes the fire because **as it evaporates,** the vapours surround the burning substance, cutting off the oxygen supply, thus inhibiting the burning process.
- In case of **electrical or oil (petrol) fires**, water cannot be used as an extinguisher. This is because water is a conductor of electricity **and heavier than oil**. Thus, oil floats over it and continues to burn.

- Carbon dioxide, which is generated by the reaction of baking soda with acid, is used to extinguish electrical or oil fires. Quality of petrol is measured in terms of octane number and that of diesel in terms of cetane number.

Safety Matches

In safety matches, the stick consists of a mixture of antimony trisulphide and potassium chlorate at its one end. The box side contains a mixture of powdered glass and phosphorus.

80+ Important GK

❖ India has longest International border with which country? Bangladesh (4096 Km).
❖ Which is the largest fort in Asia? Chittorgarh fort
❖ When is National Flag day observed? November 30
❖ Which Sikh Guru initiated 'The Khalsa'? Guru Govind Singh in 1699
❖ When is World Fisheries Day Observed? November 21
❖ Equus buruchelli is the scientific name of. Zebra
❖ Which grassland is the homeland of Native Americans? Prairies
❖ Which is the largest landlocked country in the world? Kazakhstan
❖ Who appoints Governor of a state in India? President of India on aid and advice of council of ministers and Chief Minister of the state for a term of 5 years.
❖ _____ is the second largest animal phylum. Mollusca
❖ Which is the second largest ocean of the world? Atlantic Ocean
❖ Dumhal is the traditional folk dance of which Indian state? Jammu & Kashmir
❖ Which nation is Mongla port situated in ? Bangladesh
❖ Brass is an alloy of. Copper and Zinc
❖ The Joint Sitting of the Lok Sabha and Rajya Sabha under Article 108 is summoned by. The President
❖ SI unit of surface tension is-N/m
❖ Kapili River is tributary of which river- Brahmaputra river
❖ Which of the following landforms is largely rich in mineral deposits? Plateau
❖ What is the state flower of Delhi? Alfalfa Flower
❖ The Sultans of which dynasty ruled for the longest time? Tughlaq dynasty
❖ Which compound is responsible for stimulating effect of Tea? Alkaloid
❖ Who is the current Deputy Election Commissioner of India? Chandra Bushan Kumar
❖ India’s First multi-modal electric vehicle project which aims to promote eco-friendly transport was launched in which City? Nagpur
❖ Manu Bhaker is related to which sport ? Shooting
❖ Which of the dress fabric is named after french dress maker? Georgette

❖ The river ‘Tawa’ is tributary of – Narmada
❖ Dhola-Sadia Bridge”, India Longest Bridge has been built over which tributary of the Brahmaputra River? Lohit River
❖ Name the longest & the Second largest Tributary of Ganga River? Yamuna
❖ On the tributary of which river has Rihand Dam been constructed? Son
❖ A drainage pattern where a river is joined by its tributaries approximately at right angles is - Trellis
❖ Sheikh Hasina Wazed is the Prime Minister of which neighbouring country of India? Bangladesh
❖ The neighbouring country of India which has the smallest area is- Bhutan
❖ Choanocyte cells are present in the members of which phylum.- Phylum Porifera
❖ Sea-Anemones belongs to the phylum- Phylum Cnidaria
❖ Who coined the term "Ecology"? Ernst Haeckel
❖ Which ecological pyramid can never be inverted? Pyramid of productivity also known as pyramid of energy can never be inverted.
❖ Which two planets of the solar system have no satellite? Mercury and Venus
❖ Which planet has slowest revolution in solar system? Neptune
❖ Bronze is an alloy of _____. Copper and tin

❖ Which Viceroy withdrew the Doctrine of Lapse ? Lord Canning
❖ Chemical formula for sulphurous acid is. H_2SO_3.
❖ An important event of Lord Dufferin’s tenure as Viceroy was- It was established that the Indian National Congress (1885), a major event of the tenure of Viceroy Lord Dufferin (Tenure 1884-1888).
❖ Which Viceroy of India proposed the Vernacular Press Act? Lord Lytton
❖ Which Constitutional amendment act gave a constitutional status to the co-operative societies? 97th constitutional amendment act
❖ By which of the following constitutional amendment act, the 11th fundamental duty was added to the Indian Constitution? ‘86thConstitutional Amendment Act, 2002.
❖ Who has been appointed as the new Governor of Odisha? Prof. Ganeshi Lal will take over as the new governor of Odisha, a post which had fallen vacant in March this year after S C Jamir completed his tenure.
❖ Who has inaugurated the ‘Statue of Unity’ (world's tallest Statue) on the birth anniversary of Sardar Vallabhbhai Patel in Gujarat? Prime Minister Narendra Modi
❖ Which is the second highest statue after statue of unity in the world? China's Spring temple Buddha Statue
❖ Who has been appointed as the first Youth ambassador of UNICEF India? Hima Das
❖ The river ‘Shakkar’ is tributary of- Narmada
❖ Tributaries of Indravati are. Bording, Narangi, Kotari, Gudra.
❖ Which country has the longest coastline in the world? Canada has the longest coastline (2,02,080 km) in the world.
❖ The longest railway line in the world connects -The Trans-Siberian Railway is the longest railway line in the world.It connects Moscow and Vladivostok.

❖ In due course of time the meander loop cuts off from the river and forms a cut-off lake, also called an _____ lake.- Ox-bow
❖ The world's highest active volcano-Ojos del Salado on the Chile-Argentina border in the Central Andes.
❖ Who is the governor of Haryana ? Satyadev Arya Narayan
❖ Which of the following Indian institute has developed green crackers ? The researchers at Central Electrochemical Research Institute (CECRI) based in Karaikudi, Tamil Nadu have developed "Green Crackers.
❖ Shardul Vihan is associated with-Shooting
❖ On which date, the Indian Navy Day is celebrated? December 4
❖ Who gave the theory of monopolistic competition ? Edward Chamberlin
❖ Which Foreign Traveller During Mughal Period Gave the Account of Agra, Fatehpur Sikri and Flora and Fauna of India? William Finch
❖ The hottest planet is _____. Venus
❖ Name the highway which is also known as Mumbai-Pune highway & is a Part of Golden Quadrilateral highway? NH4 – This highway is from Mumbai to Chennai, also known as Pune-Mumbai highway & is the major part of golden quadrilateral highway
❖ Which Amendment Act is referred as mini Constitution? 42nd Constitutional Amendment Act, 1976
❖ Wellington Trophy is associated with- Rowing
❖ What is the chemical formula of “Sal ammoniac”? NH_4Cl is the chemical formula of “Sal ammoniac”
❖ Lord Cornwallis is known for _____.-Permanent revenue settlement of Bengal
❖ Golgi apparatus is important site for the formation of: Glycoproteins and glycan

❖ The Buddha attained enlightenment at : Bodh Gaya
❖ Who was the teacher of Gautama Buddha? Alara Kalama
❖ Chand Bardai was an Indian poet who composed an epic poem on which King? Prithviraj Chauhan
❖ The site of Buddha’s birth is marked by the celebrated: Rummindei Pillar of Asoka
❖ Which of the following cities is the venue of the first ever India-US ‘two-plus-two dialogue’? New Delhi
❖ Which of the following Act was officially called as the Anarchical and Revolutionary Crimes Act, 1919? Rowlatt Act
❖ Who invented Radar? Radar was invented by A.H. Taylor and Leo C. Young.
❖ Kishanganga is a tributary of-Jhelum river

List of all Important Awards and their Fields

Find the list of most prestigious awards and their related fields below helpful for upcoming exams:

1. Nobel Prize

• Most coveted international award of the world.
• Instituted by Alfred Bernard Nobel (inventor of dynamite).
• The award is given on December 10 (death anniversary of Alfred Bernard Nobel).

