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A compilation of foundational topics prerequisite for Civil Services

For the 1st Week

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1. Polity & Governance

1.1.National Commission for SCs

- It is a constitutional body in the sense that it is directly established by Article 338 of the Constitution.
- On the other hand, the other national commissions like the National Commission for Women (1992), the National Commission for
- Minorities (1993), the National Commission for Backward Classes (1993), the National Human Rights Commission (1993) and the National Commission for Protection of Child Rights (2007) are statutory bodies in the sense that they are established by acts of the Parliament.

Evolution of the Commission

- Originally, Article 338 of the Constitution provided for the appointment of a Special Officer for Scheduled Castes (SCs) and Scheduled Tribes (STs) to investigate all matters relating to the constitutional safeguards for the SCs and STs and to report to the President on their working.
- He was designated as the Commissioner for SCs and STs and assigned the said duty.
- In 1978, the Government (through a Resolution) set up a non- statutory multi-member Commission for SCs and STs; the Office of Commissioner for SCs and STs also continued to exist.
- In 1987, the Government (through another Resolution) modified the functions of the Commission and renamed it as the National Commission for SCs and STs.
- Later, the 65th Constitutional Amendment Act of 1990 provided for the establishment of a high-level multi-member National Commission for SCs and STs in the place of a single Special Officer for SCs and STs.
- This constitutional body replaced the Commissioner for SCs and STs as well as the Commission set up under the Resolution of 1987.
- Again, the 89th Constitutional Amendment Act of 2003 bifurcated the combined National Commission for SCs and STs into two separate bodies, namely, National Commission for Scheduled Castes (under Article 338) and National Commission for Scheduled Tribes (under Article 338-A).
- The separate National Commission for SCs came into existence in 2004.
- It consists of a chairperson, a vice-chairperson and three other members.
- They are appointed by the President by warrant.

Report of the Commission

- The commission presents an annual report to the president. It can also submit a report as and when it thinks necessary.
- The President places all such reports before the Parliament, along with a memorandum explaining the action taken on the recommendations made by the Commission.
- The memorandum should also contain the reasons for the non- acceptance of any of such recommendations.

- The President also forwards any report of the Commission pertaining to a state government to the state governor.
- The governor places it before the state legislature, along with a
- memorandum explaining the action taken on the recommendations of the Commission.
- The memorandum should also contain the reasons for the non- acceptance of any of such recommendations.

Powers of the Commission

- The Commission is vested with the power to regulate its own procedure.
- The Commission, while investigating any matter or inquiring into any complaint, has all the powers of a civil court trying a suit and in particular in respect of the following matters:
  - ✓ summoning and enforcing the attendance of any person from any part of India and examining him on oath;
  - ✓ requiring the discovery and production of any document;
  - ✓ receiving evidence on affidavits;
  - ✓ requisitioning any public record from any court or office issuing summons for the examination of witnesses and documents; and
  - ✓ any other matter which the President may determine.
- The Central government and the state governments are required to consult the Commission on all major policy matters affecting the SCs.
- The Commission is also required to discharge similar functions with regard to the other backward classes (OBCs) and the Anglo- Indian Community as it does with respect to the SCs.
- In other words, the Commission has to investigate all matters relating to the constitutional and other legal safeguards for the OBCs and the Anglo-Indian Community and report to the President upon their working.
- Relevance Of The Topic: Former Union minister Vijay Sampla took charge as the chairman of the National Commission for Scheduled Castes (NCSC)

