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Himachal Pradesh

Staff Nurse

Himachal Pradesh Rajya Chaya Aayog

Volume - 1

(Non Nursing)

General Awareness & Himachal Gk

SIERRA INNOVATIONS

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1 CHAPTER General Awareness

First in India (male & female)

First in India – Males

Achievement	Name	Year	Description
First President	**Dr. Rajendra Prasad**	1950	Only President to serve two terms.
First Prime Minister	**Pt. Jawaharlal Nehru**	1947	Played major role in shaping India's democracy.
First Vice President	**Dr. S. Radhakrishnan**	1952	Great philosopher and teacher; Teacher's Day celebrated on his birthday.
First Indian to win Nobel Prize	**Rabindranath Tagore**	1913	For "Gitanjali" in Literature.
First Indian in Space	**Rakesh Sharma**	1984	His words: "Saare Jahan Se Achha."
First Commander-in-Chief of Indian Army	**General K.M. Cariappa**	1949	Took over from British officers.

First in India – Females

Achievement	Name	Year	Description
First Woman President	**Pratibha Devisingh Patil**	2007	Served as the 12th President of India.
First Woman Prime Minister	**Indira Gandhi**	1966	Only woman PM of India so far.
First Woman IPS Officer	**Kiran Bedi**	1972	Known for prison reforms.
First Woman Governor	**Sarojini Naidu**	1947	Governor of Uttar Pradesh.
First Woman to climb Mount Everest	**Bachendri Pal**	1984	First Indian woman mountaineer to reach summit.
First Woman Chief Minister	**Sucheta Kriplani**	1963	CM of Uttar Pradesh.

Revolutions in india

Revolutions in India are named based on the color associated with the field they transformed.

Revolution	Color	Area/Focus	Key Person
Green Revolution	Green	Agriculture (Wheat, Rice)	Dr. M.S. Swaminathan
White Revolution	White	Milk Production	Dr. Verghese Kurien (Amul)
Blue Revolution	Blue	Fisheries	Dr. Hiralal Chaudhary
Yellow Revolution	Yellow	Oilseeds	Sam Pitroda
Silver Revolution	Silver	Egg Production	Dr. B. V. Rao
Pink Revolution	Pink	Meat & Onion	Durgesh Patel
Golden Revolution	Golden	Fruits & Honey	Nirpakh Tuteja
Brown Revolution	Brown	Leather & Cocoa	—

International organizations & headquarters

Organization	Headquarters	Established	Function
United Nations (UN)	New York, USA	1945	Maintains international peace & security.
World Health Organization (WHO)	Geneva, Switzerland	1948	Global public health.
World Bank	Washington D.C., USA	1944	Provides loans for development.
IMF (International Monetary Fund)	Washington D.C., USA	1944	Monetary cooperation & financial stability.
UNESCO	Paris, France	1945	Education, Science, Culture.
ILO (International Labour Organization)	Geneva, Switzerland	1919	Workers' rights.
FAO (Food and Agriculture Organization)	Rome, Italy	1945	Fights hunger globally.
WTO (World Trade Organization)	Geneva, Switzerland	1995	Regulates international trade.

Public sector companies & headquarters

Company	Headquarters	Sector	Established
ONGC	Dehradun	Oil & Gas	1956
BHEL	New Delhi	Heavy Electricals	1953
SAIL	New Delhi	Steel	1954
NTPC	New Delhi	Power Generation	1975
GAIL	New Delhi	Natural Gas	1984
IOCL	New Delhi	Petroleum	1959
HPCL	Mumbai	Petroleum	1974
BPCL	Mumbai	Petroleum	1976

Research & educational institutes in india

Institute	Location	Area of Work
ISRO	Bengaluru	Space research & satellite development
DRDO	New Delhi	Defence research and innovations
CSIR	New Delhi	Scientific and Industrial Research
IARI (Pusa Institute)	New Delhi	Agricultural research
ICMR	New Delhi	Medical research
AIIMS	New Delhi	Medical education & health care
BARC	Mumbai	Atomic research
IITs	Various	Engineering & Technology
IISC	Bengaluru	Advanced scientific research

Indian states – capitals, festivals & dances

State	Capital	Major Festival	Dance Form
Andhra Pradesh	Amaravati	Pongal	Kuchipudi
Arunachal Pradesh	Itanagar	Losar	Aji Lhamu
Assam	Dispur	Bihu	Bihu Dance

Gujarat	Gandhinagar	Navratri	Garba
Punjab	Chandigarh	Baisakhi	Bhangra
Odisha	Bhubaneswar	Rath Yatra	Odissi
Tamil Nadu	Chennai	Pongal	Bharatanatyam
Kerala	Thiruvananthapuram	Onam	Kathakali
West Bengal	Kolkata	Durga Puja	Chau

Hills and Their Locations

Hill Range	State/Region	Key Facts
Aravalli Hills	Rajasthan	Oldest mountain range in India; extends to Delhi.
Nilgiri Hills	Tamil Nadu, Kerala, Karnataka	Meeting point of Eastern & Western Ghats.
Shivalik Hills	Himachal, Uttarakhand	Outer Himalayas; youngest range.
Satpura Hills	Madhya Pradesh	Between Narmada & Tapti rivers.
Vindhya Range	MP–UP border	Divides North and South India.
Annamalai Hills	Tamil Nadu	Includes Doddabetta Peak.
Rajmahal Hills	Jharkhand	Volcanic origin.
Khasi Hills	Meghalaya	Known for "Living Root Bridges."
Cardamom Hills	Kerala	Famous for spice plantations.

Important Passes in India

Pass	State	Connects	Importance
Nathula Pass	Sikkim	India–China (Tibet)	Border trade route.
Jelep La	Sikkim	India–Tibet	Alternative to Nathula.
Rohtang Pass	Himachal Pradesh	Kullu–Lahaul Spiti	Gateway to Leh–Ladakh.
Zoji La	J&K (Ladakh)	Srinagar–Leh	Vital for military supply.
Shipki La	Himachal Pradesh	India–Tibet	Satluj River crosses here.
Bomdi La	Arunachal Pradesh	Tawang–Assam	India–China border area.
Banihal Pass	J&K	Jammu–Srinagar	Jawahar Tunnel located here.

