

NDA Monthly Compendium

July 2026

Compiled from in-window PIB press releases · 62 items



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How to use this digest

- Each entry is a **ready-to-revise note**: the **headline fact** an examiner would pin, with the static context (full form, year, ministry/body, related facts) built around it.
- Bold** marks the load-bearing detail to memorise.
- Tap any **PIB** link at the foot of an entry to open the original press release and verify or go deeper.
- Entries are grouped by theme; every figure is drawn from in-window PIB press releases.

Welfare (3)

• World Zoonoses Day: India's 'One Health' approach

Body: Ministry of Health & Family Welfare (One Health mission)

Detail: 'One Health' links human, animal and environmental health to pre-empt zoonotic spillovers (rabies, avian flu, Nipah); World Zoonoses Day marks Pasteur's first rabies vaccine (6 July 1885)

Exam hook: Zoonoses = animal-to-human diseases; One Health = integrated surveillance; World Zoonoses Day 6 July

• Focus on Non-Communicable Diseases and the 'metabolic nexus'

Body: Ministry of Health & Family Welfare

Detail: NCDs (diabetes, hypertension, heart disease, fatty liver, cancer) now cause the majority of deaths in India; driven by lifestyle/metabolic risk; tackled via NP-NCD screening and Ayushman Arogya Mandirs

Exam hook: NCDs = non-infectious lifestyle diseases; ~60%+ of Indian deaths; 'metabolic nexus' links obesity–diabetes–fatty liver

• CDSCO approves India's first dengue vaccine (Qdenga)

Body: CDSCO / Ministry of Health

Detail: Qdenga = live-attenuated tetravalent (all 4 DENV serotypes); dengue spread by the day-biting *Aedes aegypti* (breeds in clean water); vaccines create active immunity via antibodies

Exam hook: Live-attenuated vs killed vs subunit vs mRNA; herd immunity; DCGI heads CDSCO

Polity/Bodies (1)

• National Anti-Doping Act, 2022 (amended 2025) comes into force

Body: Ministry of Youth Affairs & Sports

Detail: Aligns India with the World Anti-Doping Code & the UNESCO Convention; gives NADA (2009) statutory status; NDTL is the WADA-accredited lab

Exam hook: WADA (1999, Montreal) vs NADA (2009, India); doping = banned performance enhancement

IR/Diplomacy (1)

• India–New Zealand Strategic Partnership (Roadmap to 2030), Auckland

Body: Ministry of External Affairs

Detail: Builds on India–NZ FTA concluded Dec 2025; NZ capital Wellington (largest Auckland), two main islands, Maori (Treaty of Waitangi 1840), Pacific Ring of Fire, Five Eyes, Commonwealth

Exam hook: Indo-Pacific partnership; NZ = Aotearoa; NZ dollar; All Blacks (rugby)

Defence (19)

• Indian Air Force structure and Vice Chief role decoded

Body: Indian Air Force (IAF)

Detail: IAF headed by Chief of the Air Staff (Air Chief Marshal); organised into 7 commands (5 operational + Training + Maintenance); frontline jets Rafale, Su-30MKI, Tejas; motto 'Nabha Sparsham Deeptam'

Exam hook: IAF ranks Air Chief Marshal → Air Marshal → Air Vice Marshal; Western Air Command (Delhi) largest; only 5-star = Marshal of the Air Force Arjan Singh

• INS Trikand foils piracy attempt in the Gulf of Aden

Body: Indian Navy

Detail: Frigate INS Trikand (Talwar-class), on anti-piracy patrol, thwarted a merchant-vessel hijack; India is a 'net security provider' in the Indian Ocean Region; Gulf of Aden links the Red Sea (Suez) to the Arabian Sea

Exam hook: Gulf of Aden choke-point near Bab-el-Mandeb; Indian Navy anti-piracy escort since 2008; INS Trikand = Talwar-class (Russian-origin) frigate

• Defence Acquisition Council clears ~Rs 52,000 crore of deals

Body: Defence Acquisition Council (DAC), chaired by the Defence Minister

Detail: DAC granted Acceptance of Necessity (AoN) for major buys; it is the apex body for capital defence procurement under DAP-2020; most under 'Buy (Indian-IDDM)' to boost indigenisation