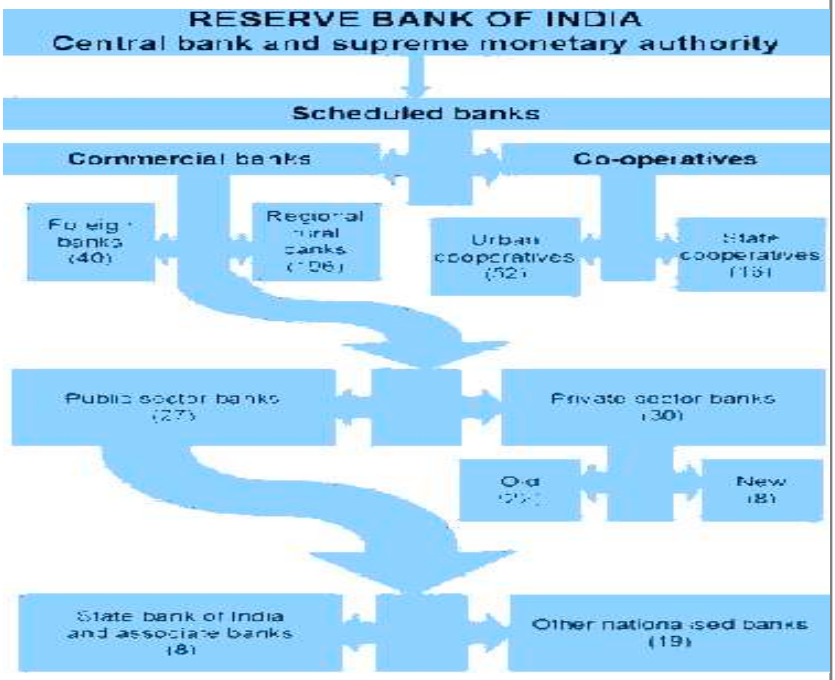
2. Economy

2.1.What is a SCB

- Any bank which is listed in the 2nd schedule of the Reserve Bank of India Act, 1934.
- The list includes the State Bank of India and its subsidiaries (like State Bank of Travancore), all nationalised banks (Bank of Baroda, Bank of India etc), regional rural banks (RRBs), foreign banks (HSBC Holdings Plc, Citibank NA) and some co-operative banks.
- Please see that Co-Operative banks are also part of Scheduled Banks, but they are mostly run on no-profit, no-loss mandate.

What all Banks are included

- Scheduled Public Sector Banks
- Scheduled Private Sector Banks
- Scheduled Small Finance Banks Scheduled Payments Banks
- Scheduled Regional Rural Banks
- Scheduled Foreign Banks in India



To Qualify as a Scheduled Bank

- Paid up capital and collected funds of the bank must not be less than Rs5 lakh
- These banks are eligible for loans from the Reserve Bank of India at bank rate
- They are given membership to clearing houses

SCBs & LAF

- Liquidity Adjustment Facility (LAF) is a facility extended by the Reserve Bank of India to the scheduled commercial banks (excluding RRBs) and primary dealers.
- It is given so as to avail of liquidity in case of requirement or park excess funds with the RBI in case of excess liquidity on an overnight basis against the collateral of Government securities including State Government securities.

CRR & LAF

- As per the RBI Act 1934, all Scheduled Commercial Banks (that includes public and private sector banks, foreign banks, regional rural banks and co-operative banks) are required to maintain a cash balance on average with the RBI on a fortnightly basis to cater to the CRR requirement.
- Non Bank Financial Corporations (NBFCs) are outside the purview of this reserve requirement.
- Act also authorizes RBI to stipulate an additional or incremental CRR, which, however, has not been put in place by RBI.