Superlatives in India

Title	Name	Location/Fact
Highest Peak	Kanchenjunga	Sikkim (8,586 m)
Largest State (Area)	Rajasthan	—
Smallest State	Goa	—
Most Populous State	Uttar Pradesh	—
Least Populous State	Sikkim	—
Longest River	Ganga	—
Largest Lake	Vembanad Lake	Kerala
Highest Dam	Tehri Dam	Uttarakhand
Oldest Mountain Range	Aravalli	Rajasthan
Largest Delta	Sundarban Delta	West Bengal

National Symbols of India

Symbol	Name	Description
National Flag	Tiranga	Saffron, White, Green with Ashoka Chakra.
National Emblem	Lion Capital of Ashoka	Sarnath Pillar; "Satyameva Jayate."
National Anthem	Jana Gana Mana	Written by Rabindranath Tagore.

National Song	Vande Mataram	Written by Bankim Chandra Chatterjee.
National Animal	Bengal Tiger	Symbol of strength.
National Bird	Peacock	Beauty and grace.
National Flower	Lotus	Purity.
National Fruit	Mango	King of fruits.
National Tree	Banyan Tree	Immortality.
National Aquatic Animal	Ganges River Dolphin	Found in Ganga River.

Famous Books and Authors (Ancient India)

Book	Author	Description
Arthashastra	Kautilya (Chanakya)	Treatise on economics & politics.
Ramayana	Valmiki	Epic of Lord Rama.
Mahabharata	Ved Vyasa	Longest epic poem.
Meghaduta	Kalidasa	Poem about cloud messenger.
Shakuntala	Kalidasa	Sanskrit drama.
Manusmriti	Manu	Ancient law book.

Books and Authors (Modern India)

Book	Author	Category
Wings of Fire	Dr. A.P.J. Abdul Kalam	Autobiography
India Wins Freedom	Maulana Abul Kalam Azad	Freedom Movement
Discovery of India	Jawaharlal Nehru	Indian History
Train to Pakistan	Khushwant Singh	Partition Story
God of Small Things	Arundhati Roy	Booker Prize Winner
Midnight's Children	Salman Rushdie	Booker Prize Winner
Ignited Minds	Dr. A.P.J. Abdul Kalam	Motivation

National parks, tiger reserves & wildlife sanctuaries

Name	State	Known For
Jim Corbett NP	Uttarakhand	First National Park; Tigers
Kaziranga NP	Assam	One-horned Rhinoceros
Gir NP	Gujarat	Asiatic Lions
Sundarbans NP	West Bengal	Royal Bengal Tiger
Ranthambore NP	Rajasthan	Tigers
Kanha NP	Madhya Pradesh	Barasingha Deer
Bandhavgarh NP	Madhya Pradesh	Tiger population
Periyar NP	Kerala	Elephants
Silent Valley NP	Kerala	Rainforest ecosystem
Hemis NP	Ladakh	Snow Leopard habitat

Census of India (2011)

Category	Data	Notes
Total Population	1.21 Billion	17.5% of world population
Male	62.37 crore	—
Female	58.64 crore	—
Sex Ratio	943 females/1000 males	Improved from 933 in 2001

Literacy Rate	74.04%	Kerala highest, Bihar lowest
Male Literacy	82.14%	—
Female Literacy	65.46%	—
Most Populous State	Uttar Pradesh	—
Least Populous State	Sikkim	—
Highest Literacy	Kerala (94%)	—
Lowest Literacy	Bihar (63.8%)	—
Most Densely Populated	Bihar	1102/sq km
Least Densely Populated	Arunachal Pradesh	17/sq km

Important awards & their fields

Award	Field	Description
Bharat Ratna	Civilian	Highest civilian award.
Padma Vibhushan	Civilian	Exceptional service.
Padma Bhushan	Civilian	Distinguished service.
Padma Shri	Civilian	Distinguished contribution.
Dadasaheb Phalke Award	Cinema	Lifetime achievement in films.
Arjuna Award	Sports	Excellence in sports.
Khel Ratna (Dhyan Chand)	Sports	Highest sports honor.
Sahitya Akademi	Literature	Indian authors' contribution.
Jnanpith Award	Literature	Highest literary award.
Gallantry Awards	Bravery	Param Vir Chakra, Vir Chakra, etc.

Famous Indian Cities and Their Nicknames

City	Nickname	Reason
Mumbai	City of Dreams	Bollywood, financial hub
Delhi	City of Rallies	Political capital
Bengaluru	Silicon Valley	IT industry
Kolkata	City of Joy	Cultural hub
Jaipur	Pink City	Painted pink for hospitality
Ahmedabad	Manchester of India	Textile industry
Surat	Diamond City	Diamond cutting/polishing
Hyderabad	City of Pearls	Old pearl trade
Pune	Oxford of the East	Education hub
Indore	Cleanest City	Swachh Bharat Ranking

Sports in india

Major Sports & Their Associated Trophies

Sport	Trophy / Cup	Important Facts
Cricket	Ranji Trophy, Duleep Trophy, Irani Trophy, Vijay Hazare Trophy, Deodhar Trophy	ICC World Cup first won by India in 1983 (Kapil Dev), 2011 (M.S. Dhoni).
Hockey	Sultan Azlan Shah Cup, Beighton Cup, Rangaswami Cup	Dhyan Chand is known as "The Wizard of Hockey."
Football	Santosh Trophy, Durand Cup, Federation Cup	India hosted the FIFA U-17 World Cup (2017).
Badminton	Thomas Cup, Uber Cup, All England Championship	India won its first Thomas Cup in 2022.

Tennis	Davis Cup, Wimbledon, US Open	Sania Mirza, Rohan Bopanna, Leander Paes are famous players.
Kabaddi	Pro Kabaddi League Trophy, Asian Games	India is multiple-time world champion.
Athletics	Asian Games, Commonwealth Games, Olympics	Neeraj Chopra won Olympic Gold (Javelin Throw) in 2020 Tokyo Olympics.
Chess	Chess Olympiad	Viswanathan Anand – India's first Grandmaster.
Shooting	ISSF World Cup	Abhinav Bindra won India's first individual Olympic Gold (2008).

