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MK Yadav Sir

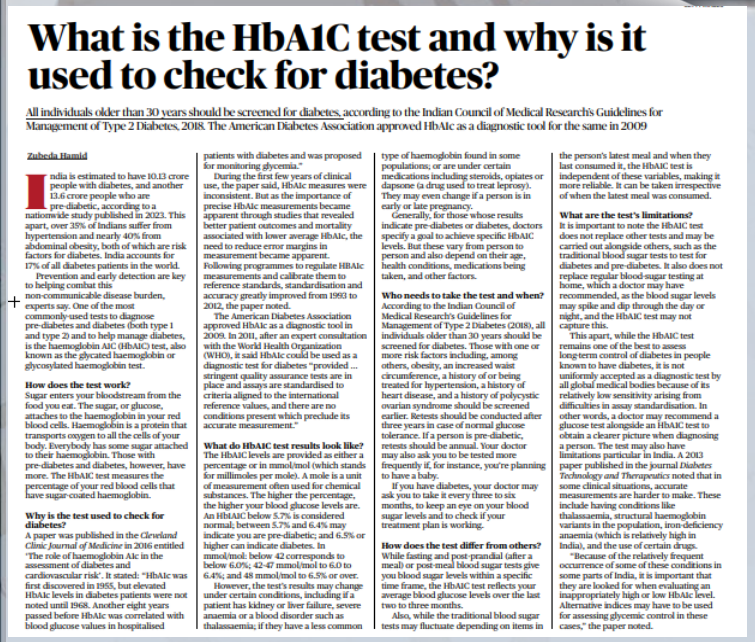
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HEMOGLOBIN A1C TEST

(Syllabus: GS Paper 3 – Sci and Tech)



What is the HbA1C test and why is it used to check for diabetes?

All individuals older than 30 years should be screened for diabetes, according to the Indian Council of Medical Research's Guidelines for Management of Type 2 Diabetes, 2018. The American Diabetes Association approved HbAlc as a diagnostic tool for the same in 2009

Zubeda Hamid

India is estimated to have 10.13 crore people with diabetes, and another 13.6 crore people who are pre-diabetic, according to a nationwide study published in 2023. This apart, over 35% of Indians suffer from hypertension and nearly 40% from abdominal obesity, both of which are risk factors for diabetes. India accounts for 17% of all diabetes patients in the world.

Prevention and early detection are key to helping combat this non-communicable disease burden, experts say. One of the most commonly-used tests to diagnose pre-diabetes and diabetes (both type 1 and type 2) and to help manage diabetes, is the haemoglobin A1C (HbA1C) test, also known as the glycated haemoglobin or glycosylated haemoglobin test.

How does the test work?

Sugar enters your bloodstream from the food you eat. The sugar, or glucose, attaches to the haemoglobin in your red blood cells. Haemoglobin is a protein that transports oxygen to all the cells of your body. Everybody has some sugar attached to their haemoglobin. Those with pre-diabetes and diabetes, however, have more. The HbA1C test measures the percentage of your red blood cells that have sugar-coated haemoglobin.

Why is the test used to check for diabetes?

A paper was published in the *Cleveland Clinic Journal of Medicine* in 2016 entitled "The role of haemoglobin A1c in the assessment of diabetes and cardiovascular risk". It stated: "HbA1c was first discovered in 1955, but elevated HbA1c levels in diabetes patients were not noted until 1968. Another eight years passed before HbA1c was correlated with blood glucose values in hospitalised patients with diabetes and was proposed for monitoring glycemia."

During the first few years of clinical use, the paper said, HbA1c measures were inconsistent. But as the importance of precise HbA1c measurements became apparent through studies that revealed better patient outcomes and mortality associated with lower average HbA1c, the need to reduce error margins in measurement became apparent. Following programmes to regulate HBA1c measurements and calibrate them to reference standards, standardisation and accuracy greatly improved from 1993 to 2012, the paper noted.

The American Diabetes Association approved HbAlc as a diagnostic tool in 2009. In 2011, after an expert consultation with the World Health Organization (WHO), it said HbAlc could be used as a diagnostic test for diabetes "provided ... stringent quality assurance tests are in place and assays are standardised to criteria aligned to the international reference values, and there are no conditions present which preclude its accurate measurement."

What do HbA1C test results look like?

The HbA1C levels are provided as either a percentage or in mmol/mol (which stands for millimoles per mole). A mole is a unit of measurement often used for chemical substances. The higher the percentage, the higher your blood glucose levels are. An HbA1C below 5.7% is considered normal; between 5.7% and 6.4% may indicate you are pre-diabetic; and 6.5% or higher can indicate diabetes. In mmol/mol: below 42 corresponds to below 6.0%; 42-47 mmol/mol to 6.0 to 6.4%; and 48 mmol/mol to 6.5% or over.

However, the test's results may change under certain conditions, including if a patient has kidney or liver failure, severe anaemia or a blood disorder such as thalassaemia; if they have a less common type of haemoglobin found in some populations; or are under certain medications including steroids, opiates or dapsone (a drug used to treat leprosy). They may even change if a person is in early or late pregnancy.

Generally, for those whose results indicate pre-diabetes or diabetes, doctors specify a goal to achieve specific HbA1C levels. But these vary from person to person and also depend on their age, health conditions, medications being taken, and other factors.

Who needs to take the test and when?