3. Environment & Ecology

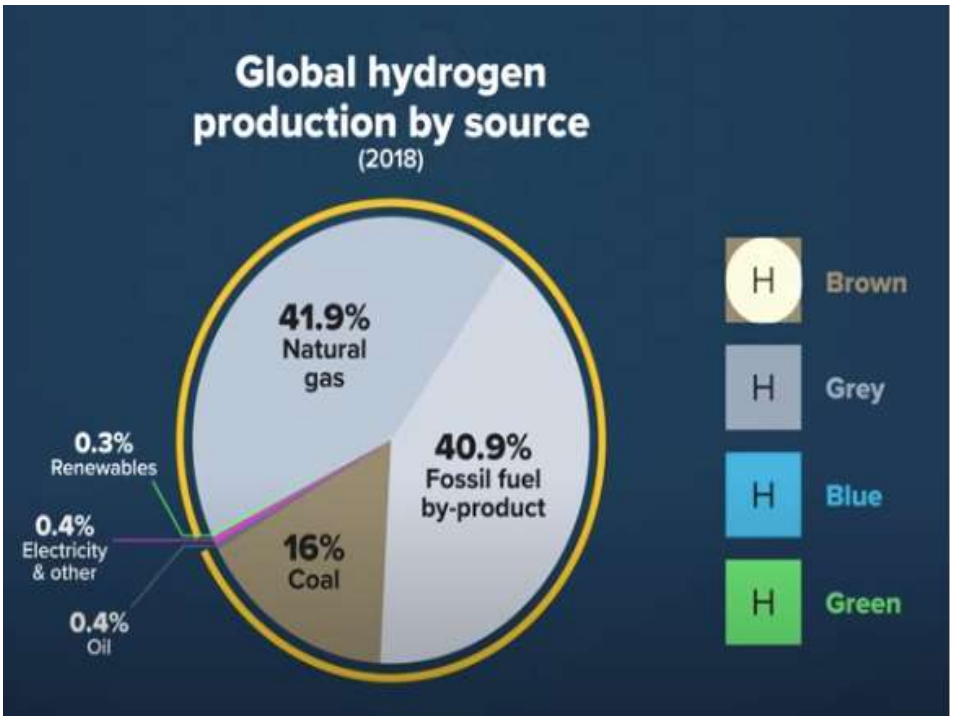
3.1.Green Hydrogen

Introduction

- Hydrogen is an appealing fuel.
  A kilogram of hydrogen has about three times as much energy as a comparable
- amount of diesel or gasoline.
- Hydrogen is the universe's most abundant element, but here on Earth it doesn't appear pure in nature, and requires energy to separate.
- The most common technique is to extract hydrogen from water, which is two parts hydrogen and one part oxygen (hence H2O).
- If it can be made cleanly and cheaply, it could be the key to cleaning up an array of tricky vital sectors.
- Today, most manufactured hydrogen is made by combining natural gas with steam at high temperatures.
- It's an energy-intensive process that emits considerable amounts of carbon dioxide, the main greenhouse gas driving climate change.
- But a small and growing percentage is made by splitting water into its constituent elements by zapping it with electricity, a process known as electrolysis.
- This also takes a lot of energy, but if the electricity comes from a renewable source like wind or solar power, it produces minimal harmful emissions.
- This is known as Green Hydrogen.

Types of Hydrogen

- Where the hydrogen comes from is important.
- Hydrogen, in itself, is a clean fuel.
- Manufacturing hydrogen fuel, however, is energy-intensive and has carbon byproducts.
- What is now called brown hydrogen is created through coal gasification.
- At the moment, it's mainly produced industrially from natural gas, which generates significant carbon emissions.



- That type is known as “grey” hydrogen.
- A cleaner version is “blue” hydrogen, for which the carbon emissions are captured and stored, or reused.
- The cleanest one of all is “green” hydrogen, which is generated by renewable energy sources without producing carbon emissions in the first place.

How it is produced

- With electrolysis, all you need to produce large amounts of hydrogen is water, a big electrolyzer and plentiful supplies of electricity.
- If the electricity comes from renewable sources such as wind, solar or hydro, then the hydrogen is effectively green; the only carbon emissions are from those embodied in the generation infrastructure.
- The challenge right now is that big electrolyzers are in short supply, and plentiful supplies of renewable electricity still come at a significant price.
- Compared to more established production processes, electrolysis is very expensive, so the market for electrolyzers has been small.