Exam hook: DAC chair = Raksha Mantri; AoN = first procurement step; DAP-2020 prioritises Indian-Designed-Developed-Manufactured (IDDM)

• Indian Navy twin voyages: Singapore port call & INS Sudarshini in New York

Body: Indian Navy

Detail: Mission-based deployments and sail-training ship INS Sudarshini's goodwill visits project maritime diplomacy and 'bridges of friendship'; part of SAGAR / MAHASAGAR vision for the IOR

Exam hook: Naval diplomacy = soft power; SAGAR = Security & Growth for All in the Region; INS Sudarshini = sail-training ship (Kochi)

• 65,000 ordnance staff redeployed after OFB split into 7 DPSUs

Body: Ministry of Defence

Detail: The erstwhile Ordnance Factory Board (OFB) was corporatised (2021) into 7 Defence PSUs (e.g. Munitions India, Advanced Weapons & Equipment India, Yantra India) to boost efficiency, accountability and exports

Exam hook: OFB → 7 DPSUs in 2021; aim = corporate autonomy + defence exports; India targets Rs 50,000 cr defence exports

• INS Mahendragiri — 6th Project 17A stealth frigate commissioned (Eastern Fleet, Visakhapatnam)

Body: Indian Navy

Detail: Project 17A (Nilgiri-class) follow-on to Shivalik-class; built at GRSE/MDL; uses indigenous DMR-249A warship steel; Aatmanirbhar Bharat

Exam hook: P17A = stealth frigates; INS Mahendragiri joins Eastern Fleet at Visakhapatnam

• India–Rwanda 2nd Joint Defence Cooperation Committee (JDCC), New Delhi

Body: Ministry of Defence

Detail: Expands military training, exercises, medical cooperation, defence industries; MoU dates to 2018 (PM's first India visit to Rwanda); Rwanda capital Kigali, army = RDF

Exam hook: Defence diplomacy with Africa; India's defence exports Rs 21,083 cr (FY24), target Rs 50,000 cr by 2029

• 23rd India–Myanmar National Level Meeting on border & security, New Delhi

Body: Ministry of Home Affairs

Detail: India–Myanmar border ~1,643 km across Arunachal Pradesh, Nagaland, Manipur, Mizoram; Free Movement Regime (16 km) being scrapped + border fencing; Assam Rifles guards it

Exam hook: Golden Triangle narcotics; Kaladan project → Sittwe port; Neighbourhood First / Act East / MAHASAGAR

• DRDO flight-tests Pinaka Long Range Guided Rocket (LRGR) at ITR Chandipur

Body: DRDO / Indian Army

Detail: Pinaka = indigenous Multi-Barrel Rocket Launcher (named after Shiva's bow); designed by ARDE with HEMRL; guided variant reaches towards ~120 km; exported to Armenia

Exam hook: Rocket artillery = area saturation; 12 rockets in ~44 s; shoot-and-scoot

• INS Sudarshini (sail training ship) at US Naval Review 250 during Lokayan 2026

Body: Indian Navy

Detail: Three-masted barque, built Goa Shipyard, commissioned 2012, based Kochi (Southern Naval Command); 10-month Lokayan transoceanic voyage; follow-on of INS Tarangini (1997)

Exam hook: Naval diplomacy + maritime heritage; INSV Tarini = all-women circumnavigation (Navika Sagar Parikrama)

• Home Minister reviews the new Bureau of Port Security (BoPS)

Body: Ministry of Home Affairs

Detail: Coastal security overhauled after 26/11 (2008); three-tier grid — Navy (outer), Coast Guard (12 nm/EEZ), State Marine Police (shore); CISF to train port-security personnel; ISRO's Nabhmitra app for fishermen

Exam hook: IMAC Gurugram (NC3I) fuses maritime picture; exercises Sea Vigil / Sagar Kavach

• NCC & Sainik Schools strengthen the youth-to-forces pipeline

Body: Ministry of Defence

Detail: NCC (National Cadet Corps) raised 1948, motto 'Unity and Discipline'; Sainik Schools (from 1961, under Sainik Schools Society) feed the NDA; Rashtriya Military Schools & Rashtriya Indian Military College (RIMC, Dehradun)