According to the Indian Council of Medical Research's Guidelines for Management of Type 2 Diabetes (2018), all individuals older than 30 years should be screened for diabetes. Those with one or more risk factors including, among others, obesity, an increased waist circumference, a history of or being treated for hypertension, a history of heart disease, and a history of polycystic ovarian syndrome should be screened earlier. Retests should be conducted after three years in case of normal glucose tolerance. If a person is pre-diabetic, retests should be annual. Your doctor may also ask you to be tested more frequently if, for instance, you're planning to have a baby.

If you have diabetes, your doctor may ask you to take it every three to six months, to keep an eye on your blood sugar levels and to check if your treatment plan is working.

How does the test differ from others?

While fasting and post-prandial (after a meal) or post-meal blood sugar tests give you blood sugar levels within a specific time frame, the HbA1C test reflects your average blood glucose levels over the last two to three months.

Also, while the traditional blood sugar tests may fluctuate depending on items in the person's latest meal and when they last consumed it, the HbA1C test is independent of these variables, making it more reliable. It can be taken irrespective of when the latest meal was consumed.

What are the test's limitations?

It is important to note the HbA1C test does not replace other tests and may be carried out alongside others, such as the traditional blood sugar tests to test for diabetes and pre-diabetes. It also does not replace regular blood-sugar testing at home, which a doctor may have recommended, as the blood sugar levels may spike and dip through the day or night, and the HbA1C test may not capture this.

This apart, while the HbA1C test remains one of the best to assess long-term control of diabetes in people known to have diabetes, it is not uniformly accepted as a diagnostic test by all global medical bodies because of its relatively low sensitivity arising from difficulties in assay standardisation. In other words, a doctor may recommend a glucose test alongside an HbA1C test to obtain a clearer picture when diagnosing a person. The test may also have limitations particular in India. A 2013 paper published in the journal *Diabetes Technology and Therapeutics* noted that in some clinical situations, accurate measurements are harder to make. These include having conditions like thalassaemia, structural haemoglobin variants in the population, iron-deficiency anaemia (which is relatively high in India), and the use of certain drugs.

"Because of the relatively frequent occurrence of some of these conditions in some parts of India, it is important that they are looked for when evaluating an inappropriately high or low HbAlc level. Alternative indices may have to be used for assessing glycemic control in these cases," the paper noted.

Context: India is estimated to have more than 10 crore people with diabetes, and another 13.5 crore people pre-diabetic, according to a nationwide study published in 2023.

Diabetes: Diabetes is a chronic, progressive **non-communicable disease** (NCD) characterized by high levels of **blood sugar** (blood glucose) in the body.

- **It occurs when**:
  - The **pancreas** does not produce enough of the **insulin hormone** that regulates blood sugar.
  - The body cannot effectively use the insulin it produces.
- **Type 1 diabetes:** It occurs when the pancreas **fails to produce sufficient insulin**. It is also called insulin-dependent diabetes.
- **Type 2 Diabetes:** It is most common form of diabetes, accounting for 95% of diabetes cases in adults. With Type 2 diabetes, the pancreas usually produces **some insulin**. But either the amount produced is **not enough** for the body's needs, or the body's cells are not able to **use the insulin** so produced.
- **Implications**: Diabetes disrupts the balance of insulin production or usage, leading to elevated blood sugar levels as glucose fails to enter cells effectively.

Non-Communicable Disease Burden in India

- **Prevalence of Hypertension and Obesity**: Over 35% of Indians suffer from hypertension, while nearly 40% are affected by abdominal obesity, both contributing to the risk of diabetes.
- **India's Global Diabetes Contribution**: India accounts for 17% of all diabetes patients worldwide, indicating a significant burden of the disease within the country.
- **Role of HbA1C Test:** The haemoglobin A1C (HbA1C) test is widely used for diagnosing pre-diabetes and both type 1 and type 2 diabetes, as well as for managing the condition effectively.

Hemoglobin A1C (HbA1c) Test

- **About:** The HbA1C test provides insight into your average blood sugar levels over a span of two to three months.
- **Importance of Glucose**: It derived from the foods we consume, serves as a vital energy source for our cells, facilitated by insulin.
- **Glucose-Hemoglobin Interaction**: Glucose adheres to hemoglobin, a protein in red blood cells, proportionate to blood glucose levels, forming a basis for the A1C test.

INDIAN EXPRESS Page 11

DEEPMIND SIMA
(Syllabus GS Paper 3 – Sci and Tech)

What is SIMA, Google DeepMind's new AI that can play video games

BIJIN JOSE
NEW DELHI, MARCH 17

GOOGLE DEEPMIND has revealed a new AI gaming "agent" called SIMA or Scalable Instructable Multiworld Agent, which can follow natural language instructions to perform tasks across video game environments. Simply put, it can play video games with human players.

SIMA is also a step closer to AI that can intelligently collaborate with humans in doing tasks, potentially in real-world environments.

What is SIMA?

Google DeepMind describes SIMA as an AI Agent, which is different from AI models such as OpenAI's ChatGPT . AI models are trained on vast datasets but are limited when it comes to working on their own. An AI Agent, however, can process data and act by itself.

SIMA can be called a generalist AI Agent that can perform a variety of tasks. It is a super-smart computer programme that can be thought of as a digital explorer, with the ability to understand user needs and help create things in the virtual world.