Expensive but getting cheaper

- Conventional hydrogen and blue hydrogen cost about $2 per kilogram (though the price varies depending on where it's produced), while green hydrogen is around twice as much.
- That price, however, is falling steeply with renewable energy prices and cheaper costs to make equipment used for electrolysis, called electrolysers.

Uses

- Oil refining
- Methanol production
- Ammonia production
- Steel production
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Potential Uses

- Fuel-cell hydrogen electric cars and trucks
- container ships powered by liquid ammonia made from hydrogen
- "green steel" refineries burning hydrogen as a heat source rather than coal
- hydrogen-powered electricity turbines that can generate electricity at times of peak demand to help firm the electricity grid

- as a substitute for natural gas for cooking and heating in homes.

Issues

- Like any gas, hydrogen can be compressed and stored in tanks, then used as needed. However, the volume of hydrogen is much larger than that of other hydrocarbons; nearly four times as much as natural gas, for instance.
- Its storage requires compression to 700 times normal atmospheric pressure or refrigeration to minus 253 degrees Celsius, which is near absolute zero.
- It's estimated that the cost of doing this could add anything from 60 cents to $7 per kg, making it less competitive with other fuels.
- On top of the cost of storage, there's a problem with pipes.
- Hydrogen atoms under pressure are small enough to slip through solid steel, meaning natural gas plumbing often cannot be easily converted for pumping hydrogen.
- Appliances set up for natural gas, like stoves and heaters, would also need to be replaced or refitted to handle hydrogen.