Nobel Prize is given every year to those eminent persons who have made pioneering achievements in the following fields:

• Physics
• Chemistry
• Medicine
• Peace
• Literature
• Economics

Apart from Economics, all other categories have been given since 1901. Economics Nobel Prize was instituted in 1967 and was first given in 1969.

Nobel Laureates of India	Field	Year
Rabindranath Tagore	Literature	1913
C.V. Raman	Physics	1930
Mother Teresa	Peace	1979
Amartya Sen	Economic Studies	1998
Kailash Satyarthi	Peace	2014

2. Magsaysay Awards

• Instituted in 1957 and named after Ramon Magsaysay, the former President of Philippines.
• This award is given annually on August 31
• Award is given for outstanding contributions to public service, community leadership, journalism, literature and creative arts and international understanding.
• Regarded as the Nobel Prize of Asia.

3. Jawaharlal Nehru Award for International Understanding

• Instituted in 1965 by the Government of India.

• Given annually to persons for outstanding contributions to international understanding and goodwill among the people of the world.

4. Oscar Awards

• Instituted in 1929
• Conferred annually by the Academy of Motion Pictures in USA.
• The first Indian to get an Oscar was Bhanu Athaiya for the movie 'Gandhi'.
• Satyajit Ray was the first Indian awarded Oscar for lifetime achievements in cinema in 1992.

5. UNESCO Peace Prize

• Presented by United Nations Educational, Scientific and Cultural Organization (UNESCO)
• For extraordinary contributions for international peace.

6. Pulitzer Prize

• Instituted in 1917 and named after the US Publisher Joseph Pulitzer.
• Conferred annually in the USA
• For accomplishments in journalism, literature and music.

7. Right Livelihood Award

• Instituted in 1980 by the Right Livelihood Society, London.
• Known as alternate Nobel Award
• To promote and contribute in the fields of environment and social justice.

8. Mahatma Gandhi Peace Prize

• Instituted in 1995 by Government of India.
• It is presented for international peace on the lines of Nobel Prize.

9. UNESCO Human Rights Award

• Presented by UNESCO
• For contributions in the field of Human Rights Awareness.
• Given every alternate year.

10. Man Booker Prize

• Highest literary award to authors of British, Irish and Commonwealth countries
• Established in 1969.
• Renamed as Man Booker Prize, as the sponsorship has been taken over by the Man Group, an international stockbroker.

11. UN Human Rights Award

• Presented by UN for personal contribution for the cause of human rights.
• It is presented every sixth year.

12. World Food Prize

• Presented by Food and Agriculture Organization (FAO)
• For the cause of agriculture and food development.

13. Indira Gandhi Award For International Peace, Disarmament & Development

• Presented by Indira Gandhi Memorial Fund in India

• For specialized contribution in the field of international disarmament and development.

14. Bharat Ratna

• Highest civilian award of India
• Presented by the Government of India.
• Presented for exceptional public service and rarest achievements in the field of art, literature and science.
• Instituted in 1954
• First recipient was C. Rajagopalchari

15. Padma Vibhushan

• Padma Vibhushan is the second highest civilian award
• For distinguished services in any field including Government service.
• Padma Bhushan and Padma Shree are the other important civilian awards.

16. Bhartiya Jnanpith Awards

• Instituted in 1965
• Given for distinguished works in any recognized language by a scholar.

17. Sahitya Akademy Awards

• Instituted in 1955
• Given for any exclusive writing in any of the 22 languages including English literature.

18. Saraswati Samman

• Instituted in 1991 by the K.K. Birla Foundation
• Given for any distinguished literary work made during last 10 years in any of the Indian language.

19. Vyas Samman

• Instituted in 1992 by the K.K. Birla Foundation
• For outstanding contribution to Hindi literature.

20. Shanti Swarup Bhatnagar Awards

• Given to the Indian scientists for their exceptional performance.

21. R.D. Birla Award

• Given in the field of medical sciences.

22. Dhanvantri Award

• These awards are given for the extraordinary performance in medical sciences.

23. Arjuna Awards

• Instituted in 1961
• Given by Sports Ministry, Government of India.
• These are given for the special achievements in different types of sports.

24. Dronacharya Awards

• Instituted in 1985
• Given by Sports Ministry, Government of India.
• These are given to sports coaches.

25. Rajiv Gandhi Khel Ratna

• It was instituted in 1992

• Presented for commendable display by the players.

26. Gallantry Awards

• Param Vir Chakra: It is India's highest award for bravery.

• Mahavir Chakra: It is the second highest gallantry award.

• Vir Chakra: It is the third highest gallantry award.

• Ashok Chakra: It is the highest peace-time gallantry award

Important Scientific Instruments and their usage

Accumulator	It is used to store electrical energy
Altimeter	It measures altitudes and is used in aircraft.
Ammeter	It measures the strength of electric current (in amperes).
Anemometer	It measures the force and velocity of the wind.
Audiometer	It measures the intensity of sound.
Audiphones	It is used for improving the imperfect sense of hearing.
Barograph	It is used for continuous recording of atmospheric pressure.
Barometer	It measures atmospheric pressure.
Binocular	It is used to view distant objects
Bolometer	It measures heat radiation
Calorimeter	It measures the quantity of heat.
Carburettor	It is used in an internal combustion engine for charging the air with petrol vapor.

Cardiogram	It traces movements of the heart, recorded on a cardiograph.
Chronometer	It determines the longitude of a place in a ship.
Cinematography	It is an instrument used in cinema making to throw on screen and enlarged image of the photograph.
Colorimeter	An instrument for comparing intensities of colour.
Commutator	An instrument to change or remove the direction of an electric current, in dynamo used to convert alternating current into direct current.
Cresco graph	It measures the growth in plants.
Cyclotron	A charged particle accelerator which can accelerate charged particles to high energies.
Dynamo	It converts mechanical energy into electrical energy
Dynamometer	It measures force, torque, and power
Electroscope	It detects the presence of an electric charge.
Endoscope	It examines the internal parts of the body.
Eudiometer	A glass tube for measuring volume changes in chemical reactions between gases.
Fathometer	It measures the depth of the ocean.
Galvanometer	It measures the electric current of low magnitude.
Hydrometer	It measures the specific gravity of liquids.
Hydrophone	It measures sound under water.
Hygrometer	It measures humidity in the air.
Kymograph	It graphically records physiological movements (Blood pressure and heartbeat).
Lactometer	It determines the purity of milk.