Exam hook: NCC 1948; Sainik Schools 1961; RIMC 1922

• Kargil Vijay Diwas 2026: 'Shaurya Vijay Yatra' flagged off

Body: Ministry of Defence

Detail: Kargil War (May–Jul 1999) = Operation Vijay (Army) + Operation Sagar (IAF, Mirage-2000); fought along the LoC; Vijay Diwas = 26 July

Exam hook: 4 Param Vir Chakras — Batra & Manoj Pandey (posthumous), Yogendra Yadav & Sanjay Kumar (living)

• BRO Strategic Infrastructure Conclave — border roads remain indispensable

Body: Border Roads Organisation / Ministry of Defence

Detail: BRO raised 7 May 1960; builds strategic roads/bridges/tunnels; first project = Vartak (Arunachal); Himank (Ladakh); Atal Tunnel (9.02 km, Rohtang) & Sela Tunnel (Tawang)

Exam hook: roads = force multiplier for military logistics; Atal = world's longest highway tunnel above 10,000 ft

• IAF begins Exercise Pitch Black 2026 at RAAF Darwin (Rafale debut)

Body: Indian Air Force / Ministry of Defence

Detail: Pitch Black = RAAF's premier biennial multinational air-combat exercise; India joined in 2018, 2026 = first Rafale participation (+ C-17 support)

Exam hook: India-Australia — army=AUSTRAHIND, navy=AUSINDEX, air=Pitch Black; both in the Quad

• INS Malvan commissioned — Mahe-class ASW Shallow Water Craft

Body: Indian Navy

Detail: 2nd Mahe-class ASW-SWC, built by Cochin Shipyard, commissioned at Karwar; anti-submarine warfare uses sonar (sound travels far in water) + torpedoes/depth charges

Exam hook: Warship order carrier > destroyer > frigate > corvette > craft; INS Vikrant = 1st indigenous carrier; Arihant = nuclear-triad submarine

• Indian Coast Guard rescues 170 in Gujarat floods

Body: Indian Coast Guard / Ministry of Defence

Detail: ICG = India's 4th armed force (est. 1978, under the Ministry of Defence), motto 'Vayam Rakshamah'; roles = EEZ protection, search & rescue, anti-smuggling, coastal security

Exam hook: 3-tier coastal grid — Navy (outer), Coast Guard (EEZ), marine police (coast); zones 12/24/200 nm (UNCLOS)

• CRPF Raising Day and India's CAPFs

Body: Ministry of Home Affairs

Detail: The CRPF is the largest Central Armed Police Force, raised on 27 July 1939, with a role in internal security and anti-Naxal operations; its motto is 'Seva aur Nishtha'

Exam hook: CAPFs under the MHA — CRPF (internal security), BSF (Pakistan and Bangladesh borders), ITBP (China/LAC), SSB (Nepal and Bhutan), CISF (industrial and airport security); Assam Rifles guards the Myanmar border; the Armed Forces under the Defence Ministry handle external defence

• XWG Diesel for extreme cold — the chemistry

Body: Indian Army with oil marketing companies

Detail: Diesel contains paraffin wax that crystallises in cold, gelling the fuel and blocking filters; the cloud point is where wax first makes the fuel cloudy, the CFPP is where a filter blocks, and the pour point is where the fuel stops flowing; Extreme Winter Grade Diesel uses tailored refining plus cold-flow improver additives to remain usable to about minus 42 degrees Celsius

Exam hook: Developed for Siachen and Ladakh, replacing imported fuel — an Aatmanirbhar Bharat case study

Environment (4)

• Guinness record — 3.61 lakh saplings in 1 hour by the Miyawaki method (Gujarat)

Body: Ek Ped Maa Ke Naam campaign

Detail: Miyawaki method (by Japanese botanist Akira Miyawaki) = dense, native-species mini-forests that grow ~10x faster; 'Ek Ped Maa Ke Naam' launched 5 June 2024; India targets 2.5–3 bn t CO₂ carbon sink by 2030

Exam hook: ISFR/FSI (Dehradun) tracks forest cover; native vs exotic (eucalyptus)

• Urban Heat Island (UHI) effect in Indian cities

Body: Ministry of Housing & Urban Affairs

Detail: Cities warmer than rural areas (esp. at night) due to low-albedo concrete/asphalt, lost vegetation and waste heat; mitigate with green cover, cool roofs, water bodies

Exam hook: Albedo = reflectivity; evapotranspiration cools; NDMA Heat Action Plans; wet-bulb limits