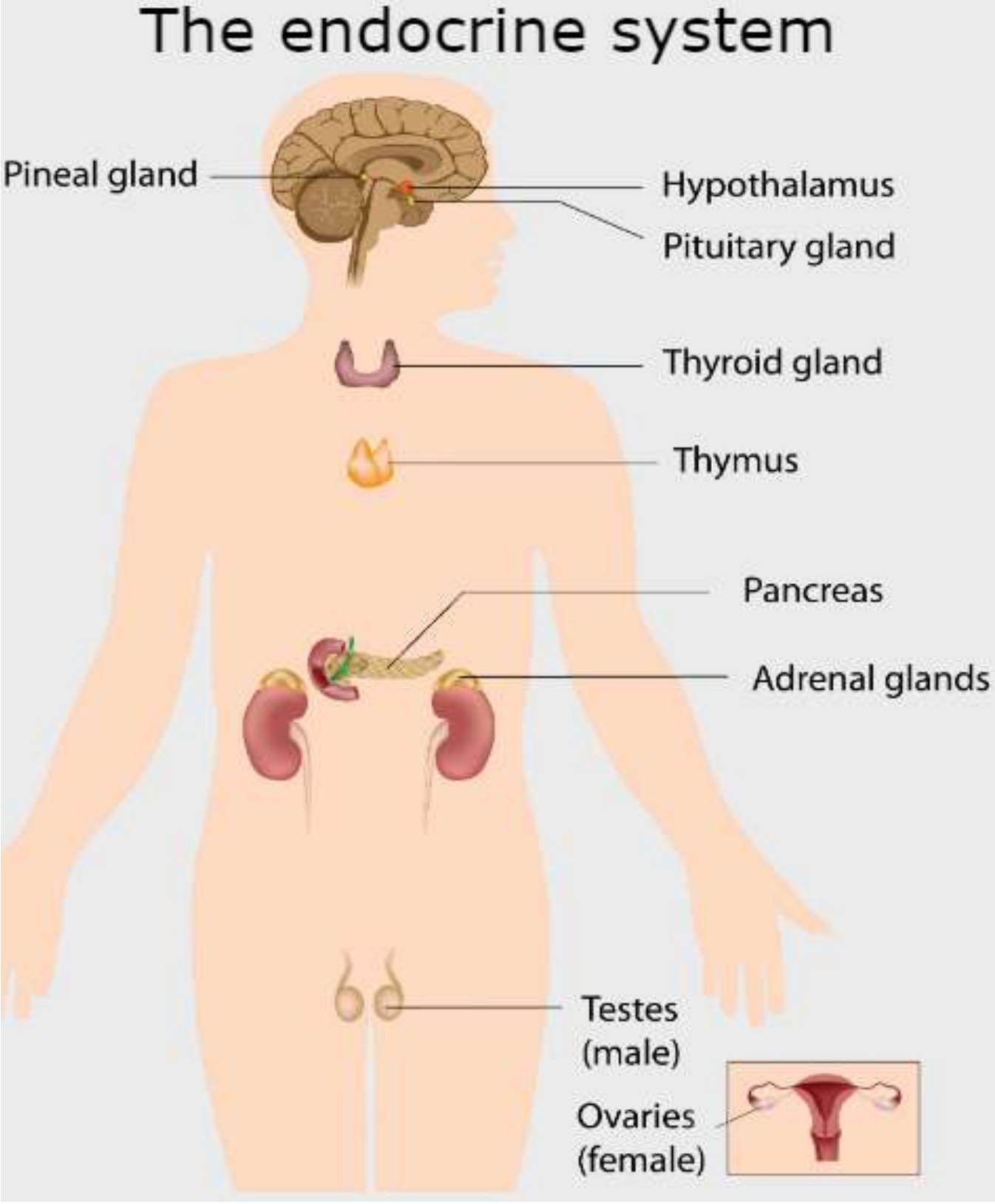
Turquoise Hydrogen

- A more recent addition to the hydrogen-production palette is turquoise.
- This is produced by breaking methane down into hydrogen and solid carbon using a process called pyrolysis.
- Turquoise hydrogen might seem relatively low in terms of emissions because the carbon can either be buried or used for industrial processes such as steelmaking or battery manufacturing, so it doesn't escape into the atmosphere.

4. Science & Technology

4.1.Endocrine Glands

- The endocrine system is a chemical messenger system comprising feedback loops of the hormones released by internal glands of an organism directly into the circulatory system, regulating distant target organs.



1	**Adrenaline**	Adrenal	Increases blood pressure, heart rate and metabolism in reaction to stress
2	**Aldosterone**		Controls salt and water balance in body
3	**Cortisol**		Stress response
4	**Dehydroepiandrosterone sulphate (DHEA)**		Aids in production of body odour and growth of body hair during puberty
5	**Estrogen**	Ovary	Regulates menstrual cycle, maintain pregnancy and develop female sex characteristics
6	**Progesterone**		Prepare the body for pregnancy when egg is fertilised
7	**Follicle Stimulating Hormone (FSH)**	Pituitary	Controls production of eggs and sperm
8	**Luteinizing Hormone (LH)**		Control estrogen and testosterone production as well
9	**Prolactin**		Promotes breast-milk production
10	**Oxytocin**		Lactation, childbirth and mother-child bonding
11	**Melatonin**	Pineal	Sleep wake cycles
12	**Testosterone**	Ovary, Teste, Adrenal	Contributes to sex drive and body density in males and females as well as development of male sex characteristics
13	**Thyroid Hormone**	Thyroid	Control several body functions, including rate of metabolism and energy levels

5. International Relations

5.1.Internet Connectivity in Far Flung Areas

Project Loon

- Google's parent company Alphabet has shut down project Loon in January 2021, that gave internet service from high-altitude balloons, after the unit failed to develop a viable business mode
- It was a part of Alphabet's X team, the moonshot factory
  - ✓ Loon was part of Moonshot until 2018 after which it moved on to become an independent company within Alphabet
- It was first unveiled in 2013 and aimed to give internet connections using giant helium balloons drifting on currents high in the stratosphere

Facebook Aquila

- Aquila was Facebook's bold stratosphere internet project that imagined gigantic drones running partially on solar power that could remain in flight for long periods of time and beam down LTE service to remote parts of the world
- Facebook abandoned its project in 2018