Manometer	It measures the pressure of gases.
Mariner’s compass	It is an instrument used by the sailors to determine the direction.
Microphone	It converts the sound waves into electrical vibrations and to magnify the sound.
Microscope	It is used to obtain a magnified view of small objects.
Odometer	An instrument by which the distance covered by wheeled vehicles is measured.
Periscope	It is used to view objects above sea level (used in submarines)
Phonograph	An instrument for producing sound.
Photometer	The instrument compares the luminous intensity of the source of light
Potentiometer	It is used for comparing the electromotive force of cells.
Pyrometer	It measures very high temperature.
Quartz Clock	A highly accurate clock used in astronomical observations and other precision work
Radar	Radio, angle, detection and range is used to detect the direction and range of an approaching aeroplane by means of radio micro waves
Radiometer	It measures the emission of radiant energy.
Rain Gauge	An apparatus for recording rainfall at a particular place.
Rectifier	An instrument used for the conversion of AC into DC.
Refractometer	It measures refractive index.
Saccharimeter	It measures the amount of sugar in the solution.

Salinometer	It determines salinity of solution.
Seismograph	It measures the intensity of earthquake shocks.
Sextant	This is used by navigators to find the latitude of a place by measuring the elevation above the horizon of the sun or another star.
Spectrometer	It is an instrument for measuring the energy distribution of a particular type of radiation.
Spectroscope	An instrument used for spectrum analysis
Speedometer	It is an instrument placed in a vehicle to record its speed.
Spherometer	It measures the curvatures of surfaces.
Sphygmomanometer	It measures blood pressure.
Stereoscope	It is used to view two dimensional pictures.
Stethoscope	An instrument which is used by the doctors to hear and analyse heart and lung sounds.
Stroboscope	It is used to view rapidly moving objects.
Tachometer	An instrument used in measuring speeds of aero planes and motor boats.
Teleprinter	This instrument receives and sends typed messages from one place to another.
Telescope	It views distant objects in space.
Theodolite	It measures horizontal and vertical angles.
Thermometer	This instrument is used for the measurement of temperatures.
Thermostat	It regulates the temperature at a particular point.
Transistor	A small device which may be used to amplify currents and perform other functions usually performed by a thermionic valve

Udometer	It is used to measure the amount of liquid precipitation over a set period of time. It is also called Rain Gauge.
Vernier	An adjustable scale for measuring small subdivisions of scale
Viscometer	It measures the viscosity of liquids.
Voltmeter	It measures the electric potential difference between two points.

GK Notes on Indian Dance Forms for SSC & Railways Exam

Classical Dances Of India

Dance	State	Famous Personalities
Bharatnatyam	Tamil nadu	Rukmani devi Arundale, Krisna murthy, Shovana Narayan Sonal Mansingh, Vaijayantimala, T Balakrishan, Padma Subramaniyam.
Kathak	Uttar Pradesh	Birju Maharaj, Shovana Narayan.
Kuchipudi	Andhra Pradesh	Mallika Sarabhai, Yamini Krishanmurthy, T Balasarswathi, Ragini Devi,G, sarala, Raja Reddy
Kathakali	Kerala	Mukunda Raja, Koppan Nair, Gopinath Karishan
Odissi	Odisha	Guuru Mayadhar Raut, Kelucharan Mohapatra
Manipuri	Manipur	Jhaver Sisters, Rita devi
Sattriya	Assam	Anwesa Mahanta

Mohiniyatta	Kerala	Kalyani Amma, Shanta Rao.

Folk Dances

State	Dance
Andhra Pradesh	Kuchipudi, Kolattam
Arunachal Pradesh	Bardo Chham
Assam	Bihu dance, Jhumur Naach
Jharkhand	Karma/Munda
Chhattisgarh	Panthi, Raut Nacha, Gaur Maria, Dekhni Dance
Goa	Koli, Dashavatara, Dekhni, Dhalo, Ghodemodni, Romta Mel, Divlyan Nach (Lamp dance)
Gujarat	Garba, Raas, Tippani Dance
Himachal Pradesh	Kinnauri Nati
Haryana	Saang, Ras Leela, Jhumar, Teej, Phag ,Dhamal
Karnataka	Yakshagana, Bayalata.
Kerala	Mohiniyattam, Kathakali, Koodiyattam, Thirayattam, Thitambu Nritham, Aravanmuttu, Padayani.
Madhya Pradesh	Jawara, Maanch, Grida, Tertali, Phulpati Dance, Matki Dance
Maharashtra	Lavni, Tamasha ,Dangi ,Pavri Nach ,Povadas ,Koli ,Dindi
Manipur	Thang Ta, Dhol cholom
Mizoram	Cheraw Dance
Nagaland	Chang Lo or Sua Lua.

Odisha	Ghumura Dance, Ruk Mar Nacha (& Chhau dance), Goti Pua, Nacni, Odissi, Baagh Naach or Tiger Dance, Dalkhai , Dhap, Ghumra
Punjab	Bhangra, Giddh , Jhumar, Karthi, Ludi
Rajasthan	Ghoomar, Kalbelia, Bhavai, Kachchhi Ghodi.
Sikkim	Singhi Chham
Tamil Nadu	Bharatanatyam, Kamandi or Kaman Pandigai, Devarattam, Kummi, Kolattam, Karagattam or Karagam, Mayil Attam or Peacock dance Paampu attam or Snake Dance
Tripura	Hojagiri
Uttar Pradesh	Nautanki, Kathak, Chappeli, Raslila Dance
West Bengal	Gambhira, Nacni, Alkap, Domni, Chow

Gharanas

NAME	PLACE	FOUNDER
Gwalior	Gwalior	Nanthan Khan
Agra	Agra	Hajisujan Khan
Rangeela	Agra	Faiyyaz Khan
Jaipur Atroli	Jaipur	Alladiya Khan
Kiran	Avadh	Abdul wahid khan

Martial Art Form

Gatka	Punjab
Paika	Orissa
Thang Ta	Manipur
Kalaripayattu	Kerala

Famous Musical Instruments and Their Exponents

Sitar	Pt. Ravi Shankar, Ustad Vilayat Khan, Shujaat khan, anuska shankar
Tabla	Ustad Shafat Ahmed Khan, Zakir Hussain , Latif Khan, Allah Rakha Khan
Flute	Pannalal Ghosh, Hari Prasad Chaurasia
Sarod	Ustad Amjad Ali khan, Ustad Ali Akbar Khan, Sharan Rani
Shehnai	Ustad Bismillah Khan, Daya Shankar
Violin	Dr. Smt. N. Rajan, L.Subramaniam
Veena	S.Balacharan, Gopal Karishan, Asad ali
Santoor	Pt. Shiv kumar Sharma, Tarun Bhattacharya
Sarangi	Ustad Bendu Khan
Guitar	Vishwa Mohan Bhatt

Important Facts of Solar System

We live on a planet named ‘Earth’. Likewise, Earth also exists in its home with other 7 planets, only star ‘Sun’ and many other small objects called asteroids, comets, dwarf planets, meteors etc. So basically the Solar system is a system of Sun, 8 planets, dwarf planets, asteroids, meteors and comets under the gravitational influence of the Sun.