• India begins first deepwater appraisal well in the Mahanadi basin

Body: Ministry of Petroleum & Natural Gas

Detail: Petroleum forms only in sedimentary rock (buried marine life), in reservoir rock under cap rock; India has ~26 sedimentary basins (Category I-IV); Mumbai High (ONGC 1974) = western offshore; KG & Mahanadi = eastern offshore

Exam hook: India imports ~85% of crude; Assam = oldest oil region (Digboi)

• International Tiger Day and Project Tiger

Body: NTCA / MoEFCC

Detail: Project Tiger was launched on 1 April 1973 with 9 reserves, beginning at Jim Corbett; the Wildlife (Protection) Act 1972 is the parent law and the NTCA became a statutory body under the 2006 amendment; India has 50-plus tiger reserves, 3,682 tigers (2022 estimate) and roughly 70–75% of the world's wild tigers

Exam hook: The tiger (Panthera tigris) is the National Animal, IUCN Endangered and CITES Appendix I; reserves have an inviolate core and a buffer; International Tiger Day is 29 July

Sci/Tech (28)

• GAGAN: India's satellite-based navigation augmentation in focus

Body: ISRO + Airports Authority of India (AAI)

Detail: GAGAN (GPS Aided GEO Augmented Navigation) is India's SBAS that improves GPS accuracy/integrity for aviation; distinct from NavIC (India's own regional navigation constellation, IRNSS)

Exam hook: GAGAN = SBAS (first for equatorial region); NavIC = 7-satellite regional system (~1,500 km beyond borders); both aid civil aviation & positioning

• ARCI 3D-prints crack-free bi-metallic superalloy part

Body: ARCI Hyderabad, under Dept of Science & Technology (DST)
Detail: Laser powder-bed fusion joined stainless steel (SS316L) to a nickel superalloy (Inconel IN718) crack-free, cutting superalloy imports; superalloys hold strength at extreme heat (jet engines, turbines)
Exam hook: Additive manufacturing = layer-by-layer (opposite of machining); superalloys resist 'creep' at high temperature; ARCI under DST

• OSAT chip facility at Sanand advances Semiconductor Mission

Body: India Semiconductor Mission (ISM), MeitY
Detail: OSAT (Outsourced Semiconductor Assembly & Test) / ATMP plants at Sanand (Gujarat) package and test chips; part of building an end-to-end chip ecosystem; complements fabs
Exam hook: OSAT/ATMP = assembly-test-marking-packaging (back-end); ISM under MeitY; Gujarat & Assam key semiconductor hubs

• Radio study reveals widespread faint black-hole activity in nearby galaxies

Body: Ministry of Science & Technology
Detail: Active galactic nuclei / supermassive black holes; radio astronomy detects faint accretion; India runs GMRT (Pune) — a giant metrewave radio telescope
Exam hook: Black holes at galactic centres; GMRT is India's radio-astronomy facility

• Homi Bhabha's legacy invoked at NISER Bhubaneswar; India's nuclear programme scales up

Body: Department of Atomic Energy
Detail: Homi Bhabha = father of India's nuclear programme; founded TIFR (1945), first AEC chairman; three-stage programme (uranium→plutonium→thorium); BARC, NISER under DAE
Exam hook: Stage 1 PHWR/uranium; Stage 2 fast breeder/plutonium; Stage 3 thorium/U-233; monazite sands

• Kavach 4.0 approved on 680 route km of Northern Railway (Rs 206 cr)

Body: Ministry of Railways
Detail: Kavach = India's indigenous Automatic Train Protection (ATP), developed by RDSO (Lucknow), earlier called TCAS; SIL-4 certified; prevents SPAD, over-speeding, collisions; auto-brakes; works in fog
Exam hook: ATP = Automatic Train Protection; European equivalent ETCS; RFID tags every km

• Digital India completes 11 years; DPI-led inclusion (eSaras)

Body: Ministry of Electronics & IT (MeitY)
Detail: Digital India launched 1 July 2015; Digital Public Infrastructure ('India Stack') = Aadhaar (UIDAI) + UPI (NPCI) + DigiLocker; JAM trinity (Jan Dhan–Aadhaar–Mobile) enables DBT
Exam hook: UPI = world's largest real-time payments; CoWIN, ONDC, Bhashini; CERT-In for cyber