How does SIMA work?

SIMA "understands" commands, such as building a castle or finding a treasure chest, as it can process human language.

It is also capable of learning and adapting through the interactions it has with the user. The more one interacts with SIMA, the smarter it gets by learning from its experiences. This makes it better at understanding and fulfilling user requests.



SIMA showcasing human-like play in one of the games it was tested on. *Google DeepMind*

At the current stage of AI development, it is a major feat for an AI system to be able to play even one game. But SIMA can follow instructions in multiple game settings.

Google is hoping that SIMA and other AI agents will be able to use video games as sandboxes to understand how AI systems can be more helpful to humans in accomplishing tasks.

How was SIMA trained?

Google DeepMind collaborated with eight game studios to test SIMA on nine video games. With every game, SIMA's portfolio opened a new interactive world along with a range of skills for it to learn, such as navigation, menu use, mining resources, etc. It also used four research environments, including one built with the cross-platform game engine Unity.

Context: Google DeepMind recently revealed its latest AI gaming agent called SIMA, which stands for Scalable Instructable Multiworld Agent.

SIMA

- **About:** It is an AI Agent distinct from models like OpenAI's ChatGPT or Google Gemini.
- **As an AI Agent**:: Unlike AI models, SIMA can process data and take actions independently.
- **Versatility**: SIMA serves as a generalist AI Agent, proficient in various tasks across virtual environments.
- **Virtual Assistant**: Described as a virtual buddy, SIMA comprehends instructions and accomplishes tasks in diverse virtual settings.
- **Functionality**: SIMA functions as a super-smart computer program, capable of understanding user needs and facilitating their realization in virtual realms.
- **Working:**
  - **Language Comprehension:** SIMA "understands" your commands due to its training in processing human language.
  - **Learning and Adaptation**: SIMA learns and adapts through user interactions, becoming smarter over time.
  - **Versatility in Game Settings**: SIMA can follow instructions in various game settings, surpassing typical AI capabilities.
  - **Real-World Application**: Google DeepMind's research suggests translating advanced AI capabilities into practical actions through language interfaces, aiming to enhance the usefulness of AI agents like SIMA.

Training SIMA

- **Partnership with Game Developers**: SIMA was trained in collaboration with game developers, marking a significant milestone in AI research.
- **Collaboration with Google Deepmind**: Google Deepmind partnered with eight game studios to test SIMA on nine diverse video games, broadening its exposure.

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IPCC ASSESSMENT REPORTS

(Syllabus: GS Paper 3 – Env and Eco)

The problem of equity in IPCC reports

What underpins mitigation action in assessment reports by the UN Intergovernmental Panel on Climate Change? What are Integrated Assessment Models? Do these models follow the principle of equity? What did the latest study find with respect to over 500 future emissions scenarios?

EXPLAINER

Rishika Pardikar

The story so far:

In a study published on March 4, researchers analysed more than 500 future emissions scenarios the UN Intergovernmental Panel on Climate Change (IPCC) assessed in its latest reports. These scenarios relate to mitigation actions like reducing carbon dioxide emissions from burning fossil fuels and increasing carbon sequestration through forestry. It found that across all 556 scenarios, income, energy-use, and emissions disparities between developed and developing countries are projected to continue up to 2050.

What are IPCC assessment reports?

Typically, IPCC reports comprise three Working Group reports: one on physical science, one on climate adaptation, and one on mitigation action. One synthesis report consolidates findings from the three Working Group reports. Then there are thematic special reports. Each report assesses climate-related scientific literature to capture the state of scientific, technical, and socio-economic knowledge on climate change. The IPCC is currently in its Seventh Assessment cycle (AR7).

How does it assess future scenarios?

The IPCC uses 'modelled pathways' to estimate what it will take to limit the warming of the earth's surface. These pathways are drawn using Integrated Assessment Models (IAMs) that describe human and earth systems. IAMs are complex models that examine possible futures of the energy and climate system and economies. Its macroeconomic models can point to future growth levels in terms of GDP; its energy models can project future consumption; vegetation models can examine land-use changes; and earth-system models use the laws of physics to understand how climate evolves. With such integration across disciplines, IAMs are meant to provide policy-relevant guidelines on climate action. However, these models also have shortcomings. They prioritise least-cost assessments – for example, the absolute cost of setting up a solar plant or undertaking afforestation in India is lower than in the U.S. However, experts have said they could exercise the option of enabling countries to equitably share the burden of action, where the richest undertake more drastic mitigation action more immediately.



Equitable action: A solar thermal power plant in Marainalai Nagar, Tamil Nadu in 2023. FILE PHOTO

What did the new study find?

The study was conducted by Tejal Kanitkar and Akhil Mythri from the National Institute of Advanced Studies, Bengaluru, and T. Jayaraman from M.S. Swaminathan Research Foundation, Chennai. They assessed 556 scenarios in the IPCC's AR6 report and found they project that per-capita GDP across Sub-Saharan Africa, South Asia, West Asia and the rest of Asia, which together constitute 60% of the world's population, will be below the global average even in 2050. They spotted similar inequities between the Global North and the Global South vis-à-vis the consumption of goods and services and both energy and fossil fuel consumption.