Origin

- There are 3 to 4 major theories of the evolution of the universe and ultimately of the solar system. The prominent theory among all of these is **Big Bang theory**.

- According to this theory proposed **by Georges Lemaitre**, the universe is evolved from a small singularity and then expands over the next 13.8 billion years and still expanding.
- It led to the formation of many billions of galaxies, solar systems, stars etc.
- Our solar system lies in a spiral-shaped galaxy called **'Milky Way'**. The nearest galaxy to us is **'Andromeda'**.
- Generally, there is a Black hole at the centre of every galaxy. **'Sagittarius A'** is the black hole at the centre of Milky Way.

Solar System

- In our solar system, 8 planets and many other celestial bodies revolve around the sun in elliptical orbits.
- The dwarf planet named **Pluto** was removed from the list of the planets by the **International Astronomical Union in 2006**.
- Sun is the powerhouse of the solar system. It is the only source of energy in the solar system.
- Planet Mercury is nearest to the sun while Neptune is the farthest planet from the sun.
- There is an asteroid belt between Mars and Jupiter. Planets inside the belt are distinctly different from those outsides in terms of size, mass, and composition etc.
- Planets inside the belt are called **Terrestrial planets** and they are Mercury, Venus, Earth, and Mars. Planets outside the best are called **Jovian planets** and they are Jupiter, Saturn, Uranus, and Neptune.
- Terrestrial planets are nearer to the sun, with metallic minerals and rock crust, with a thin atmosphere and have less number of natural satellites. While Jovian planets are away from Sun, made up of hot gases, have rings around them, and have a large number of natural satellites.

Facts about the Sun and Planets

1. Sun

- **The only star** in our solar system and **powerhouse of the solar** system.
- Composed of Hydrogen (73%), Helium (25%) gases and other metals. Sun carries **almost 99% mass** of our solar system.
- Approximately 15 crore Kilometres further away from Earth. It takes around 8 minutes 30 seconds for light at the speed of 3 lakh Km/sec to reach the earth.
- Temperature at surface= 5800 K or 5600 degree Celsius.
- Temperature at the centre= 15.7 million K

2. Mercury

- **Closest planet** to the Sun and very hot planet.
- **Smallest planet** in the solar system with a diameter of 4900 Km.

- **Fastest Planet** with speed of 172500 Km per hour to complete revolution around Sun in 88 days.
- The planet with no water and gases like Nitrogen, Hydrogen, Oxygen and Carbon Dioxide.

3. Venus

- **Hottest planet** in the solar system with the surface temperature of 478 degree Celsius.
- Also known as **"Earth's Twin**". It is because of the similarity in size and mass between Venus and Earth.
- One of the two planets in the solar system which rotate around the axis in a Clockwise direction.
- **Brightest Star** in the Solar system. It can be seen in the morning and evening with open eyes. So known as "**Evening Star**" and "**Morning Star**".

4. Earth

- The only Planet to give support to life with a pleasant atmosphere.
- Also known as "**Blue Planet**" because of the presence of water on it.
- It has one natural satellite named "**Moon**".

5. Mars

- Known as **"Red Planet**" because of Iron-rich red soil.
- Second smallest planet in the solar system after Mercury.
- Has two natural moons "**Phobos" and "Deimos**".
- Has a thin atmosphere and surface with valleys, craters, deserts, and ice caps etc.
- "**Olympus Mons**" – Largest volcano and the tallest mountain in the solar system lies on Mars.

6. Jupiter

- **Largest planet** of the solar system with the **shortest rotation**
- Has an atmosphere filled with Hydrogen, Helium and other gases
- **The third brightest object** in the night sky after the Moon and Venus.
- **Great Red Spot**, a giant storm in the solar system exists on this planet.
- Has at least 63 moons, including 4 large Galilean Moons **"Io, Europa, Ganymede, and Callisto"** which were discovered by **Galileo**. **"Ganymede**" is the largest among them.
- It has an unclear ring around it.

7. Saturn

- **Second largest planet** in the solar system and a gas giant.

- Has bright and concentric rings around it which are made up of tiny rocks and pieces of Ice.
- Saturn can float on water because it has **less density** than water.
- Has at least 62 moons and **Titan** is the largest among them.

8. Uranus

- Has the **third- largest planetary** radius and **fourth largest planetary mass** in the Solar system.
- Greenish in colour.
- Discovered by **William Herschel** in 1781.
- Known as **"Ice Giant".** The atmosphere of Uranus is composed of Hydrogen and Helium primarily, but it also contains more water, ammonia etc.
- Has coldest planetary atmosphere in the solar system.
- **Rotates clockwise on its axis** like Venus but unlike other planets
- Has at least 27 moons. Famous moons- **Miranda, Ariel and Umbriel**

9. Neptune

- Farthest planet from the Sun.
- It is also "**Ice Giant**". Atmosphere primarily composed of Hydrogen and Helium.
- Bluish in colour because of Methane.
- Fourth largest planet and the third most- massive planet in the solar system
- Discovered by **Johann Galle and Urbain Le Verrier** in 1846. **The only planet** in the solar system found by **Mathematical Predictions.**
- Has known 14 satellites. **Famous moon – Triton.**

10. Pluto

- As per the new definition of Planets determined by **International Astronomical Union (IAU**), Pluto has been omitted from the list of planets in 2006.
- Pluto is considered as a dwarf planet (size between planets and asteroids) now and it is a member of Kuiper Belt.
- **Kuiper Belt** is a spherical boundary **outside the orbit of Neptune** containing a number of asteroids, rocks, and comets.

Other Space Objects

1. Asteroids

- These are small objects; rocks (mostly debris) revolve around the Sun.

- They are mostly found in the **Asteroid Belt** which lies between the orbits of Mars and Jupiter.
- These are also known as **Minor planets**.
- **Ceres, Vesta, Psyche** are some famous and largest asteroids in the solar system.

2. Meteors and Meteorites

- These are also known as **Shooting stars.**
- Meteors are the small-sized rocky material which is generally formed due to asteroid collision and approaching the earth.
- Because of Earth's atmospheric layers, these small rocks burn before reaching the surface.
- But there are some meteors which do not burn completely and land on Earth's surface. They are called as **Meteorites**.
- **Willamette, Mbozi, Cape York, and El Chaco** are some meteorites found on the Earth.
- **Lonar lake, Maharashtra** in India is supposed to be created by a meteor impact in **Pleistocene Epoch**.

3. Comets

- These are shiny, luminous "**Tailed Stars**". These are rocky and metallic materials surrounded by frozen gases.
- These are generally found in **Kuiper Belt**. They travel towards the Sun.
- Their tail faces opposite of the sun and head faces towards the Sun.
- They become visible when they travel close to the Sun.
- **Halley comet** is famous which appeared last time in 1986 and which reappears after every 76 years.