• India's golden sweep — all 5 golds at the 56th International Physics Olympiad (Colombia)

Body: Department of Atomic Energy (HBCSE)
Detail: IPHO 2026 at Bucaramanga, Colombia; India World No. 1 (joint); talent trained by Homi Bhabha Centre for Science Education (HBCSE), a National Centre of TIFR under DAE; runs National Olympiad Programme
Exam hook: Science olympiads (IMO, IChO, IBO, IOI, IOAA); HBCSE selection ladder

• NIDAR 2.0 drone-innovation challenge launched

Body: MeitY / Drone Federation India
Detail: Drone = UAV; Drone Rules 2021 liberalised operation (Digital Sky platform, green/yellow/red zones); DGCA is the regulator; flagship uses — Namu Drone Didi, SVAMITVA
Exam hook: DGCA regulates drones (not TRAI/ISRO); India aims to be a drone hub by 2030

• CeNS Bengaluru builds an ultra-sensitive room-temperature ammonia sensor

Body: CeNS (autonomous, under DST)
Detail: Ammonia = NH₃ (pungent, weak base, made by Haber process, used in fertilisers/urea); sensor uses a vanadium oxide–sulfide (VOx/VS₂) nanostructure, detects ~319 ppb
Exam hook: DST/CeNS = nano-science; nanotech = 1–100 nm; chemiresistive sensing

• Cabinet approves Semicon 2.0 (Rs 1,27,500 crore)

Body: Union Cabinet / MeitY
Detail: Builds on the India Semiconductor Mission (2021, Rs 76,000 cr); six-pillar plan; chip chain = Design -> Fab -> ATMP/OSAT; fab at Dholera (Tata-PSMC), ATMP at Sanand (Micron)
Exam hook: semiconductor = controllable material (Si), doped into p-n junctions; ISM under MeitY

• Global tender for 10 GWh giga-scale Advanced Chemistry Cell (ACC) batteries

Body: Ministry of Heavy Industries
Detail: ACC = advanced high-energy cells (lithium-ion); a cell = anode + cathode + electrolyte, converting chemical->electrical energy; PLI ACC scheme (Rs 18,100 cr, 2021)
Exam hook: Li-ion = graphite anode + metal-oxide cathode; 2019 Chemistry Nobel; capacity in GWh

• India's first hydrogen fuel-cell train (Jind–Sonipat)

Body: Ministry of Railways
Detail: PEM fuel cell: H₂ + O₂ -> water + electricity (no combustion); green hydrogen = electrolysis using renewables (vs grey from natural gas); National Green Hydrogen Mission (2023, Rs 19,744 cr)
Exam hook: fuel cell runs while fuel is supplied (unlike a battery); emits water vapour

• Indian scientists trace the Sun's meridional flow into its upper atmosphere

Body: ARIES (under DST), Nainital
Detail: Meridional flow = plasma 'conveyor belt' (equator->poles) that controls the ~11-year solar cycle & sunspots; Sun's layers core->photosphere->chromosphere->corona; space weather affects satellites/GPS/grids
Exam hook: Sun runs on fusion; Aditya-L1 (2023) studies the corona from the L1 point

• Skyroot's Vikram-1 — India's first private orbital rocket

Body: Skyroot Aerospace (Hyderabad)
Detail: Launched from Sriharikota; India = 3rd country (after US, China) with private orbital launch; earlier Vikram-S (2022, 'Prarambh') was the first private suborbital; enabled by IN-SPACe (2020) & Space Policy 2023
Exam hook: rockets work on Newton's 3rd law; orbital velocity ~7.8 km/s; named after Vikram Sarabhai

• White Rabbit network to disseminate ultra-accurate Indian Standard Time

Body: Dept of Consumer Affairs / CSIR-NPL / ISRO
Detail: IST = UTC+5:30, meridian 82°30'E through Mirzapur; CSIR-NPL keeps time with caesium atomic clocks + a hydrogen maser (UTC(NPLI)); the SI second = 9,192,631,770 caesium-133 vibrations
Exam hook: 82.5° × 4 min = 330 min = 5h30m; NavIC needs atomic clocks

• India's Pumped Storage Projects (the 'water battery')