National Games of India

- **National Game:** Hockey
- **National Sports Day:** 29th August (Birth anniversary of Dhyan Chand)

Indian Ministers (as of 2025)

Ministry	Minister (2025)	Remarks
Prime Minister	Narendra Modi	Also holds charge of Personnel, Public Grievances & Pensions.
Home Affairs	Amit Shah	Also handles Cooperation Ministry.
Defence	Rajnath Singh	Former CM of Uttar Pradesh.
Finance & Corporate Affairs	Nirmala Sitharaman	First full-time woman Finance Minister.
External Affairs	Dr. S. Jaishankar	Former Foreign Secretary.
Health & Family Welfare	Mansukh Mandaviya	Key role in COVID-19 vaccination programme.
Education	Dharmendra Pradhan	Also handles Skill Development.
Women & Child Development	Smriti Irani	Former HRD Minister.
Agriculture & Farmers' Welfare	Arjun Munda	Focus on farmer support schemes.
Railways, Communications, Electronics & IT	Ashwini Vaishnaw	Introduced Vande Bharat Express.
Environment, Forest & Climate Change	Bhupender Yadav	Advocate of "Mission LiFE" initiative.
Road Transport & Highways	Nitin Gadkari	Works on expressway and highway projects.

Heads of important national institutions (2025)

Institution	Head	Headquarters
ISRO (Indian Space Research Organisation)	S. Somanath	Bengaluru
DRDO (Defence Research and Development Organisation)	Dr. Samir V. Kamat	New Delhi
NITI Aayog	B.V.R. Subrahmanyam	New Delhi
RBI (Reserve Bank of India)	Shaktikanta Das	Mumbai
SEBI (Securities and Exchange Board of India)	Madhabi Puri Buch	Mumbai

Election Commission of India	Rajiv Kumar (Chief Election Commissioner)	New Delhi
UPSC (Union Public Service Commission)	Dr. Manoj Soni	New Delhi
AIIMS (All India Institute of Medical Sciences)	Dr. M. Srinivas (Director, AIIMS Delhi)	New Delhi
ICMR (Indian Council of Medical Research)	Dr. Rajiv Bahl	New Delhi
CBI (Central Bureau of Investigation)	Praveen Sood	New Delhi
Comptroller & Auditor General (CAG)	Girish Chandra Murmu	New Delhi

Major Indian Companies & ceos (as of 2025)

Company	CEO / Chairperson	Headquarters
Tata Sons	N. Chandrasekaran	Mumbai
Reliance Industries Ltd.	Mukesh Ambani	Mumbai
Adani Group	Gautam Adani	Ahmedabad
Infosys	Salil Parekh	Bengaluru
Wipro	Srini Pallia	Bengaluru
HCL Technologies	C. Vijayakumar	Noida
Bharti Airtel	Gopal Vittal	New Delhi
TCS (Tata Consultancy Services)	K. Krithivasan	Mumbai
HDFC Bank	Sashidhar Jagdishan	Mumbai
ICICI Bank	Sandeep Bakhshi	Mumbai
Axis Bank	Amitabh Chaudhry	Mumbai
State Bank of India (SBI)	Dinesh Kumar Khara	Mumbai
Google (Global)	Sundar Pichai	California, USA
Microsoft (Global)	Satya Nadella	Washington, USA
Amazon (Global)	Andy Jassy	Seattle, USA

National health programmes

Programme	Full Form / Objective	Launched
National Health Mission (NHM)	To strengthen health systems in rural & urban areas.	2013
Janani Suraksha Yojana (JSY)	To promote institutional deliveries and reduce maternal mortality.	2005
Janani Shishu Suraksha Karyakram (JSSK)	Free healthcare and transport for pregnant women and infants.	2011
Ayushman Bharat (PM-JAY)	Provides ₹5 lakh health insurance per family per year.	2018
National Tuberculosis Elimination Programme (NTEP)	Eliminate TB by 2025 (earlier RNTCP).	1997
National AIDS Control Programme (NACP)	Prevent & control HIV/AIDS.	1992
National Leprosy Eradication Programme (NLEP)	Early detection and treatment of leprosy.	1955
National Mental Health Programme (NMHP)	Provides mental health services and awareness.	1982

2 Chapter

Biology

The Cell

- **Simplest and most basic unit** of life.
- **Discovered:** Robert Hooke (1665)
- All living things made up of cells- **structural, functional, and biological unit of life**.
- Has the **ability to duplicate itself** on its own.
- aka **"building blocks of life.**"

Cell Structure and its components

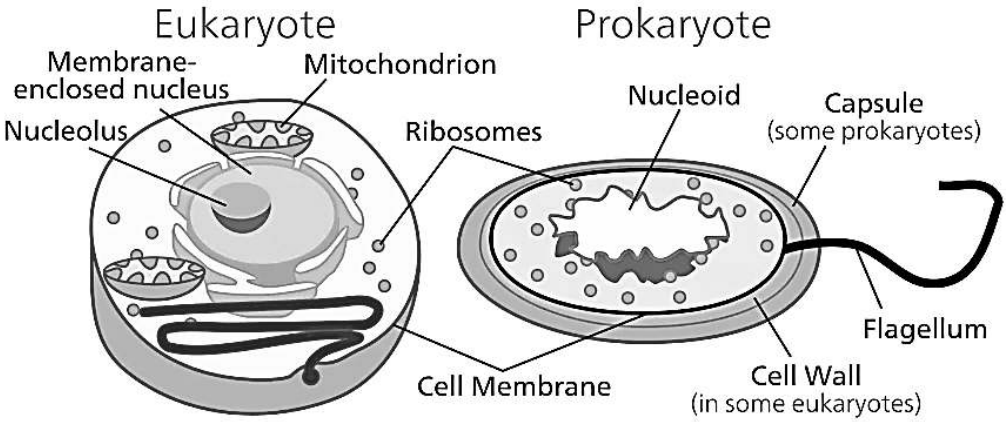
Cell Organelles

- Present within a cell & **perform certain specific functions to carry out life's processes.**