Important Biology Questions

- The part of the brain which is concerned with muscular co-ordination in the body -**Cerebellum**
- The nerve which transmits impulses from the eye to the brain - **Optic Nerve**
- The muscles in the human eye which are concerned with the following of objects at different distances - **Radial and circular muscle/ ciliary muscle**
- The unit of the nervous system - **Neuron**
- The neurons which carry impulses from receptor to brain - **Sensory neurons**
- The neuron which transmits impulses from the brain to the effector organ - **Motor neurons**

- The lower part of the brain which contains reflex centre - **Spinal Cord**
- The number of spinal nerves in man- **31 pairs**
- The middle coat of the eye, soft vascular and thin layer - **Choroid**
- The sensitive cells present in the retina - **Rods and Cones**
- The smallest bone in the human body - **Stapes**
- Most important part of the nervous system- **Brain**
- The membrane covering the brain and spinal cord - **Meninges**
- Response to a stimulus without the intervention of the will of an animal - **Reflex Action**
- The point in the centre of the retina where the rods and cones are highly concentrated -**Yellow Spot**
- One neurotransmitter - **Acetyl Choline**
- Defect of the eye in which distant objects are not seen clearly - **Myopia**
- Defect of the eye in which near objects are not seen clearly - **Hypermetropia**
- A bony socket in which eye is well protected - **Orbit**
- A small opening in the centre of the Iris - **Pupil**
- The structure for the alteration of the shape of the lens - **Ciliary body/ ciliary muscles**
- The structure for the constriction of the pupil in bright light - **Iris**
- Inner sensitive coat of the eyeball - **Retina**
- The organ of hearing - **Ear**
- The structure of the ear which helps in the balancing of the body- **Semi-circular canals**
- Jelly-like material filled in the space between the lens and the retina- **Vitreous humour**
- The fluid-filled in the space between the cornea and the lens - **Aqueous humour**
- The structure that protects the eye-ball and maintains its shape - **Sclera**
- The structure that has a sensory organ called 'organ of Corti' - **Cochlea**
- The defect of the eye caused due to the uneven curvature of the cornea - **Astigmatism**
- The parts of the autonomous nervous system - **Sympathetic and parasympathetic nervous system**
- The nerves which transmit impulses from the ear to the brain - **Auditory Nerve**

Chemistry Notes: Some important metals and their Uses

Metals:

- Metals are good conductors of **heat & electricity** and are malleable and ductile.
- Gold and silver are the most **malleable** and best **ductile** metals.
- Silver is the **best** conductor of heat followed by copper.

- Aluminium and copper are good conductors of heat that's why cooking utensils are made of them.
- Mercury offers high resistance to the flow of electric current.
- Sodium and potassium are so soft that they can be easily **cut with a knife**.
- Metals are electropositive in nature.
- Almost all the metal oxides are basic in nature but zinc oxide and aluminium oxide are amphoteric.

Alkali metals and their compounds

- Metals of the first group are alkali metals.
- This group lies in the **s-block** of the periodic table of elements as all alkali metals have their outermost electron in an s-orbital.
- Lithium, sodium, potassium, rubidium and cesium are alkali metals.
- These metals are stored under kerosene or **liquid paraffin's** to protect them from the action of air.

Sodium chloride (NaCl):

- Commonly known as table salt
- Used in the manufacturing of sodium hydroxide and chlorine gas.
- It is used as a starting material in the manufacturing of caustic soda.
- It is used in the **removing of ice from road**, now a- days $CaCl_2$ and $MgCl_2$ are also used for this purpose.

Sodium hydroxide (NaOH):

- Used in the refining of bauxite material.
- Used in soap, dyes and artificial industries.

Sodium bicarbonate ($NaHCO_3$):

- It is commonly known as **baking soda.**
- Used for wool washing.
- Used in the fire extinguisher.

Sodium carbonate (Na_2CO_3)

1. It is commonly known as **washing soda**.
2. Used for softening of hard water.
3. The mixture of sodium carbonate and potassium carbonate is known as **Fusion mixture**.

Sodium Sulphate:

- It is commonly known as **Glauber's salt**.
- It is used as a purgative.

Sodium thiosulphate:

- It is commonly known as **Hypo** and used in **photography** as a fixing agent.

Potassium carbonate:

- It is known as **pearl ash**.

Potassium hydroxide:

- Commonly known as caustic potash.
- Use in the preparation of soft soap.
- Its aqueous solution is known as **potash Lye**.

Potassium superoxide.

- Used in space capsules, submarines, and a breathing mask as it removes in carbon dioxide and carbon monoxide.

Alkaline Earth Metals and their compounds

The **alkaline earth metals** are six elements in column (group) 2 of the Periodic table. They are beryllium (Be),magnesium(Mg),calcium (Ca), strontium (Sr),barium (Ba), and radium (Ra).They have very similar properties: they are all shiny, silvery-white, somewhat reactive metal at the same temperature and pressure.

- $Mg(OH_2)$ is known as **milk of magnesia** and use as an **antacid**.

Calcium oxide

- It is also known as quick lime.
- Used in the manufacturing of calcium chloride, cement, and bleaching powder.

Calcium sulphate (CaSO4):

The compound exists in three levels of hydration:

- anhydrous state (mineral name: "anhydrite") with the formula $CaSO_4$
- dihydrate (mineral name: **"gypsum"**) with the formula $CaSO_4(H_2O)_2$.

- hemihydrate with the formula $CaSO_4(H_2O)_{0.5}$
- It loses a part of water to form plaster of Paris.
- Plaster of Paris is a white powder which becomes hard on contact with water and is used in the manufacturing of statues.

Some Important Metals & Their Uses

Aluminium (Al):

- Ore of aluminium is **bauxite**.
- It is the **third** most abundant element in the earth's crust.
- Used in the manufacturing of cooking utensils.
- Ammonal, a mixture of aluminium powder and ammonium nitrate is used as an explosive.

Tin:

- The ore of tin is Cassiterite.
- The process of converting white tin to grey tin is known as **tin disease or tin plague**.
- Used in the plating of iron to protect the iron from rusting.
- Tin amalgam is used in the manufacturing of mirrors.

Lead(Pb)

- The main ore of lead is galena.
- Use in the preparation of sulphuric acid through the chamber process.
- Lead acetate is known as **sugar of lead**.

Zinc(Zn):

- It is used in the **galvanization** process to prevent the rusting of iron.
- Zinc sulphide is used in the preparation of **X-ray** screens.
- Zinc oxide is known as **philosopher wool**.

Mercury(Hg):

- It is the only metal which is liquid at room temperature.
- It forms alloys with all other metal except iron and platinum.

Nickel(Ni):

- Silvery white soft metal.

- Used as an anode in Edison batteries.

Iron(Fe)

- Extracted from the haematite ore and do not occur in Free State due to its reactivity.
- Ferric chloride is used as a styptic to stop bleeding from the cut.
- Ferrous sulphate is used in making blue-black ink.