Body: Ministry of Power / CEA
Detail: Pump water to an upper reservoir with surplus power, release it at peak through reversible turbines to generate; energy chain potential->kinetic->mechanical->electrical; ~70-80% round-trip efficiency
Exam hook: PE = mgh; large-scale long-duration storage for renewables (500 GW non-fossil by 2030)

• India assesses its Rare Earth Permanent Magnet demand to 2030

Body: IREL / DMRL / BARC
Detail: Rare earths = 17 elements (15 lanthanides + Sc + Y); strongest permanent magnets = neodymium-iron-boron (NdFeB); vital for EV motors, wind turbines, electronics, defence; China dominates ~90% refining, ~95% magnets
Exam hook: India's reserves in monazite (beach sands, also thorium); IREL under DAE

• Borophene demonstrated as a green lubricant additive

Body: Ministry of Science & Technology
Detail: Borophene = a 2D sheet of boron (allotrope; cousin of graphene = 2D carbon); added to castor oil it cut friction ~40% (superlubricity); tribology = the science of friction/wear/lubrication
Exam hook: Boron = metalloid (element 5); graphene = carbon; 2020 Physics Nobel = graphene

• Study maps aerosols and their radiative effects on climate

Body: Ministry of Science & Technology

Detail: Aerosols = tiny particles suspended in air (dust, sea salt, soot, sulphates); dual effect — reflective ones (sulphates) COOL, dark ones (black carbon) WARM; measured as Aerosol Radiative Forcing

Exam hook: Distinct from greenhouse gases (which trap outgoing heat); South Asia = dust + pollution

• BioE3 Policy progress (high-performance biomanufacturing)

Body: Department of Biotechnology

Detail: BioE3 = Biotechnology for Economy, Environment & Employment (Cabinet Aug 2024); biomanufacturing = making products with cells/microbes/enzymes; six thematic sectors

Exam hook: Biotech colours — red (medical), green (agriculture), white (industrial), blue (marine); fermentation = oldest biotech

• New nanofluid electrolyte for rechargeable zinc-air batteries

Body: SASTRA University (Ministry of Science & Technology)

Detail: Zinc-air = a metal-air battery; zinc anode + oxygen drawn from air at the cathode + alkaline (KOH) electrolyte; high energy density, cheap/safe zinc; weakness = poor rechargeability (fixed by the new electrolyte)

Exam hook: Cell = anode + cathode + electrolyte; chemical → electrical energy

• Roundtable on reforming GM and gene-edited (GE) crop rules

Body: ICAR / TAAS

Detail: GM/transgenic = a foreign gene inserted (Bt cotton — only approved GM crop); gene editing (CRISPR) edits the plant's own DNA; SDN1/SDN2 (no foreign DNA) exempted from GEAC rules (2022); SDN3 = GM

Exam hook: GEAC (apex GM regulator) under MoEF&CC; Bt = *Bacillus thuringiensis*

• Blue straggler stars and stellar evolution

Body: Indian Institute of Astrophysics / ISRO ASTROSAT

Detail: A star is plasma powered by the fusion of hydrogen into helium; its life runs nebula to main sequence (most of its life) to red giant, ending as a white dwarf if low mass, or as a supernova leaving a neutron star or black hole if high mass; a blue straggler is a cluster star that looks younger and bluer than its true age because it gained mass from a companion or a merger

Exam hook: Studied using ASTROSAT (2015), India's first dedicated UV and X-ray space observatory

• PM Surya Ghar and how rooftop solar works

Body: Ministry of New & Renewable Energy

Detail: A solar PV cell is a silicon semiconductor p-n junction converting light directly into electricity by the photovoltaic effect; photovoltaic (light) differs from solar thermal (heat); the panel's DC output passes through an inverter to AC; net metering credits surplus power exported to the grid

Exam hook: PM Surya Ghar Muft Bijli Yojana (Feb 2024) subsidises rooftop solar for 1 crore homes; PM-KUSUM covers farm solar; the International Solar Alliance is headquartered at Gurugram; target 500 GW non-fossil capacity by 2030

• Gaganyaan — India's human spaceflight programme

Body: ISRO

Detail: Gaganyaan will carry three crew to about 400 km in low Earth orbit for up to three days aboard the Human-Rated LVM3 (HLVM3); a Crew Escape System handles aborts; the Orbital Module comprises the Crew Module and the Service Module; ECLSS provides life support — air, pressure and temperature; Vyommitra is the humanoid robot flying on uncrewed tests