Plasma / Cell Membrane	● **Outermost covering** of the cell ● **Separates contents of cell** from its **external environment.** ● **A selectively permeable membrane** as it allows entry and exit of some materials in and out of the cell.
Cell Wall	● **ONLY** in **plants** ● **Outside** the **plasma membrane.** ● Mainly **composed of cellulose.** ○ **Cellulose:** A complex substance - provides structural strength to plants.
Cytoplasm	● **Jelly-like substance** present between **cell membrane & nucleus.** ● **Fluid content inside plasma membrane.** ● **Contains** many specialised **cell organelles** (mitochondria, golgi bodies, ribosomes, etc)
Nucleus	● **Contains chromosomes** that contain **information** for **inheritance** of features from parents to next generation in form of DNA ● Plays a **central role** in **cellular reproduction**. ● **Nuclear membrane**- a **double-layered** covering on nucleus. ○ **Allows transfer** of **material** from **inside** nucleus **to its outside**, i.e., to cytoplasm.
Nucleolus	● **Ribosome synthesis site regulating cellular activity** and **reproduction**.
Gene	● **Unit of inheritance** in living organisms.
Protoplasm	● **Entire content of a living cell** [cytoplasm + nucleus]. ● aka **living substance of the cell.**
Chromosomes	● **Rod-shaped structures** ● Visible **only when** the **cell is about to divide**. ● Contain **information for inheritance of features** from parents to next generation in the form of DNA (deoxyribo nucleic acid) ● **Composed** of **DNA** and **Protein**.
DNA molecules	● Contains **information necessary for constructing and organising cells**. ● Functional segments of DNA - **genes.**

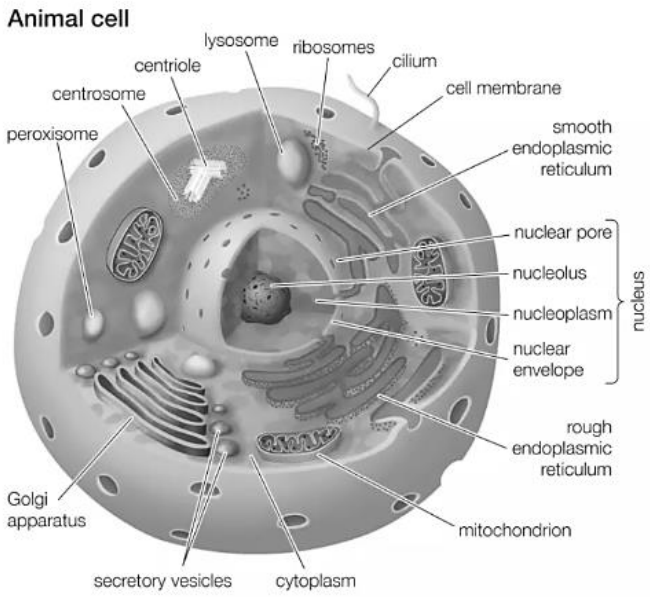
Vacuoles	● **Empty structure in cytoplasm** ● Act as storage sacs for solid or liquid contents. ● **Common in plant cells.** ● **Smaller in animal cells**. ● **Substances stored**- amino acids, sugars, various organic acids and some proteins.
Endoplasmic Reticulum	● A **large network of membrane-bound tubes and sheets**. ● **2 types :** **1. Rough endoplasmic reticulum [RER]** o **Has ribosomes** attached to its surface. o **Ribosomes** - sites of **protein manufacture**. **2. Smooth endoplasmic reticulum** o Helps in the **manufacture of fat molecules**, or lipids, important for cell function. o Some of these proteins and lipids **help in building the cell membrane k/a membrane biogenesis.** ● Serve as **channels for transport of materials** between various regions of cytoplasm or between the cytoplasm and the nucleus. ● Also functions as **a cytoplasmic framework** providing a **surface for some biochemical activities of cells.**
Golgi Apparatus/ Complex	● A **system of membrane-bound vesicles** arranged **parallel** to each other in **stacks** called **cisterns**. ● **Packages** and **dispatches material synthesised near ER** to **various targets** inside and outside the cell. ● **Stores**, **modifies** and **packages products** in vesicles. ● Involved in the **formation** of **lysosomes**. o **Membrane-bound sacs** filled with digestive enzymes. o Kind of **waste disposal system** of the cell. o **Help** to **keep** the **cell clean** by **digesting** any **foreign material** as well as **worn-out cell organelles**.
Mitochondria	● Aka **powerhouse of the cell.** ● **Energy required** for various chemical activities **is released** by mitochondria in the form of **ATP** (Adenosine Triphosphate) molecules. ● 2 **membranes:** o **Outer membrane- porous** o **Inner membrane - deeply folded.** ■ **Folds** create a **large surface area** for **ATP-generating chemical reactions**.
ATP	● aka **energy currency of the cell.** ● **Body uses energy** stored in **ATP** for **making new chemical compounds** and for mechanical work.
Ribosomes	● **Site of protein synthesis.** ● **Polyribosomes or Polysomes:** Several **ribosomes may attach to a single mRNA and form a chain.** ● **Prokaryotes- ribosomes are associated with the plasma membrane of the cell.**
Cilia and Flagella Cilia	● **Hair-like outgrowths of the cell membrane.** ● **Cilia** - **small structures which work like oars**, **causing** the **movement of either the cell or the surrounding fluid.** ● **Flagella** - comparatively **longer** and responsible for cell movement. ● **Prokaryotic bacteria have flagella but structurally different from eukaryotic flagella.**
Centrosome and Centrioles	● Centrosome- **an organelle** usually containing 2 **cylindrical structures called centrioles.** ● **Surrounded by amorphous pericentriolar materials**. ● **Both** the **centrioles** in a centrosome **lie perpendicular** to each other