Stainless steel:

- It is an alloy of iron, chromium, and nickel.
- Used in making automobiles parts and utensils

Chemistry Notes on Acids and Base

In this article, we have discussed the **Acids and Bases** for Railways & SSC Exams and various scientist theories which support the concept of acid and base. Generally, one question comes from this topic.
Organic Acids are those acids which are obtained from plants and animals. e.g. lactic acid, oxalic acid, acetic acid. Mineral Acids are those acids which are obtained from minerals.e.g. sulphuric acid and phosphoric acid.

Arrhenius concept of acids and bases:

- Acid is a substance which produces **hydrogen ions (H^+)** in aqueous solution e.g. HCL (H^+ Cl^-), Sulphuric Acid,H_2SO_4 ($2H^+$ SO^{2-}_4).
- Base is a substance which produces **Hydroxide ion (OH^-)** in aqueous solution e.g. sodium hydroxide and ammonium hydroxide etc.

Bronsted Lowery concept of Acids and Bases

- An acid is a molecule or ion which is capable of **donating a proton**.
- A base is a molecule or ion which is capable of **accepting a proton**.

Lewis concept of Acids and Bases

- An acid is a substance which can **accept an electron** e.g. boron fluoride (BF_3) and carbon dioxide.

- Base is a substance which can **produce an electron** e.g. fluoride (F^-) and chloride (Cl^-).

Some important acids and their presence

These acids are mostly asked in SSC Exams. Don't forget to remember this table.

Acid	Present in
Acetic Acid	Vinegar
Formic Acid	Red ants
Citric Acid	Citrus Fruits
Lactic Acid	Curd
Ascorbic Acid	Amla
Tartaric Acid	Grapes, Ripe Mangoes
Oxalic Acid	Spinach

PH Scale

- PH value is a measure of the acidity or basicity of an aqueous solution.
- Solution with PH value **less than** 7 is considered as acidic.
- Solution with PH value **greater than** 7 is greater 7 is considered as basic.

PH values of some important solutions.

Substance	P^H Value
Blood	7.3 to 7.5
Tears	7.4
Saliva	6.5-7-5
Urine	5.5-7.5
Coffee	4.5-5.5
Beer	4.0-5.0
Wine	2.8-3.8
Vinegar	2.4 -3.4

Buffer Solutions:

- The solutions which resist the change in its PH value on an addition of a small amount of acid or base are called buffer solutions.
- Acidic buffer solution has PH value **less than** 7.
- Basic buffer has PH value **greater than** 7.
- PH value of blood is maintained with the help of H_2CO_3/HCO_3 buffer inspite of many acidic foods we eat.

Salts:

- When acidic and basic solutions are mixed in proper proportion than their own nature is destroyed and Salt is formed.
- Acid turns blue litmus red and base turns red litmus blue.
- Formation of salts after mixing base and acidic is called a neutralisation reaction.

List of Chief Ministers & Governors:

States	Current chief minister	Governors
Andhra Pradesh	N. Chandrababu Naidu	E. S. L. Narasimhan

Arunachal Pradesh	Pema Khandu	Brigadier (Retd.) BD Mishra
Assam	Sarbananda Sonowal	Jagdish Mukhi
Bihar	Nitish Kumar	Lalji Tandon
Chhattisgarh	Bhupesh Bhagal	Anandiben Patel
Delhi	Arvind Kejriwal	Anil Baijal (Lt. Governor)
Goa	Pramod Sawant	Mridula Sinha
Gujarat	Vijay Rupani	Om Prakash Kohli
Haryana	Manohar Lal Khattar	Satyadev Narayan Arya
Himachal Pradesh	Jairam Thakur	Acharya Dev Vrat
Jammu and Kashmir	(President's Rule)	Satya Pal Malik
Jharkhand	Raghubar Das	Draupadi Murmu
Karnataka	H. D. Kumaraswamy	Vajubhai Vala
Kerala	Pinarayi Vijayan	P. Sathasivam
Madhya Pradesh	Kamal Nath	Anandiben Patel
Maharashtra	Devendra Fadnavis	C. Vidyasagar Rao
Manipur	N. Biren Singh	Najma Heptulla
Meghalaya	Conrad Sangma	Tathagata Roy
Mizoram	Pu Zoramthanga	Jagdish Mukhi
Nagaland	Neiphiu Rio	Padmanabha Acharya
Odisha	Naveen Patnaik	Ganeshi Lal
Puducherry	V. Narayanasamy	Kiran Bedi (Lt. Governor)
Punjab	Amarinder Singh	V. P. Singh Badnore

Rajasthan	Ashok Gahlot	Kalyan Singh
Sikkim	Pawan Kumar Chamling	Ganga Prasad
Tamil Nadu	Edappadi K. Palaniswami	Banwarilal Purohit
Telangana	K. Chandrashekar Rao	E. S. L. Narasimhan (Additional Charge)
Tripura	Biplab deb	Kaptan Singh Solanki
Uttar Pradesh	Yogi Adityanath	Ram Naik
Uttarakhand	Trivendra Singh Rawat	Baby Rani Maurya
West Bengal	Mamata Banerjee	Keshari Nath Tripathi

List of Cabinet Ministers 2019

Portfolio	**Minister Name**
Prime Minister, Ministry of Personnel, Public Grievances and Pensions	Narendra Modi
Ministry of Home Affairs	Raj Nath Singh
Ministry of External Affairs	Sushma Swaraj
Ministry of Commerce and Industry & Civil Aviation	Suresh Prabhu
Minister of Finance & Corporate Affairs	Arun Jaitley
Ministry of Road Transport and Highways, Shipping, Water Resources, River Development, and Ganga Rejuvenation	Nitin Jairam Gadkari
Ministry of Statistics and Programme Implementation Ministry of Chemical & Fertilizers	D.V. Sadananda Gowda
Ministry of Drinking Water & Sanitation	Uma Bharati

Ministry of Science and Technology, Earth Sciences, Environment, Forest and Climate Change	Dr. Harsh Vardhan
Ministry of Consumer Affairs, Food, and Public Distribution	Ramvilas Paswan
Ministry of Women and Child Development	Maneka Sanjay Gandhi
Ministry of Electronics and Information Technology, Law and Justice	Ravi Shankar Prasad
Ministry of Health and Family Welfare	Jagat Prakash Nadda
Ministry of Steel	Chaudhary Birender Singh
Ministry of Heavy Industries and Public Enterprises	Anant Geete
Ministry of Food Processing Industries	Harsimrat Kaur Badal
Ministry of Rural Development, Panchayati Raj, Mines, Parliamentary Affairs	Narendra Singh Tomar
Ministry of Tribal Affairs	Jual Oram
Ministry of Agriculture & Farmers Welfare	Radha Mohan Singh
Ministry of Textiles	Smriti Zubin Irani
Ministry of Social Justice and Empowerment	Thaawar Chand Gehlot
Ministry of Human Resource Development	Prakash Javadekar
Ministry of Petroleum and Natural Gas, Skill Development and Entrepreneurship	Dharmendra Pradhan
Ministry of Coal, Railways	Piyush Goyal