The scenarios were also found to project higher carbon sequestration from land-based carbon sinks (like forests) and higher deployment of carbon capture and storage (CCS) technologies in developing countries compared to developed ones. Thus, poorer countries, they concluded, would bear the burden of both mitigation action and carbon dioxide removal and CCS. "Our analysis of the regional trends underlying the global modelled scenarios in the IPCC's [AR6] indicates that the scenarios disregard the notion of historical responsibility of the Global North," the authors wrote in their paper, adding the scenarios also "disregard" the future energy needs of the Global South to meet development goals.

Why does equity matter?

The principles of equity and common but differentiated responsibilities are enshrined in the UN Framework Convention on Climate Change (UNFCCC). Article 3 of the Convention states countries "should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof."

These principles recognise that while tackling climate change requires global action, richer countries are better placed to shoulder bigger climate action responsibilities than poorer ones. By viewing climate action solely through the lens of global-level technical and economic feasibility, mitigation pathways modelled using IAMs often run counter to equity principles, researchers say. "Equity in this sense would imply that developed regions need to accelerate towards net negative emissions and make the remaining carbon budget available to other less developed regions. However, the scenarios project precisely the opposite," they wrote in their paper.

In the study, the authors conclude that construction of IPCC scenarios will need to be both equitable and environmentally sound. "This is currently a major gap in the emissions modelling domain and we need to move towards model and scenario building techniques where questions of equity and climate justice come to the foreground," they wrote.

Rishika Pardikar is a freelance environment reporter based in Bengaluru

THE GIST

- In a study published on March 4, researchers analysed more than 500 future emissions scenarios the UN Intergovernmental Panel on Climate Change (IPCC) assessed in its latest reports.
- The scenarios were found to project higher carbon sequestration from land-based carbon sinks (like forests) and higher deployment of carbon capture and storage (CCS) technologies in developing countries compared to developed ones. Thus, poorer countries, they concluded, would bear the burden of both mitigation action and carbon dioxide removal and CCS.
- In the study, the authors conclude that construction of IPCC scenarios will need to be both equitable and environmentally sound.

Context: Recently, researchers published a study analyzing over 500 future emissions scenarios assessed by the UN Intergovernmental Panel on Climate Change (IPCC) in its latest reports.

IPCC Assessment Reports

- **About**: IPCC assessment reports encompass three primary Working Group reports: physical science, climate adaptation, and mitigation action.
- **Synthesis Report:** A synthesis report amalgamates insights from the three Working Group reports, offering a consolidated view of findings.
- **Thematic Special Reports:** In addition to the primary reports, there are thematic special reports focusing on specific areas of climate change.
- **Scientific Evaluation**: Each report rigorously evaluates climate-related scientific literature to present the current state of knowledge on climate change.
- **Seventh Assessment Cycle**:The IPCC is presently conducting its Seventh Assessment cycle (AR7), continuing its vital role in informing global climate action.

Intergovernmental Panel on Climate Change (IPCC)

- **Creation:** In 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).
- **Objective:** To provide governments at all levels with scientific information that they can use to develop climate policies.
- **Headquarter:** Geneva, Switzerland.
- **Membership:** It is an organization of governments that are members of the United Nations or WMO. The IPCC currently has 195 members.
- **Note:** The IPCC does not conduct its own research.
- In 2007, IPCC was awarded with the Nobel peace prize.

INDIAN EXPRESS

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CHAUSATH KHAMBA

(Syllabus: GS Paper 1 – History)

HOUSES THE TOMB OF EMPEROR AKBAR'S FOSTER BROTHER

Son's tribute to father, 'piece of Gujarat in Delhi': Story of Chausath Khamba

VIDHEESHA KUNTAMALLA
NEW DELHI, MARCH 17

AS ONE makes their way to the Nizamuddin dargah, the 14th-century shrine built to commemorate Sufi saint Hazrat Nizamuddin Auliya, a striking structure comes into view towards the right. Marked by marble pillars and exquisite lattice work, this is Chausath Khamba; literally translated to 64 pillars.

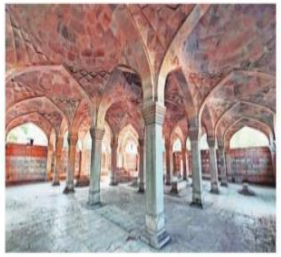
Built in 1623-24 AD, the structure houses the tomb of Mirza Aziz Koka, foster brother of Mughal Emperor Akbar.

As per the official conservation document by Aga Khan Trust for Culture: "The tomb enclosure is entered through a lofty arched gateway and has a large sunken forecourt. The mausoleum is unique on account of it being built entirely of marble, with 25 marble domes supporting the flat roof of the structure. The plan for Chausath Khamba could have been inspired from the wooden garden pavilions from Persia – such as the Chihil Sutun, and in turn, the Chausath Khamba seems to have inspired the architectural design for Emperor Shahjahan's Diwan-i-Aam, Hall of Audience."

It further states: "Each facade of the square structure has five marble arches inset with marble jalis or lattice screens, and a doorway in the central arch providing access to the tomb. The column capitals are intricately carved with simple yet striking pendentives bridging the square floor plan to the circular dome above."

Notably, in 2011-2014, the Aga Khan Trust for Culture along with the Archaeological Survey of India (ASI) undertook the conservation of Chausath Khamba. The project was co-funded by the Federal Republic of Germany.