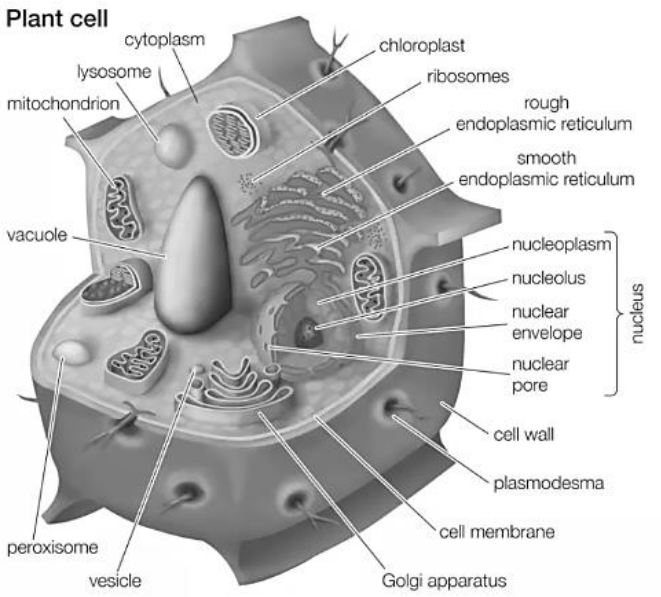
Types of Cells



Prokaryotic Cell	Eukaryotic Cell
● **Primitive/undeveloped nucleus.**	● Has **true or developed nucleus**
● **Size** - 0.2 - 2.0 micrometers	● **Size**- 10- 100 micrometers.
● **Simpler** in **structure**	● **More complex**
● **Organelles not membrane-bound**	● **Organelles membrane bound** & specific in function.
● **DNA** arranged in **circular** shape	● **DNA linear** in shape
● **Cytoplasm present**, but **lacks** in most **cell organelles**.	● Consists of **both cytoplasm** and **organelles**
● **Cell wall present**. ● Made of mucopeptide or peptidoglycan	● Usually, **absence of cell** wall here. ● Made of cellulose
● **Cell division** - binary fission, transduction, conjugation, and transformation	● **Cell division** - mitosis
● **Mitochondria absent**	● Mitochondria **present**.
● **Endoplasmic reticulum not present**.	● Endoplasmic reticulum **present**.
● **Ribosome present**	● Ribosome **present**
● **Plasmids** commonly **found**. ○ A **small, circular, double-stranded DNA** molecule **distinct** from a **cell's chromosomal DNA**. ○ **Naturally exist in bacterial cells.**	● **Plasmids** very **rarely found**
● **Only asexual reproduction**.	● **Both sexual** and **asexual** reproduction.
● Have a **single origin** of **replication**	● Have **multiple origins** of **replication**
● Only 1 **chromosome**.	● **Many chromosomes** present
● **Eg.** Bacteria and Archaea.	● **Eg**. Plant and animal cells.

Plant and Animal Cells





	Animal Cell	Plant Cell
Nucleus	Present	Present
Cilia	Present	Very rare
Shape	Round (irregular shape)	Rectangular (fixed shape)
Chloroplast	NO chloroplasts	Chloroplasts present
Cytoplasm	Present	Present
Endoplasmic Reticulum	Present	Present
Ribosomes	Present	Present
Mitochondria	Present	Present
Vacuole	One or more small vacuoles (much smaller than plant cells).	One large central vacuole taking up 90% of cell volume.

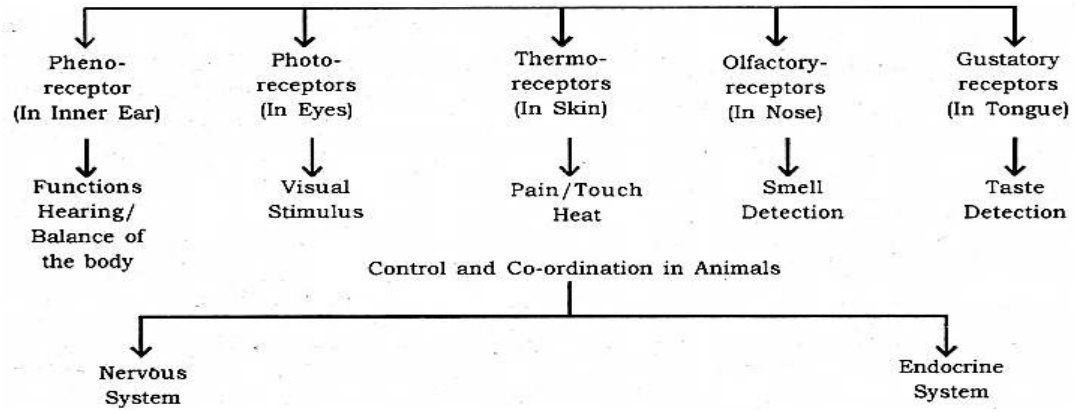
Control and Coordination

In animals

Nervous system and hormonal system are **responsible** for **control** and **coordination**.

Receptors:

- **Specialized tips of nerve fibres** that **collect information** to be **conducted by nerves**.
- **In** the **sense organs** of the animals.



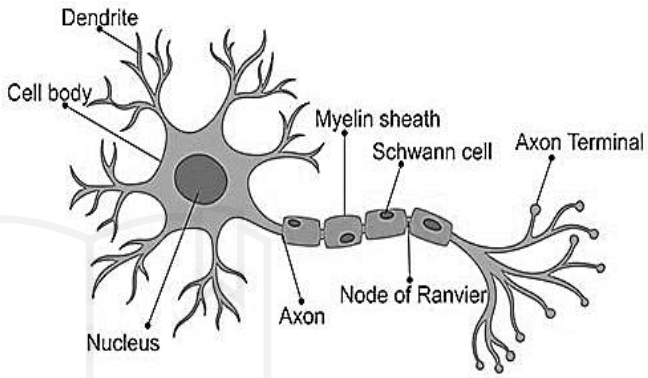
- **Types**:

1. **Nervous System**

- A **highly complex regulatory system** in animals.
- **Coordinates actions** & **transmits sensory information** and **signals** to/from the different parts of body.
- **Neuron** - **structural** and **functional unit** of entire system.
- **Functions:**
  - **Receives information** from the **environment**.
  - Receive the information from the **various body parts**.
  - **Act accordingly** through muscles and glands.
- **Movement**- **ability** of an organism **to move** a **particular body part**.
- **Locomotion** - **ability** of an organism **to move** its **whole body** from one place to another.