Exam hook: The astronaut-designates are four IAF test pilots; Rakesh Sharma (1984) was the first Indian in space, aboard a Soviet mission

• NavIC and satellite navigation

Body: ISRO

Detail: NavIC (formerly IRNSS) is India's regional navigation system covering the country and about 1,500 km beyond, designed around seven satellites mixing geostationary and geosynchronous orbits, broadcasting in the L5 and S bands, with an open Standard Positioning Service and an encrypted Restricted Service for the military; accuracy is better than 20 m; a fix needs at least four satellites (three for coordinates, one to correct clock error) by trilateration

Exam hook: Global GNSS are GPS (US), GLONASS (Russia), Galileo (EU) and BeiDou (China); regional systems are NavIC (India) and QZSS (Japan)

• Deepfakes and India's AI regulation

Body: MeitY / CERT-In

Detail: A deepfake is AI-generated synthetic media (deep learning plus fake), typically produced using GANs where a generator and a discriminator compete; risks include election misinformation, voice-clone fraud, non-consensual imagery, national-security disinformation and the 'liar's dividend'

Exam hook: India's response rests on the IT Act 2000 and IT Rules 2021 (platform due diligence, prompt takedown, grievance officers, safe harbour as a condition), the BNS, the DPDP Act 2023 and the IndiaAI Mission's Safe and Trusted AI pillar

Infra (5)

• Kamarajar Port becomes India's 2nd Major Port with an 18-metre draft

Body: Ministry of Ports, Shipping & Waterways

Detail: Formerly Ennore Port (Tamil Nadu, Bay of Bengal); first corporatised Major Port; Capital Dredging Phase VI (Rs 440 cr) enables Capesize ships up to 1,70,000 DWT; after Visakhapatnam

Exam hook: Draft = depth ship sits; Capesize = too big for Suez/Panama; Kamarajar 'Cape Compliant'

• PV Sindhu wins the Japan Open 2026 (first Indian to do so)

Body: —

Detail: Sindhu (Hyderabad, coached by Pullela Gopichand): Olympic silver (Rio 2016) & bronze (Tokyo 2020) — first Indian woman with two individual Olympic medals; BWF World Champion 2019 (Basel)

Exam hook: BWF (HQ Kuala Lumpur); Thomas Cup (men)/Uber Cup (women); India won Thomas Cup 2022

• Anahat Singh wins the World Junior Squash Championship

Body: —

Detail: First Indian ever to be crowned junior world champion in squash; trained under Saurav Ghosal; squash = four-walled court + hollow rubber ball; world body = WSF (pro tour = PSA)

Exam hook: Squash debuts at the LA 2028 Olympics; India's stars — Ghosal, Joshna Chinappa, Dipika Pallikal

• India's national power grid and transmission

Body: Ministry of Power / Grid-India / POWERGRID

Detail: Power flows generation to a step-up transformer, transmission at 220, 400 or 765 kV, then step-down to 11 kV distribution and 230 V at the household; high voltage reduces current and therefore I-squared-R losses; transformers require AC, while HVDC suits very long bulk links

Exam hook: India's five regional grids were unified into one synchronous grid on 31 December 2013 — 'One Nation, One Grid, One Frequency' at 50 Hz — operated by Grid-India (formerly POSOCO) through the NLDC and RLDCs

• Khelo India and India's sports policy

Body: Ministry of Youth Affairs & Sports

Detail: Khelo India (2018) covers grassroots talent identification, sports infrastructure and the Khelo India Youth, University, Winter and Para Games; the Target Olympic Podium Scheme supports elite medal prospects through the Mission Olympic Cell; the Sports Authority of India (1984) implements training; National Sports Federations run individual sports

Exam hook: The Cabinet approved Rs 36,441 crore for Khelo India and assistance to NSFs for 2026-31; the IOA sends India's contingent to the Games

Other (1)

• Soil health & conservation push (Soil Health Card, natural farming)

Body: Ministry of Agriculture

Detail: Major soils — alluvial (most widespread, N. plains), black/regur (volcanic, best for cotton), red (crystalline rock, south), laterite (heavy rain); threats = erosion, salinisation, desertification

Exam hook: Soil profile A/B/C horizons; NPK macronutrients; World Soil Day 5 Dec