According to author and historian Sam Dalrymple, the structure is a piece of Gujarat in Delhi. In a post on Instagram, he wrote: "It is basically a piece of Ahmedabad in the heart of Delhi... the Urs Mahal, where festivals would be held during the anniversary of Nizamuddin's death. Once again, it is in a purely Gujarati style... Compare the tomb to Ahmedabad's Sarkhej Roza, and you'll see what I mean."



The structure is near the Nizamuddin dargah. *Abhinav Saha*

PIN CODE 110001

Dalrymple said it was fascinating how regional architecture travelled across India centuries ago. "We often think of globalisation as a modern thing but nothing could be further from the truth," he said in the post.

Speaking to *The Indian Express*, historian Sohail Hashmi said, "The corner pillars of the structure... the four pillars together all on the outer side are double (joined together) which is why this structure becomes 64 pillars... Pre-Independence, the ASI carried out repairs. Those days, cement was used and that caused damage to the entire structure... all the stones of the domes were dismantled and many attempts were made to restore the structure... This particular monument was in a bad condition before the Aga Khan Trust took up its conservation."

The structure also finds mention in Sir Gordon Risley Hearn's book *The Seven Cities of Delhi*. "The mausoleum was erected by his (Mirza Aziz Koka's) son, Mirza Aziz Kokaltash, governor of several provinces under Akbar... Chausath Khamba... said to be as old as the shrine itself...," it read.

Context: Recently, as visitors journey to the Nizamuddin dargah, a 14th-century shrine honoring Sufi saint Hazrat Nizamuddin Auliya, their gaze falls upon a remarkable sight to the right. This striking structure, known as Chausath Khamba or "64 pillars," captivates with its marble pillars and intricate lattice work, adding to the allure of the surroundings.

Chausath Khamba

- **About**: constructed during 1623–24, stands as a testament to Mughal architectural brilliance in the heart of New Delhi's Nizamuddin precincts, dedicated to Sufi Muslim shrines and tombs.
- **Significance**: The name "Chausath Khamba" translates to "64 pillars" in Urdu and Hindi, aptly describing the architectural feature that distinguishes this monument.
- **Builder and Purpose**: Commissioned by Mirza Aziz Koka, son of Ataga Khan, during the reign of Mughal Emperor Jahangir, the structure served as a mausoleum for Mirza Aziz Koka himself.
- **Evolution of Structure**: Originally designed as a hall, the monument underwent a transformation into a tomb, showcasing an innovative blend of eclectic architectural styles typical of the Mughal era.
- **Architectural Features**: Constructed entirely of white marble, the square-shaped monument boasts 64 columns supporting twenty-five bays, each crowned with a dome, illustrating the grandeur of Mughal craftsmanship.

Hazrat Nizamuddin Auliya

- **Early Life**: Sultan-ul-Mashaikh, Khwaja Syed Muhammad Nizamuddin Auliya, born in 1238, hailed from a lineage of esteemed Sufi scholars within the Chishti Order.
- **Spiritual Eminence**: Hazrat Nizamuddin, also known as Mahbub-e-Ilahi, attained great spiritual heights, earning reverence as a Sufi saint.
- **Influence and Legacy**: He holds a significant place in the annals of Indian spirituality, being one of the most renowned Sufis from the Indian Subcontinent.
- **Chishti Spiritual Lineage**: Nizamuddin Auliya's spiritual lineage traces back to notable predecessors like Fariduddin Ganjshakar, Qutbuddin Bakhtiyar Kaki, and Moinuddin Chishti, who were pioneers of the Chishti Order in the Indian subcontinent.

PIB Mar 17

FLNAT
(Syllabus: GS Paper 2 – Education)

Foundational Literacy and Numeracy Assessment Test (FLNAT) to be Conducted Nationwide Under ULLAS - Nav Bharat Saaksharta Karyakram

Context: The Department of School Education and Literacy (DoSEL), Ministry of Education, Government of India, is set to conduct the **Foundational Literacy and Numeracy Assessment Test (FLNAT)** as part of the ULLAS - Nav Bharat Saaksharta Karyakram across 23 states.

Foundational Literacy and Numeracy Assessment Test (FLNAT)

- **About:** The Department of School Education and Literacy (DoSEL), Ministry of Education, administers FLNAT under the ULLAS program in 23 states.
- **Target Audience**: FLNAT is tailored to assess the foundational literacy and numeracy skills of non-literate learners who are registered for the program.
- **Components**: FLNAT evaluates proficiency in Reading, Writing, and Numeracy across its three subjects.
- **Previous Instances**: FLNAT has been conducted twice in 2023, in March and September, establishing a precedent for its administration.
- **Language Medium:** The test is conducted in learners' regional languages, aligning with NEP 2020's emphasis on multilingualism and local language instruction.
- **Educational Impact Assessment**: FLNAT plays a crucial role in evaluating the effectiveness of teaching-learning sessions conducted within the ULLAS program.
- **Certification Recognition**: Successful candidates receive certificates from the National Institute of Open Schooling (NIOS), acknowledging their acquisition of foundational literacy and numeracy skills.

Nav Bharat Saaksharta Karyakram

- **About:** It is a Centrally Sponsored Scheme approved by the Government of India for implementation during FYs 2022-27.
- **Alignment with National Education Policy**: The scheme aligns with the recommendations of National Education Policy (NEP) 2020.
- **Target Population**: It targets all non-literates of age 15 years and above in the country, focusing on females and educationally backward states.
- **Components**:
  - Foundational Literacy and Numeracy
  - Critical Life Skills
  - Basic Education
  - Vocational Skills
  - Continuing Education.
- **Implementation Strategy:** The scheme is to be implemented through volunteer teachers.