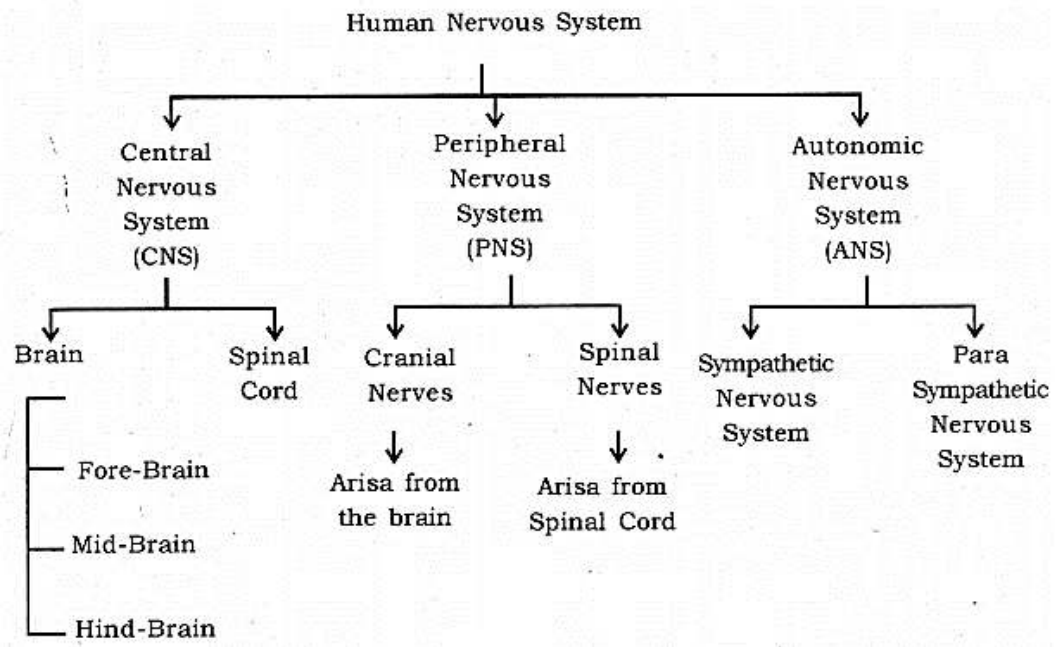
Neuron

- **Structural and functional unit of the nervous system**
- **Coordinates and controls the complex actions** in animals.
- **Specialized cells** responsible for **transmission** of **nerve** impulses.



- **3 parts-**
  1. **Axon-**
     - **Tail** of the **neuron**.
     - **Ends** in **fine hair-like structures** k/a **axon terminals** which rely on nerve impulses
     - **Axons** - **myelinated** or **unmyelinated**.
     - **Impulse transmission is** faster in **myelinated neurons**.
  2. **Cyton/soma/cell body-**
     - **Star-shaped** having various **hair-like structures** k/a **dendrites** which **receive** the **nerve impulses**
  3. **Myelin Sheath-**
     - An **insulating sheath** on **axon**.
     - **Insulates axon against nerve impulse** from its **surroundings**.
     - **Dendrites receive** the **impulse** from other neurons.
     - **Cyton** or Soma cells **process** the **impulse**- **transmitted** to the **Axon**. Gets transmitted either to other neurons or to muscles for taking necessary action.
- **Types :**
  1. **Sensory** neurons- Receive the signals from a sense organ
  2. **Motor** neurons- Send the signals to a gland or muscle
  3. **Relay** or association neuron- Relay signals between a motor neuron and sensory neuron.
- **Synapse**
  - A **microscopic gap** between **two adjacent neurons**.
  - A **point contact between terminal branches** of **axon** of one neuron and with the dendrite of another neuron.
  - **Convert electric signals** into **chemicals** that can cross over gap between axon and dendrite.
  - **Chemical message** is **passed** to **next neuron** and **converted back** to the **electrical signal** for **interpretation**.
- **Neuromuscular Junction:**
  - **Point where** a **muscle fibre comes** in **contact with** a **motor neuron** carrying nerve impulse from the control nervous system.

Human nervous system

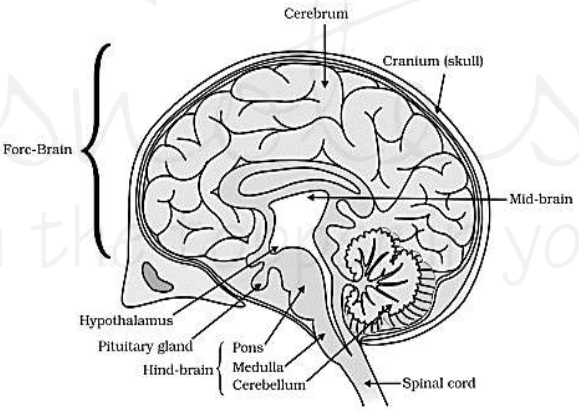


1. **Central Nervous System:**

- **Brain + spinal cord.**
- **Brain controls** all the **functions** in the human body.
- **Spinal cord** works as **relay channel** for **signals between brain** and **peripheral nervous system**.

Human Brain

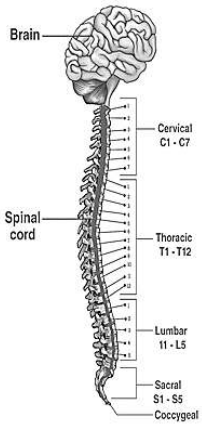
- A **highly complex organ** mainly **composed** of **nervous tissue**.
- **Tissues highly folded** to **accommodate** a **large surface area** in **less space**.
- **Covered by** a **3-layered system** of **membranes** k/a **meninges**.
- **Cerebrospinal fluid** filled **between meninges cushions** the **brain** against mechanical shocks.



- **3 parts:**
  1. **Fore-brain:**
     - **Composed** of the **cerebrum**.
     - **Cerebrum**- **Largest part** in human brains.
     - Divided into **2 hemispheres** k/a cerebral hemispheres.
     - **Functions**:
       - **Controls voluntary** motor actions.
       - **Site** of **sensory perceptions**, like tactile and auditory perceptions.
       - **Site** of **learning** and **memory**.
  2. **Mid-brain:**
     - **Composed** of the **hypothalamus**.
     - **Hypothalamus**- lies at the **base** of the **cerebrum**.
     - **Controls sleep** and **wake cycle** (circadian rhythm) of the body.
     - **Controls** the urges for **eating** and **drinking**.
  3. **Hind-brain:**
     - **Composed** of **cerebellum**, **pons**, **medulla**, **oblongata**.
     - **Cerebellum**- lies **below cerebrum** and at back of whole structure.
       - **Coordinates** the **motor functions**.
       - **Eg**. riding a bicycle, ensures perfect coordination between pedalling and steering control.
       - **Controls posture** and **balance**.
       - **Controls** the **precision** of **voluntary action**.