Ministry of Defence	Nirmala Sitharaman
Ministry of Minority Affairs	Mukhtar Abbas Naqvi

List of Ministers of State (Independent Charge)

Portfolio	Minister Name
Ministry of Planning	Inderjit Singh Rao
Ministry of Labour and Employment	Santosh Kumar Gangwar
Department of AYUSH	Shripad Yesso Naik
Ministry of Development of North Eastern Region	Dr. Jitendra Singh
Ministry of Culture	Dr. Mahesh Sharma
Ministry of Micro, Small and Medium Enterprises	Giriraj Singh
Ministry of Communications	Manoj Sinha
Ministry of Youth Affairs and Sports, Information & Broadcasting	Rajyavardhan Singh Rathore
Ministry of Power, New and Renewable Energy	Raj Kumar Singh
Ministry of Housing and Urban Affairs	Hardeep Singh Puri
Ministry of Tourism	Alphons Kannanthanam

Ministers of State (Important)

Portfolio	Minister Name
Ministry of External Affairs	V.K. Singh
Ministry of Environment, Forest and Climate Change	Dr. Mahesh Sharma

Ministry of Home Affairs	Kiren Rijiju
Ministry of Health and Family Welfare	Anupriya Patel, Ashwini Kumar Choubey
Ministry of Parliamentary Affairs, Water Resources, River Development, and Ganga Rejuvenation	Arjun Ram Meghwal
Ministry of Civil Aviation	Jayant Sinha
Ministry of Railways	Manoj Sinha, Rajen Gohain
Department of Atomic Energy, Space, Ministry of Personnel, Public Grievances and Pensions, Prime Minister's Office	Dr. Jitendra Singh

List of Important National and International days and dates

Important Dates and Days of January

- **January 4:** World Braille Day
- **January 9:** NRI Day
- **January 10:** World Hindi Day
- **January 12:** National Youth Day

- **January 15:** Army day
- **January 25:** National Voters day
- **January 26:** India's Republic Day, International Customs Day
- **January 27:** International Day of Commemoration
- **January 30:** Martyrs' Day
- **January (last Sunday):** World Leprosy Eradication Day

Important Dates and Days of February

- **February 2:** World Wetlands Day
- **February 4:** World Cancer Day
- **February 6:** International Day of Zero Tolerance to Female Genital Mutilation
- **February 5:** Safer Internet Day (second day of the second week of February)
- **February 10:** National De-worming Day
- **February 11:** International Day of Women and girls in Science
- **February 12:** National Productivity Day
- **February 13:** World Radio Day, National Women's Day
- **February 14:** Valentine Day
- **February 20:** World Day of Social Justice
- **February 21:** International Mother Language Day
- **February 24:** Central Excise Day
- **February 28:** National Science Day

Important Dates and Days of March

- **March 1:** Zero Discrimination Day; World Civil Defence Day
- **March 3:** World Wildlife Day, World Hearing Day
- **March 4:** National Security Day
- **March 8:** International Women's Day; World Kidney Day (2nd Thursday in March)
- **March 13:** No Smoking Day (2nd Wednesday in March)
- **March 15:** World Consumer Rights Day
- **March 18:** Ordnance Factories Day (India)
- **March 20:** International Day of Happiness; World Sparrow day
- **March 21:** World Forestry Day; World Down Syndrome Day; World Poetry Day
- **March 22:** World Day for Water
- **March 23:** World Meteorological Day
- **March 24:** World TB Day
- **March 27:** World Theatre Day

Important Dates and Days of April

- **April 2:** World Autism Awareness Day
- **April 4:** International Day for Mine Awareness

- **April 5:** National Maritime Day
- **April 7:** World Health Day
- **April 10:** World Homeopathy Day
- **April 11:** National Safe Motherhood Day; National Pet Day
- **April 17:** World Haemophilia Day
- **April 18:** World Heritage Day
- **April 19:** World Liver Day
- **April 21:** Secretaries' Day; Civil Services Day
- **April 22:** Earth Day
- **April 23:** World Book and Copyright Day
- **April 24:** National Panchayati Day
- **April 25:** World Malaria Day
- **April 26:** World Intellectual Property Day
- **April 28:** World Day for Safety and Health at Work; World Veterinary Day
- **April 29:** International Dance Day
- **April 30:** Ayushman Bharat Diwas

Important Dates and Days of May

- **May 1:** Workers' Day (International Labour Day), Maharashtra Day
- **May 3:** Press Freedom Day
- **May (1st Sunday):** World Laughter Day
- **May (1st Tuesday):** World Asthma Day
- **May (2nd Sunday):** Mother's Day
- **May 4:** Coal Miners' Day; International Firefighters Day
- **May 7:** World Athletics Day
- **May 8:** World Red Cross Day; World Thalassaemia Day
- **May 11:** National Technology Day
- **May 12:** International Nurses Day
- **May 15:** International Day of the Family
- **May 17:** World Telecommunication Day; World Hypertension Day
- **May 18:** World AIDS Vaccine Day; International Museum Day
- **May 21:** National Anti-Terrorism Day
- **May 22:** International Day for Biological Diversity
- **May 24:** Commonwealth Day
- **May 31:** Anti-tobacco Day

Important Dates and Days of June

- **June 1:** World Milk Day
- **June 3:** World Bicycle Day
- **June 4:** International Day of Innocent Children Victims of Aggression
- **June 5:** World Environment Day

- **June (3rd Sunday):** Father's Day
- **June 8:** World Ocean Day
- **June 12:** Anti-Child Labor Day
- **June 13:** International Albinism Awareness Day
- **June 14:** World Blood Donor Day
- **June 20:** World Refugee Day
- **June 21:** International day of yoga

- **June 23:** United Nations Public Service Day
- **June 26:** International Day against Drug Abuse and Illicit Trafficking

Important Dates and Days of July

- **July 1:** Doctor's Day
- **July 6:** World Zoonoses Day
- **July 11:** World Population Day
- **July 17:** World Day for International Justice
- **July 18:** International Nelson Mandela Day
- **July 28:** World Hepatitis Day

Important Dates and Days of August

- **August (1st Sunday):** International Friendship Day
- **August 6:** Hiroshima Day
- **August 9:** Quit India Day, Nagasaki Day, Intl. Day of the World's Indigenous Peoples
- **August 15:** Indian Independence Day
- **August 12:** International Youth Day
- **August 19:** Photography Day; World Humanitarian Day
- **August 29:** National Sports Day

Important Dates and Days of September

- **September 2:** Coconut Day
- **September 5:** Teachers' Day; Sanskrit Day
- **September 8:** International Literacy Day
- **September 14:** Hindi Diwas
- **September 15:** Engineers' Day; International Day of Democracy
- **September 16:** World Ozone Day; International Day for Preservation
- **September 21:** Alzheimer's Day; Day for Peace & Non-violence (UN)
- **September 22:** Rose Day (Welfare of cancer patients)
- **September 23:** International Day of Sign Languages
- **September 26:** Day of the Deaf; World Contraception Day
- **September 27:** World Tourism Day; World Maritime Day