ECONOMIC TIMES

Mar 16

UNGA RESOLUTION

(Syllabus: GS Paper 2 – IR)

India abstains in UNGA on Pak resolution on Islamophobia, says religiophobia against Hinduism, Sikhism must also be acknowledged

Context: India recently abstained in the UN General Assembly on a draft resolution led by Pakistan and co-sponsored by China on Islamophobia, advocating for recognition of "religiophobia" against Hinduism, Buddhism, Sikhism, and other faiths, emphasizing the importance of acknowledging all religions facing discrimination and violence.

UNGA Resolution

- **Resolution on Islamophobia**: The 193-member General Assembly adopted the resolution 'Measures to combat Islamophobia', with a significant majority of 115 nations voting in favor, none against, and 44 abstentions.
- **India's Position on Religious Discrimination**: India's Permanent Representative to the UN, Ambassador Ruchira Kamboj, condemned acts of discrimination based on religion, including anti-Semitism, Christianophobia, and Islamophobia.
- **Acknowledgment of Broader Scope**: India emphasized the importance of acknowledging that phobias extend beyond Abrahamic religions, advocating for a broader understanding of religious discrimination.
- **Caution Against Precedent**: India cautioned against establishing a precedent that could lead to numerous resolutions focusing on phobias tied to specific religions, expressing concern about the potential division of the United Nations into religious camps.

UN General Assembly

- **Establishment**: In 1945 under the United Nations (UN) Charter
- **Member Countries**: All 193 members
- **UNGA President:** The UNGA is headed by its President, who is elected for a term of one year.
- **Composition:** United Nations General Assembly comprises all 193 Members of the United Nations.
- **Mandate:** provides a unique forum for multilateral discussion of the full spectrum of international issues covered by the Charter.

CURRENT ACCOUNT DEFICIT (CAD)

(Syllabus: GS Paper 3 – Economy)

Economists lower FY24 CAD forecast

Current account deficit may come in at 0.8-0.9%

PRIYANSH VERMA
New Delhi, March 17

THE NEAR 13-YEAR-HIGH services trade surplus in February has prompted economists to scale down their projections of India's current account deficit (CAD) for the current financial year.

Many of them now expect CAD to come in at 0.8%-0.9% of the gross domestic product (GDP) during the entire FY24, compared with their previous forecast of 1.1-1.2%.

"The services trade surplus has consistently risen since November 2023, narrowing the gap with the merchandise trade deficit, giving a fillip to the current account balance," Barclays economists said in a note.

India's overall trade deficit during February was a meagre $2 billion against $4.2 billion in January.

During February, the country's services trade surplus came in at $16.8 billion—the highest since April 2011—against $16.2 billion in January.

This was due to the record-high services exports, which stood at $32.2 billion in February compared with $31 billion in January.

Services imports, meanwhile, stood at $15.4 billion against $14.9 billion.

The services trade surplus since the past three months has stayed consecutively above the $16-billion mark, while the goods trade deficit has remained contained below $20 billion, leading to a sharp decline in the country's overall trade deficit.

CHANGE IN PROJECTIONS

FY24 CAD (% of GDP)

	Previous forecast	New forecast
IDFC FIRST Bank	1	0.9
ICICI Bank	1.1	0.9
I-SEC PD	1.1	0.8
ICRA	1.2	1
Emkay Global	1.2	0.8
CareEdge	1.2	1.1
QuantEco Research	1.3	0.8



In April-February, merchandise trade deficit has lowered 8.4% on year, while the services trade surplus has soared by 17.8%.

IDFC FIRST Bank economist Gaura Sengupta said that the pick-up in services surplus is led by the rise in software services and professional services exports.

"Post Covid-19, there has been a sustained rise in professional services surplus, reflecting the rise of global capability centres (GCCs)," she said.

On the goods front, economists say that concerns over an "adverse spillover" impact from the ongoing disturbance in the Red Sea region continues to evade India's official trade statistics.

"This hitherto suggests either better demand conditions or the fulfilment of past contractual trade orders (or a combination of both)," QuantEco Research said in a note.

The agency has cut its FY24 CAD estimate by 50 bps to 0.8% of GDP in the assumption of range-bound commodity price movement.

In a press-conference last Friday, commerce secretary Sunil Bhartwal said that the country has been able to withstand difficult times.

"Projections for world trade for 2024 are much better. For next year (FY25), we are quite optimistic," he said.

A jump in exports during February led to the overall exports—including goods and services—to rise 0.8% on year in the first 11 months of the current fiscal.

If this trend is sustained in March, net exports could turn positive in Q1FY24 after several quarters, pushing up the GDP.

For FY25, economists expect the positive growth in exports to continue, and therefore, most have pegged their estimates around 1%-1.2% of the GDP, down from 1.5-1.6% projected earlier.

"Positive momentum for non-IT services may be felt in FY25 as well, while goods and core IT exports could see slower growth. With Brent at $85 per barrel, FY25E CAD could stay comfortable at 1.1-1.2% of GDP," Madhavi Arora, lead economist at Emkay Global, said.