- **Medulla**: **Forms brain stem**, along with the pons.
  - **Lies at the base of brain** and **continues** into **spinal cord**.
  - **Controls** various **involuntary functions**, like hear beat respiration, etc.
  - **Controls involuntary actions**.
  - **Eg**: Blood pressure, salivation, vomiting.
- **Pons**:
  - **Relays impulses** between **lower cerebellum** and **spinal cord**
  - **Regulates respiration**.

Spinal cord:



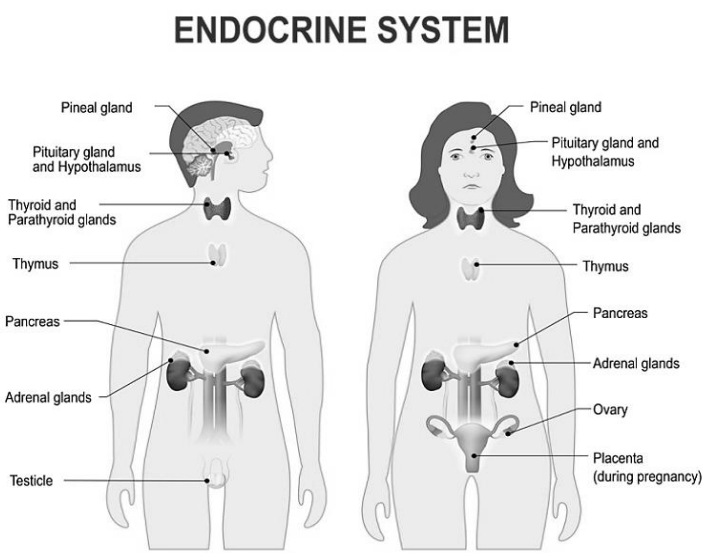
1. **Controls reflex actions** and conducts messages between different parts of body and brain.
2. **Reflex Action**:
3. **Sudden** and **involuntary response** to **stimuli**.
4. **Helps organisms** to **quickly adapt** to an **adverse circumstance** that could cause bodily harm or even death.
5. **Eg**. Pulling our hands away immediately after touching a hot or cold object.
6. **Reflex Arc**:
7. **Path** through which nerves signals, **involved** in a **reflex action**, travel.
   Receptor → **Sensory neuron** → **Relay neuron** → **Motor neuron** → **Effector** (muscle)
2. **Peripheral Nervous System:**
   - **Cranial nerves** + **spinal nerves**.
   - **12 pairs** of **cranial nerves** coming out of brain and go to the organs in the head region.
   - **31 pairs** of **spinal nerves** coming out of spinal cord and go to the organs which are below the head region.
3. **Autonomous Nervous System:**
   - **Composed** of a **chain of nerve ganglion** which **runs along spinal cord**.
   - **Controls** all the **involuntary actions** in the **human body**.
     - **2 parts** :

     A. Sympathetic Nervous System:
       - **Increases activity** of an **organ** as required.
       - **Eg.** during running, there is an increased demand for oxygen by the body - fulfilled by an increased breathing rate and increased heart rate.

     B. Parasympathetic Nervous System:
       - **Decreases** the **activity** of an organ and thus has a calming effect.
       - **Eg.** during sleep, breathing rate slows down and so does the heart rate.
       - Helps in the **conservation of energy**.

Endocrine System

- **Made** up **of interconnected glands** that create **hormones.**
- Almost **every cell, organ, and function in our body is influenced by the endocrine system.**
- **Aids -** regulation of mood, growth and development**,** tissue function, metabolism, and sexual and reproductive functions.
- Also k/a **ductless system** as the endocrine glands **secrete** their **hormones** directly into **bloodstream**.



5 CHAPTER General Information of Himachal Pradesh

Formation of Himachal Pradesh

- **Date of formation:** 15 April 1948
- **States included in formation:** Merger of 30 small and large princely states
- **1948–1951:** Himachal Pradesh was a Chief Commissioner's Province
- **1951–1956:** Declared as a 'Part C' State
- **1956–1971:** Functioned as a Union Territory
- **25 January 1971:** Granted full statehood
- **Became:** The 18th state of India

General Information:

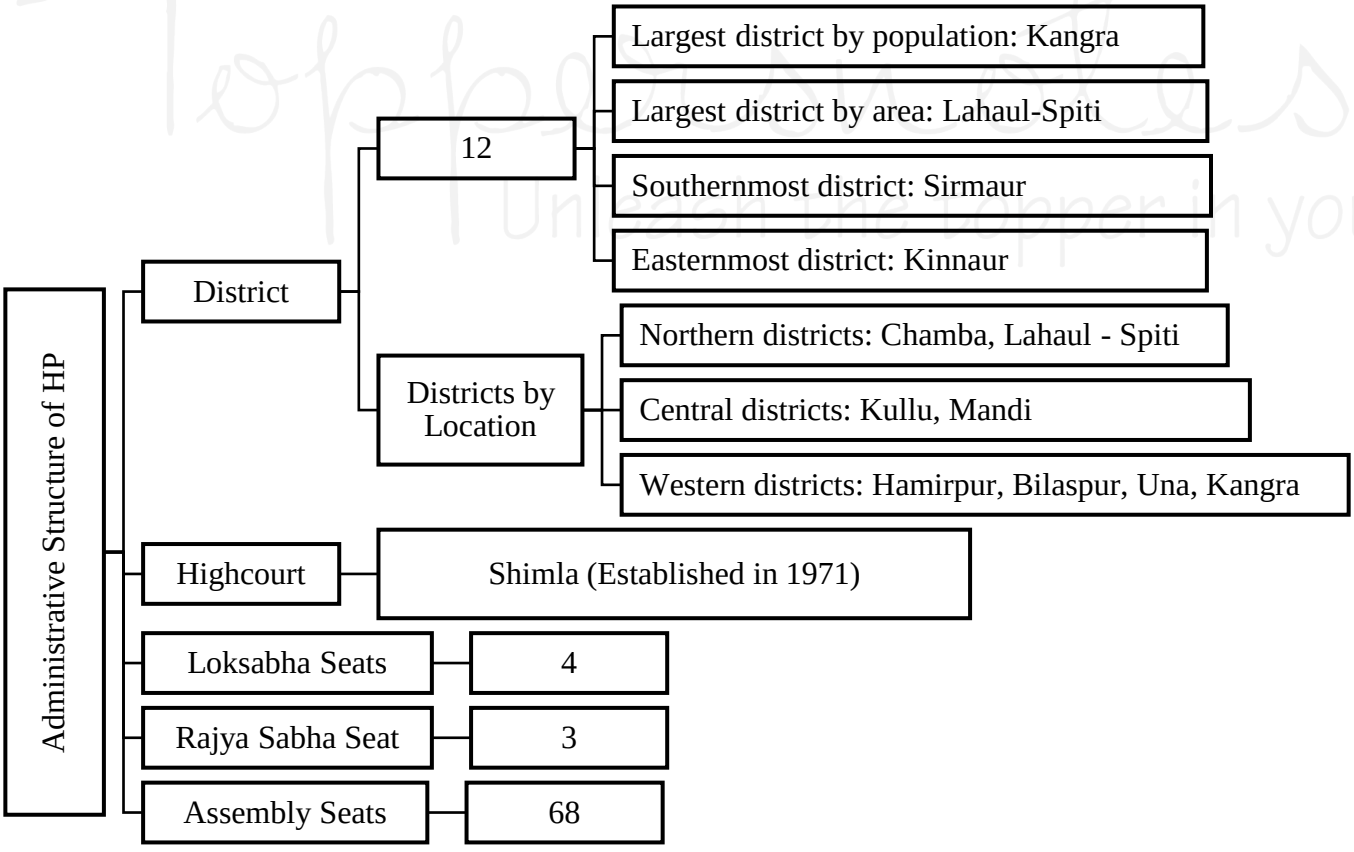
- **Date of Establishment:** 25 January 1971
- **Capital:** Shimla
- **Geographical Area:** 55673 Sq km
  - ✓ **Contribution to India's total geographical area:** 1.7%
  - ✓ **Rank by area:** 18th among 29 states (after the formation of Telangana)
- **Latitude:** 30° 22'40" N to 33° 12'40"N
- **Longitude:** 75° 45'55"E to 79° 04'20"E

- **Neighboring Country:** China on the East
- **State Day:** 15th April (Day of accession to India)
- **Language:**
  - ✓ **Official Language –** Hindi
  - ✓ **Other Language-** Punjabi, Lahauli, Kinnauri, Sirmauri, Gojri, Bilaspuri, Pahari, Dogri and Kangri.
- **Neighboring States:**
  - ✓ **North –** Jammu and Kashmir
  - ✓ **West and South West –** Punjab
  - ✓ **South –** Haryana
  - ✓ **South –** East – Uttarakhand
  - ✓ **East –** Tibbet

Districts Sharing Boundaries with Other States and Regions

- **Uttarakhand:** Kinnaur, Shimla, Sirmaur
- **Uttar Pradesh:** Sirmaur (with the Yamuna River forming the boundary)
- **Punjab:** Una, Bilaspur, Solan, Sirmaur
- **Jammu & Kashmir:** Kangra, Chamba, Lahaul and Spiti
- **Tibet (China):** Kinnaur, Lahaul and Spiti

Note:
- ✓ The state of Punjab shares its boundary with the maximum number of Himachal Pradesh districts (5 districts).
- ✓ Kangra and Mandi districts of Himachal Pradesh share boundaries with the highest number of districts (6 districts each), whereas Chamba and Sirmaur share boundaries with the minimum number of districts (2 districts each).



State Symbols:

State Symbol	Name	Description
State Animal	Snow Leopard (*Panthera uncia*)	The snow leopard is the state animal of Himachal Pradesh. It lives in high-altitude mountain regions of Central and South Asia. The species is listed as *Endangered* by the IUCN. It has long, thick fur adapted to cold climates, with colors ranging from smoky grey to light yellow and pale underparts.
State Bird	Jujurana / Western Tragopan	Jujurana, also known as the Western Tragopan, is the state bird of Himachal Pradesh. It was chosen due to its beauty and declining population. Popularly called the "King of Birds," it was officially declared the state bird in 2007.
State Tree	Deodar (*Cedrus deodara*)	The Deodar tree is the state tree of Himachal Pradesh. Its name comes from the Sanskrit word *Devadaru*, meaning "tree of the gods." The wood is extremely strong and naturally resistant to insects, fungi, and bacteria, making it valuable for construction.
State Flower	Pink Rhododendron (*Rhododendron campanulatum*)	The Pink Rhododendron is the state flower of Himachal Pradesh. Known for its pink blossoms, it is considered an *Endangered* species according to the IUCN and requires conservation efforts.

First in Himachal Pradesh:

Category	Name / Details
First Chief Commissioner	Shri N. C. Mehta
First Deputy Chief Commissioner	Shri E. P. Moon
First Lieutenant Governor	Major General Himmat Singh
First Governor	Shri S. Chakravarti
First Woman Governor	Smt. Sheila Kaul
First Chief Minister	Dr. Y. S. Parmar
First Chief Justice	Justice Mirza Hameedullah Beg
First Woman Chief Justice	Justice Leela Seth
First Speaker of Vidhan Sabha	Pandit Jaiwant Ram
First Woman Speaker of Vidhan Sabha	Smt. Vidya Stokes
First Deputy Speaker of Vidhan Sabha	Shri Krishna Chander
First Chief Secretary	Shri K. L. Mehta
First Lokayukta	Justice T. V. R. Tatachari
First Woman Minister in Union Cabinet (from HP)	Rajkumari Amrit Kaur (Health Minister)
First Member of Rajya Sabha	Shri Chiranji Lal Verma
First Winner of Param Vir Chakra (from HP)	Major Somnath Sharma
First Winner of Mahavir Chakra (from HP)	Lt. Col. Kaman Singh
First Winner of Vir Chakra (from HP)	Havildar Topge
First IT Park in Himachal Pradesh	Mauja Majhol (Wakhnaghat)
First Person from HP to become Chief Justice of India	Justice Mehr Chand Mahajan
First Chairman of Himachal Pradesh Public Service Commission	Lt. General K. S. Katoch