- **September 29:** World Heart Day
- **September 30:** International Translation Day
- **September:** world rivers day (last Saturday of September)

Important Dates and Days of October

- **October 1:** International Day for the Elderly
- **October 2:** Gandhi Jayanthi; International Day of Non-Violence
- **October(first Monday):** World Habitat Day
- **October 4:** World Animal Welfare Day
- **October 8:** Indian Air Force Day
- **October 9:** World Post Office Day
- **October 10:** National Post Day; World Mental Health Day
- **October 11:** National Girl Child Day
- **October 2nd Thursday:** World Sight Day
- **October 13:** UN International Day for Natural Disaster Reduction
- **October 14:** World Standards Day
- **October 15:** World Students Day; World White Cane Day (guiding the blind)
- **October 16:** World Food Day
- **October 24:** UN Day; World Development Information Day
- **October 30:** World Thrift Day
- **October 31:** National Unity Day

Important Dates and Days of November

- **November 5:** World tsunami day
- **November 7:** National Cancer Awareness Day
- **November 9:** Legal Services Day
- **November 14:** Children's Day; Diabetes Day
- **November 17:** National Epilepsy Day
- **November 20:** Africa Industrialization Day
- **November 21:** World Television Day
- **November 29:** International Day of Solidarity with Palestinian People

Important Dates and Days of December

- **December 1:** World AIDS Day
- **December 2:** National Pollution Control
- **December 3:** World Day of the Handicapped
- **December 4:** Indian Navy Day
- **December 7:** Indian Armed Forces Flag Day
- **December 10:** Human Rights Day; Intl. Children's Day of Broadcasting
- **December 11:** International Mountain Day

- **December 14:** World Energy Conservation Day
- **December 16:** Vijay Diwas
- **December 18:** Minorities Rights Day (India)
- **December 22:** National Mathematics Day
- **December 23:** Kisan Divas (Farmer's Day) (India)
- **December 24:** National Consumers Day
- **December 25**: Christmas Day

Biology Notes on Human Digestive System

Digestive System is one of the vital topics asked in SSC & Railways exam. Here, in this article, we are going to have a discussion on the **human digestive system.** Various organs, enzymes, glands, enzymes etc. Play an important and specific role in digestion. More notable fact is that the digestion starts from the mouth, not from the stomach. Like this, in this article, we will discuss amazing facts, relevant information and a lot more from an exam point of view.

Digestive System:

A digestive system is a group of organs which work to convert the food into basic nutrients for feeding energy to the whole body. Human does not produce its own food like plants and depend on other plants and animals for food, hence called **Heterotroph**. Human needs various nutrients, proteins and vitamins which are derived from food through digestion. Chewing, in which food is mixed with saliva begins the process of digestion. This produces a bolus which can be swallowed down the oesophagus and into the stomach. The complete process of nutrition is divided into five stages:

- **Ingestion**
- **Digestion**
- **Absorption**
- **Assimilation**
- **Defecation**

Ingestion:

The process of **taking food, drink or any other substance** into the body by swallowing and absorbing it, is known as Ingestion.

Digestion:

- Digestive system contains six components which are as follow-

1. Mouth
2. Oesophagus

- Stomach

1. The small intestine
2. Colon (large intestine)
3. Rectum

- Digestion is a process through the large insoluble and non-absorbable food particles are broken down into smaller water soluble and absorbable particle which are finally absorbed by blood plasma.
- It is a form of catabolism which is divided into two groups based on how food is broken down in the body, if food is broken down through mechanical means then it is known as

Mechanical Digestion and if it is through chemical means then it is called as Chemical Digestion.

Mouth and Oesophagus

- Digestion initiates right from mouth, where Salivary gland secrets the **Saliva** in the mouth in which two types of enzymes are found, **ptyalin and maltase.**
- saliva contains an enzyme called salivary amylase that begins the process of converting starches in the food into maltose
- Around **1.5 litres** of saliva is secreted in human on an average day, it is acidic in nature (pH 6.8)
- Through food pipe or Oesophagus, food reaches into the stomach.

Digestion in Stomach:

- Ph of the stomach is 1.5-2.5. This acidic environment helps in breaking the food particle and absorption of necessary nutrients from food.
- Highly acidic environment of stomach contains gastric glands which secrete gastric juice, this is a light yellow acidic acid.
- **Pepsin and Renin** are the enzymes in the gastric juice.
- Parietal cells secrete Chlorine and Hydrogen ion which combine to form Hydrochloric acid which helps in killing microorganisms and with the help of enzyme pepsin helps in hydrolysis of proteins.
- Hydrochloric acid makes the food acidic by which **ptyalin** reaction of the saliva end.
- Pepsin breaks down the protein into **peptones and** Renin breaks down the Caseinogen into Casein.

Digestion in Duodenum:

- The duodenum is the first and shortest segment of the small intestine. It receives partially digested food (known as chyme) from the stomach and plays a vital role in the chemical digestion of chyme in preparation for absorption in the small intestine.
- The gall bladder releases bile, which has been produced by the liver, to help further break fats down into a form that can be absorbed by the intestines.
- As the food reaches the duodenum bile juice from the liver combines with it. The main function of the bile juice is **to convert the acidic food into alkaline**, as it is alkaline in nature.
- Pancreatic juice form pancreas combines with food and it contains the following enzymes:

1. **Trypsin:** It converts the **protein and peptone** into polypeptides and amino acid.
2. **Amylase:** It converts the **starch** into soluble sugar.
3. **Lipase:** It converts the emulsified **fats** into glycerol and fatty acids.

Digestion in Small Intestine:

- Here the process of digestion completed and **absorption** of digested foods start.
- In the small intestine, intestinal juices secrete and it is alkaline in nature and around **2 litres** of intestinal juice secretes per day.
- Intestinal juice contains the following enzymes:

1. **Erepsin:** It converts the remaining protein and peptone into amino acids.
2. **Maltase:** It converts the maltose into glucose.
3. **Sucrase**: It converts the sucrose into glucose and fructose.
4. **Lactase:** It converts the lactose into glucose and galactose.
5. **Lipase:** It converts the emulsified fats into glycerol and fatty acids.

Absorption:

- Digested food is absorbed by blood plasma is known as Absorption.
- The absorption of digested foods takes place through **small intestine villi** which are finger-like structure extended into the lumen of the small intestine.

Assimilation:

- Use of absorbed food in the body or movement of digested particles where they are used is called assimilation

Defecation:

- It is the final act of digestion. It is also known as bowel movement. Undigested food reaches from small to the large intestine where bacterias convert it into faeces which is excreted through the anus.

Disorders of digestive system:

Here are some important digestive disorder in human beings.

Disorder	Symptoms
Vomiting	Expulsion of food from mouth due to irritation in the stomach.
Diarrhoea	Infectious disease resulting in a loose frequent bowel.
Jaundice	Yellow colouration of skin and mucous membrane.
Gall stone	Cholesterol crystallises to from gall stone.

Constipation	difficulty of defecation due to decreased mobility in the large intestine.