Context: The near-13 year high services trade surplus in February has prompted economists to scale down their projections of **India's current account deficit (CAD)** for the current financial year.

Current Account Deficit (CAD)

- **About:** It is a measurement of a country's trade where the value of the goods and services it imports exceeds the value of the products it exports.
- **Current Account Deficit Formula**: Current Account Deficit = Total value of Imports – Total value of Exports
- **Current Account includes**: Net income, such as interest and dividends, and transfers, such as foreign aid.
- **Current Account Represents**: A country's foreign transactions and, like the capital account, is a component of a country's balance of payments (BOP).
- **Current Account Deficit Components**: Trade Balance, Services Balance, Income Balance, and Transfers Balance.
- **Recent Status of India's CAD**: 1.0 per cent of GDP

Significance of Current Account Deficit

- **Indicator of Competitiveness:** The current account deficit serves as a crucial indicator of a nation's competitiveness, reflecting the balance between imports and exports.
- **Economic Imbalance Indicator**: A large current account deficit often signals economic imbalance, necessitating corrective measures like exchange rate depreciation or enhancing competitiveness over time.
- **Capital Inflows and Foreign Ownership**: Financing the current account deficit entails attracting capital inflows, often through foreigners purchasing domestic assets, consequently leading to a greater foreign claim on assets and dividends.

PIB Mar 17

EXERCISE "LAMITIYE-2024
(Syllabus: GS Paper 2 – IR)

INDIAN ARMY CONTINGENT DEPARTS FOR SEYCHELLES FOR JOINT MILITARY EXERCISE "EXERCISE LAMITIYE – 2024"

Context: Indian Army contingent participate in the Tenth edition of Joint Military Exercise "LAMITIYE-2024" between the Indian Army and Seychelles Defence Forces (SDF).

Exercise "LAMITIYE-2024

- **About:** Lamitiye, translating to "friendship" in Creole, is a training event held biennially in Seychelles since 2001.
- **Aim:** To enhance interoperability in Sub-conventional Operations in Semi-Urban environment under Chapter VII of the United Nations Charter on Peace Keeping Operations.
- **Building Bilateral Military Relations**: It seeks to build and promote bilateral military relations, exchanging skills, experiences, and good practices between both armies.
- **Joint Tactical Drills**: Both sides will jointly train, plan, and execute a series of well-developed tactical drills for neutralizing likely threats in a Semi-Urban environment, while showcasing new-generation equipment and technology.
- **Developing Mutual Understanding**: The exercise will contribute immensely to developing mutual understanding and magnifying jointness between the troops of both armies.

Seychelles

- **About:** It officially the Republic of Seychelles, is an island country located in the Indian Ocean, known for its stunning archipelago and diverse culture.
- **Geographical Features**
  - **Archipelagic State**: Seychelles comprises 115 islands, as specified in its Constitution, offering a rich variety of landscapes and ecosystems.
  - **Location**: Situated approximately 1,500 kilometers (800 nautical miles) east of mainland Africa, Seychelles enjoys a strategic position in the Indian Ocean.
- **Capital:** Victoria
- **Borders share with**: Comoros, Madagascar, Mauritius, Mayotte, Réunion, Maldives, and the Chagos Archipelago.

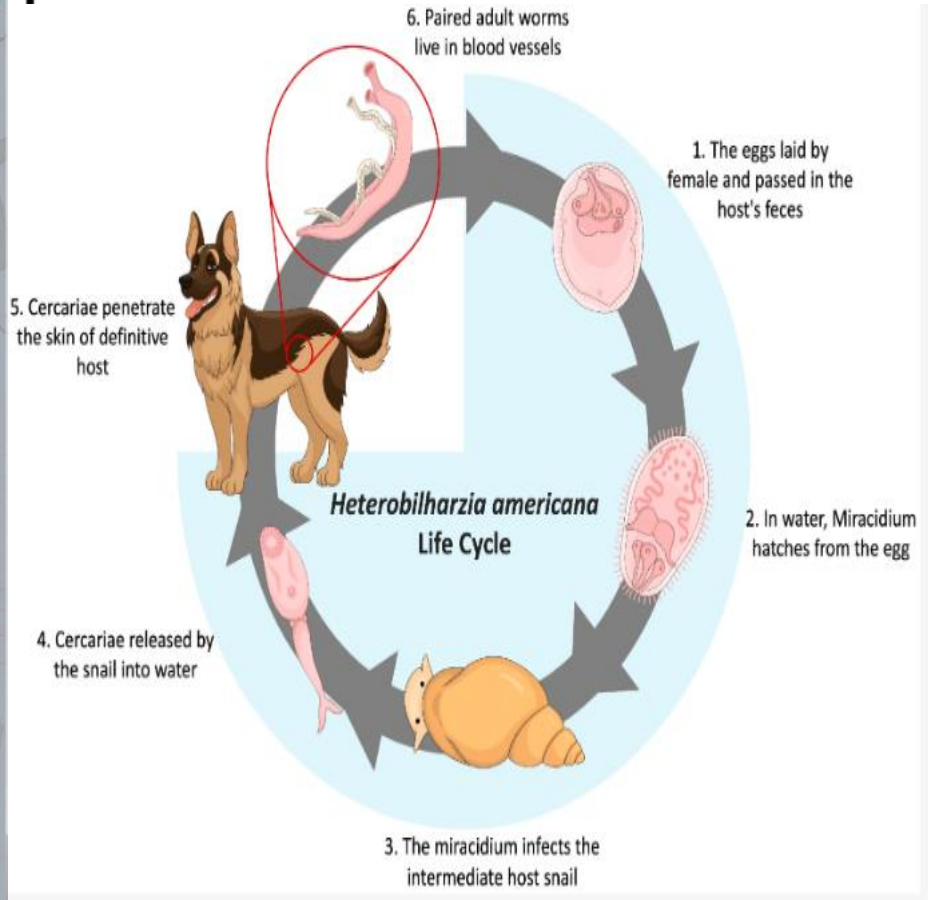
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Mar 17

HETEROBILHARZIA AMERICANA

(Syllabus: GS Paper 3 – Sci and Tech)

What is Heterobilharzia americana? US experts raise alarm over dog-killing parasite found in Colorado River



Context: In a first, Southern California discovered a **dog-killing flatworm parasite in the Colorado River** as scientists warn of its spread in other states.

Heterobilharzia americana

- **About:** It is a flatworm also called a liver fluke. It has now migrated to the west.
- **Found:** Texas and other Gulf states
- **Cause**: The worm responsible for canine schistosomiasis affects dogs' livers and intestines, posing a serious health risk.
- **Symptoms:** Lack of appetite, vomiting, diarrhea, weight loss, and signs of liver damage.
- **Human Infection Risk**: It does not typically infect humans, it can be transmitted.

Colorado River

- **About**: It is one of the principal rivers (along with the Rio Grande) in the Southwestern United States and in northern Mexico.
  - It originates in the Rocky Mountains of Colorado and flows through Utah, Arizona, Nevada, California, and Mexico before emptying into the Gulf of California in Mexico.

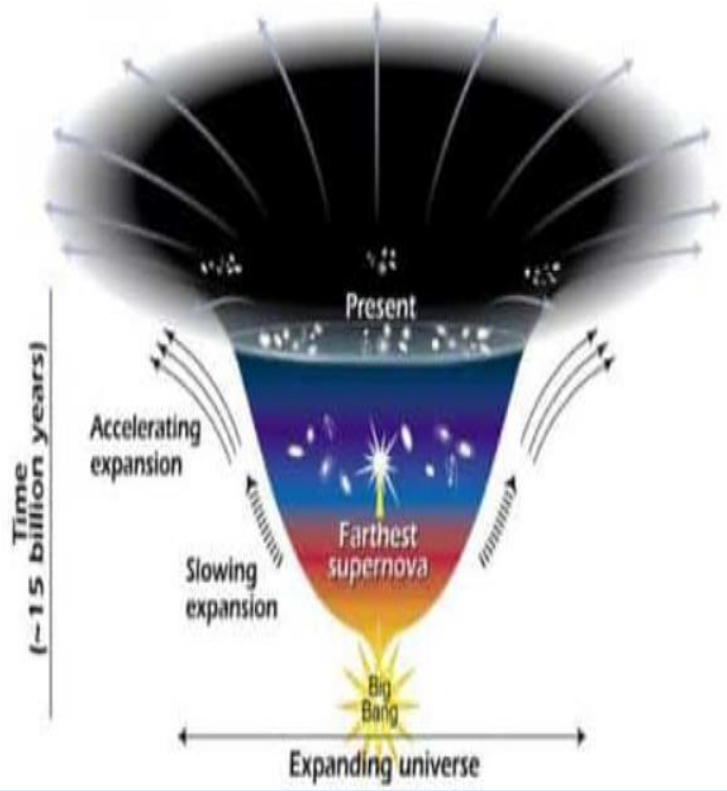
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DARK MATTER

(Syllabus: GS Paper 3 – Sci and Tech)

GALILEO: Scientists propose a new method to search for light dark matter



Context: New research in Physical Review Letters (PRL) has proposed a novel method to **detect light dark matter** candidates using laser interferometry to measure the oscillatory electric fields generated by these candidates.

Dark Matter

- **About:** It is a hypothetical form of matter that is believed to exist in the universe but is invisible and does not interact with light. It makes up over 80% of all matter in the universe.
- **Dark Energy: Dark energy** is an **invisible** force that works **against gravity,** thus, causing the **universe to expand.**
  - On the other hand, **Dark matter** exercises a **gravitational pull on the universe,** and more dark matter means universe will **contract**, and have a closed geometry, ending in a Big Crunch.
- **Universal Pressure:** Dark energy is a form of energy that fills the entire universe and exerts a negative pressure, pushing galaxies and other matter away from each other.
- **Features**: Unlike normal matter, **dark matter does not interact** with the electromagnetic force. This means it does not absorb, reflect or emit light, making it extremely hard to spot (It has **not been discovered** so far).
- **How do we know Dark Matter exists? -** Dark Matter has **mass,** hence the gravitational pull. Thus, it can only be detected by its gravity effects. We can **sense the dark matter** present in the galaxy based on the distortion it causes (for e.g. bending of light etc.)
- **Importance of Dark Matter**
  - **Structural Explanation**: Dark matter is essential to explaining the observed structure of the universe.
  - **Galactic Distribution**: It helps to account for the distribution of matter in galaxies and the cosmic web.
  - **Universal Understanding**: Understanding dark matter is important for developing a complete understanding of the universe and its evolution.

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